REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS ENVIRONMENTAL CENTRE: 2023 FOURTH QUARTER & ANNUAL MONITORING REPORT VOLUME 2B OF 5 – COMPLIANCE MONITORING APPENDICES H TO I

RWDI #2303459.01

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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 2023				
OW16-6	9.1	7.3	2,130	19.3
OW17-4	12.5	7.6	1,770	7.92
OW40D-4	14.4	7.5	2,160	570
OW54A-4	10.5	7.1	2,550	56.5
OW56-4	12.9	7.5	4,140	15.6
OW57-4	8.9	7.4	3,790	4.74
OW58-6	11.4	7.3	3,900	4.88
OW59-6	10.6	7.1	5,020	3.56
OW60-4	17.5	7.5	1,050	>999
OW67-4	10.7	7.5	890	>999
OW68-5	9.4	7.5	1,260	37.1
OW69-5	9.5	7.1	5,930	39.7
OW70B-5	10.1	7.1	2,470	16.7
OW71A-5	10.2	7.4	1,520	29.7
OW72-6	8.5	7.2	2,850	6.13
OW73-6	8.9	7.1	4,750	13.6
OW79-5	18.3	7.5	1,350	29.6
OW80-3	12.7	7.2	780	421
OW81-5	9.5	7.0	2,880	8.49
OW82-5	10.2	7.7	4,290	8.90
OW83-5	10.3	7.5	2,510	5.35
OW84-6	13.3	7.2	4,170	12.1
May 2023 - Verification Monitoring				
OW67-4	12.7	6.8	780	>999
November 2023				
OW16-6	8.0	6.9	2,020	13.1
OW17-4	11.9	7.2	3,220	63.2
OW54A-4	8.2	7.3	2,470	98.7
OW56-4	11.5	7.2	4,990	26.5
OW57-4	10.0	7.1	2,780	6.98
OW58-6	11.3	7.1	3,910	7.65
OW59-6	9.8	7.3	5,090	3.99
OW67-4	9.3	7.2	890	>999
OW68-5	10.3	6.9	1,340	5.61
OW69-5	11.3	6.7	5,920	12.9
OW70B-5	7.1	7.2	2,410	4.38
OW71A-5	9.4	7.0	1,530	16.4
OW72-6	10.8	7.0	3,070	6.95
OW73-6	11.6	7.0	4,660	92.2

NOTES: 1) µS/cm denotes microsiemens per centimetre.
2) NTU denotes nephelometric turbidity unit.

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 2023				
OW16-7	10.7	7.7	1,370	34.7
OW40A-7	14.9	7.5	3,220	230
OW46-7	12.3	7.5	4,590	6.42
OW47-6	12.3	7.8	4,880	40.5
OW54-10	9.5	7.3	2,490	99.5
OW57-15	10.0	7.3	3,240	29.5
OW58-17	11.3	7.3	3,940	7.04
OW60-8	15.2	7.8	840	54.8
OW67-11	11.5	7.1	1,640	86.5
OW72-10	9.4	7.2	3,130	30.6
OW73-9	9.7	7.4	3,780	13.6
OW79-7	18.3	7.1	1,770	28.7
OW80-6	12.1	7.4	1,520	65.4
OW81-7	9.8	6.8	2,590	54.5
OW82-14	9.8	7.6	2,890	82.4
OW83-9	9.6	7.5	1,880	93.1
OW84-11	10.1	7.6	3,050	46.6
November 2023				
OW16-7	8.6	7.1	1,510	27.3
OW46-7	11.2	7.6	4,750	8.16
OW47-6	12.3	7.1	4,350	50.2
OW54-10	7.9	7.5	2,630	17.4
OW57-15	10.3	7.3	3,250	10.3
OW58-17	11.0	7.4	6,270	6.27
OW67-11	9.0	7.1	1,650	65.5
OW72-10	9.8	7.1	2,990	102
OW73-9	11.6	7.4	4,250	19.6

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 2023				
OW19-29	11.3	7.5	2,710	9.77
OW39A-26	19.1	7.8	940	95.6
OW49-29	10.8	6.4	2,650	12.1
OW79-26	15.3	7.1	990	59.3
OW80-27	13.6	7.9	820	7.75
OW81-27	11.5	6.8	1,610	37.5
OW82-28	10.7	8.0	1,140	97.3
OW83-29	10.9	7.7	890	19.0
OW84-31	9.5	7.5	2,340	39.3
Cemetery Well	6.9	8.1	590	5.64
May 2023 - Verification Monitoring				
OW84-31	17.5	6.8	2,360	7.31
November 2023 - Verification Monitoring				
OW84-31	12.1	7.5	2,460	5.18

NOTES: 1) µs/cm denotes microsiemens per centimetre.
2) NTU denotes nephelometric turbidity unit

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	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**	**2-May-23**	**2-Nov-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**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	610	590
Conductivity	umho/cm		2100	2100	2000	2000	2000	2000	1900	1900	2000	1800	1800
Dissolved Barium (Ba)	mg/L	1*	0.012	0.012	0.012	0.012	0.014	0.012	0.013	0.013	0.012	0.012	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	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	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	120	120	110	120	120	120	130	120	120	120
Dissolved Chloride (Cl)	mg/L	250**	46	49	48	46	45	48	45	48	45	44	39
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	<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		110	100	100	98	110	110	100	110	100	100	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	3.4	3.3
Dissolved Potassium (K)	mg/L		5	4.6	4.9	4.4	4.8	4.8	4.7	4.7	7.2	5.2	5.1
Dissolved Sodium (Na)	mg/L	200**	230	230	220	200	210	210	190	190	180	170	170
Dissolved Sulphate (SO4)	mg/L	500**	460	450	430	390	430	410	410	410	390	390	380
Nitrate (N)	mg/L	10.0*	0.64	<0.10	<0.10	<0.10	0.1	<0.10	<0.10	<0.10	0.15	0.22	0.23
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	7.3	7.72
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.050	<0.15	0.32	6.64	1.29	<0.15
Total Dissolved Solids	mg/L	500	1230	1370	1280	1250	1330	1080	1230	1130	1090	1020	1070
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	0.1	<0.7	0.8	7.1	1.4	<0.7
Ion Percentage	%		10.1	7.3	7.5	6.4	8.5	10.2	6.8	8.6	5.4	6.0	7.8

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	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

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			**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

Parameter	Units	ODWQS	OW16-7	OW16-7
Date			**2-May-23**	**2-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	450	470
Conductivity	umho/cm		1370	1300
Dissolved Barium (Ba)	mg/L	1*	0.014	0.016
Dissolved Boron (B)	mg/L	5.0*	0.27	0.28
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		100	110
Dissolved Chloride (Cl)	mg/L	250**	4.5	3.8
Dissolved Iron (Fe)	mg/L	0.30**	0.6	3.6
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		77	81
Dissolved Organic Carbon	mg/L	5**	2.3	3.2
Dissolved Potassium (K)	mg/L		3.8	3.8
Dissolved Sodium (Na)	mg/L	200**	60	62
Dissolved Sulphate (SO4)	mg/L	500**	260	250
Nitrate (N)	mg/L	10.0*	0.37	0.18
pH	(pH units)	6.5-8.5	8.2	8.1
Total Ammonia-N	mg/L		<0.15	0.22
Total Dissolved Solids	mg/L	500	765	715
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7
Ion Percentage	%		4.5	7.3

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	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	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**	**3-May-23**	**3-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**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	450	420
Conductivity	umho/cm		2300	2500	2400	2000	2000	1600	2100	1600	3000
Dissolved Barium (Ba)	mg/L	1*	0.015	0.013	0.013	0.021	0.017	0.014	0.012	0.012	0.018
Dissolved Boron (B)	mg/L	5.0*	0.34	0.35	0.36	0.23	0.26	0.24	0.33	0.25	0.20
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		280	280	310	190	250	230	310	200	170
Dissolved Chloride (Cl)	mg/L	250**	30	31	33	35	32	32	28	21	24
Dissolved Iron (Fe)	mg/L	0.30**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.2	<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
Dissolved Magnesium (Mg)	mg/L		290	270	310	160	230	220	310	190	140
Dissolved Organic Carbon	mg/L	5**	3.8	3.4	3.5	3.2	3.1	3.1	7.8	3.4	6.7
Dissolved Potassium (K)	mg/L		3.8	3.1	3.8	1.6	2.3	2.0	3.6	2.2	2.7
Dissolved Sodium (Na)	mg/L	200**	120	110	120	79	98	93	120	82	66
Dissolved Sulphate (SO4)	mg/L	500**	880	1100	970	720	730	450	780	480	1500
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	0.29	0.16	0.14	<0.10	0.10
pH	(pH units)	6.5-8.5	7.7	7.9	7.9	8.0	8.1	8.1	7.8	8.1	7.8
Total Ammonia-N	mg/L		0.39	<0.15	<0.15	<0.050	<0.15	<0.15	0.31	<0.15	1.65
Total Dissolved Solids	mg/L	500	2190	1870	2350	1360	1230	1140	1800	1010	2920
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.2	<0.7	<0.7	<0.7	<0.70	2.1
Ion Percentage	%		25.2	14.8	24.5	6.6	20.7	30.6	31.5	24.0	25.9

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	OW19-29
Date			**26-May-16**	**19-May-17**	**10-May-18**	**14-May-19**	**8-May-20**	**20-May-21**	**4-May-22**	**2-May-23**
Laboratory			**Maxxam**	**Maxxam**	**Maxxam**	**Maxxam**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	200	190	210	190	190	190	190	190
Conductivity	umho/cm		2400	2500	2600	2400	2600	2500	2500	2500
Dissolved Barium (Ba)	mg/L	1*	0.007	0.007	0.006	0.007	0.007	0.007	0.006	0.007
Dissolved Boron (B)	mg/L	5.0*	2.2	2.1	2.2	2	2	2.2	2.3	2.1
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		190	180	200	190	180	190	200	190
Dissolved Chloride (Cl)	mg/L	250**	27	28	27	29	28	28	29	26
Dissolved Iron (Fe)	mg/L	0.30**	<0.10	<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
Dissolved Magnesium (Mg)	mg/L		100	91	97	95	94	96	93	94
Dissolved Organic Carbon	mg/L	5**	1.3	1.1	1.5	1.2	1.2	1.3	1.6	1.0
Dissolved Potassium (K)	mg/L		7.4	7.1	7.6	7	6.8	7.5	7.1	7.1
Dissolved Sodium (Na)	mg/L	200**	270	250	270	260	260	260	270	270
Dissolved Sulphate (SO4)	mg/L	500**	1100	1200	1100	1100	1100	1200	1100	1100
Nitrate (N)	mg/L	10.0*	<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	8.1	8.0	7.9	7.9	8.0	8.0	7.9
Total Ammonia-N	mg/L		0.5	0.43	0.5	0.53	0.47	0.484	0.45	0.58
Total Dissolved Solids	mg/L	500	1940	2000	1870	2070	2000	1810	1810	1760
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	0.6	<0.7	0.7
Ion Percentage	%		4.3	2.9	4.5	3.1	2.1	0.5	4.4	3.8

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	OW39A-26
Date			**17-May-17**	**8-May-18**	**15-May-19**	**6-May-20**	**21-May-21**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	190	300	300	300	300	280	300
Conductivity	umho/cm		530	880	890	960	940	950	820
Dissolved Barium (Ba)	mg/L	1*	0.07	0.066	0.054	0.055	0.054	0.081	0.074
Dissolved Boron (B)	mg/L	5.0*	0.75	0.35	1.7	1.5	1.8	1.8	1.7
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		24	33	30	29	32	21	26
Dissolved Chloride (Cl)	mg/L	250**	17	35	58	49	57	42	38
Dissolved Iron (Fe)	mg/L	0.30**	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
Dissolved Magnesium (Mg)	mg/L		12	9.3	18	19	22	14	17
Dissolved Organic Carbon	mg/L	5**	7.6	2.8	4.7	3.7	2.8	11	10
Dissolved Potassium (K)	mg/L		3.1	5.8	3.2	3.2	3.1	3.1	3.2
Dissolved Sodium (Na)	mg/L	200**	64	50	150	150	150	140	160
Dissolved Sulphate (SO4)	mg/L	500**	53	130	93	120	120	130	47
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	8.1	8.4	8.7	8.5	8.5	8.1	8.2
Total Ammonia-N	mg/L		0.29	0.23	0.39	0.18	0.278	0.22	0.33
Total Dissolved Solids	mg/L	500	328	535	585	500	475	495	485
Total Kjeldahl Nitrogen (TKN)	mg/L		0.8	<0.7	<0.7	<0.7	0.5	<0.7	<0.7
Ion Percentage	%		4.0	28.7	6.3	4.7	5.4	0.5	17.0

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	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	OW40D-4
Date			**7-May-20**	**20-May-21**	**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	440	350	390	390
Conductivity	mS/cm		3900	2000	2000	2100
Dissolved Barium (Ba)	mg/L	1*	0.011	0.009	0.012	0.015
Dissolved Boron (B)	mg/L	5.0*	0.56	0.4	0.33	0.22
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		330	280	210	150
Dissolved Chloride (Cl)	mg/L	250**	10	4.6	6.2	5.2
Dissolved Iron (Fe)	mg/L	0.3**	1.1	0.3	0.5	1.0
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	0.0006
Dissolved Magnesium (Mg)	mg/L		310	250	180	140
Dissolved Organic Carbon	mg/L	5**	2.9	3.1	3.9	3.5
Dissolved Potassium (K)	mg/L		5.4	4.9	4.2	3.6
Dissolved Sodium (Na)	mg/L	200**	170	140	120	88
Dissolved Sulphate (SO4)	mg/L	500**	2100	850	770	860
Nitrate (N)	mg/L	10.0*	<0.10	0.34	<0.10	0.13
pH	pH units	6.5-8.5	7.8	7.8	8.0	7.8
Total Ammonia-N	mg/L		<0.15	<0.050	<0.15	<0.15
Total Dissolved Solids	mg/L	500	3400	1740	1830	1520
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.3	<0.7	<0.7
Ion Percentage	%		2.0	26.6	15.0	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	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	OW40A-7
Date			**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	370	390
Conductivity	umho/cm		3000	3000
Dissolved Barium (Ba)	mg/L	1*	0.007	0.008
Dissolved Boron (B)	mg/L	5.0*	0.61	0.61
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		280	330
Dissolved Chloride (Cl)	mg/L	250**	7.2	5.2
Dissolved Iron (Fe)	mg/L	0.30**	1.0	1.2
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		250	280
Dissolved Organic Carbon	mg/L	5**	2.2	2.1
Dissolved Potassium (K)	mg/L		5.9	6.1
Dissolved Sodium (Na)	mg/L	200**	120	130
Dissolved Sulphate (SO4)	mg/L	500**	1500	1600
Nitrate (N)	mg/L	10.0*	0.4	0.32
pH	(pH units)	6.5-8.5	8.1	7.9
Total Ammonia-N	mg/L		<0.15	<0.15
Total Dissolved Solids	mg/L	500	2510	2610
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7
Ion Percentage	%		2.8	6.1

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	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

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			**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**	**3-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**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	340
Conductivity	umho/cm		2900	2700	2900	2800	3200	4300	3600	3600	3700	4500	4500	4900	4590
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	0.015
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	0.56
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	220	230	230	270	360	300	390	300	430	410	470	390
Dissolved Chloride (Cl)	mg/L	250**	14	14	13	14	14	13	14	13	14	13	14	13	12
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	<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		260	260	270	280	300	390	330	400	360	450	420	490	420
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	2.9
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	6.9
Dissolved Sodium (Na)	mg/L	200**	110	110	120	110	140	230	150	230	150	270	250	300	230
Dissolved Sulphate (SO4)	mg/L	500**	1500	1500	1400	1500	1800	2500	2000	2200	2200	3100	2800	3100	2800
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	0.14
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	7.5
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	<0.15
Total Dissolved Solids	mg/L	500	2500	2470	2400	2590	3010	4720	3210	3590	3600	3670	3960	4470	4090
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	<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	0.4

Parameter	Units	ODWQS	OW46-7
Date			**3-Nov-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	330
Conductivity	umho/cm		4400
Dissolved Barium (Ba)	mg/L	1*	0.027
Dissolved Boron (B)	mg/L	5.0*	0.59
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		390
Dissolved Chloride (Cl)	mg/L	250**	9.5
Dissolved Iron (Fe)	mg/L	0.3**	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		460
Dissolved Organic Carbon	mg/L	5**	3.7
Dissolved Potassium (K)	mg/L		7.0
Dissolved Sodium (Na)	mg/L	200**	230
Dissolved Sulphate (SO4)	mg/L	500**	2700
Nitrate (N)	mg/L	10.0*	0.17
pH	(pH units)	6.5-8.5	8.0
Total Ammonia-N	mg/L		<0.15
Total Dissolved Solids	mg/L	500	4450
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7
Ion Percentage	%		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	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	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**	**3-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**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	380
Conductivity	umho/cm		5000	4700	4800	4200	4500	4800	4800	4400	4800	4600	4400	4800	4700
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	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	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	<0.0001
Dissolved Calcium (Ca)	mg/L		470	450	460	460	450	450	450	450	450	480	400	470	460
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	4.0
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	<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	<0.0005
Dissolved Magnesium (Mg)	mg/L		510	460	490	450	470	480	460	460	470	490	420	490	530
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	2.1
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	7.9
Dissolved Sodium (Na)	mg/L	200**	220	190	220	210	220	210	220	220	230	220	240	220	230
Dissolved Sulphate (SO4)	mg/L	500**	3200	2900	2800	2600	2900	2900	2900	2900	3100	3200	2800	3100	3200
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	0.38
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	8.0
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	<0.15
Total Dissolved Solids	mg/L	500	5000	4770	4580	4190	4700	4580	4820	4860	4950	4330	4140	4210	4630
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	<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	2.1

Parameter	Units	ODWQS	OW47-6
Date			**3-Nov-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	390
Conductivity	umho/cm		4400
Dissolved Barium (Ba)	mg/L	1*	0.010
Dissolved Boron (B)	mg/L	5.0*	0.44
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		470
Dissolved Chloride (Cl)	mg/L	250**	4.1
Dissolved Iron (Fe)	mg/L	0.3**	0.20
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		440
Dissolved Organic Carbon	mg/L	5**	3.6
Dissolved Potassium (K)	mg/L		3.1
Dissolved Sodium (Na)	mg/L	200**	100
Dissolved Sulphate (SO4)	mg/L	500**	2700
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	7.7
Total Ammonia-N	mg/L		<0.15
Total Dissolved Solids	mg/L	500	4390
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7
Ion Percentage	%		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	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	OW49-29
Date			**3-May-22**	**1-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	100	110
Conductivity	umho/cm		2100	2100
Dissolved Barium (Ba)	mg/L	1*	0.010	0.010
Dissolved Boron (B)	mg/L	5.0*	1.7	1.5
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		140	140
Dissolved Chloride (Cl)	mg/L	250**	27	26
Dissolved Iron (Fe)	mg/L	0.3**	0.2	0.4
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		66	75
Dissolved Organic Carbon	mg/L	5**	1.5	1.1
Dissolved Potassium (K)	mg/L		6.6	6.3
Dissolved Sodium (Na)	mg/L	200**	250	250
Dissolved Sulphate (SO4)	mg/L	500**	950	960
Nitrate (N)	mg/L	10.0*	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.9	8.0
Total Ammonia-N	mg/L		0.63	0.77
Total Dissolved Solids	mg/L	500	1370	1430
Total Kjeldahl Nitrogen (TKN)	mg/L		0.7	1
Ion Percentage	%		2.3	3.0

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	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	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**	**2-May-23**	**1-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**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	620	630
Conductivity	umho/cm		2300	2400	2300	2200	2200	2300	2200	2200	2300
Dissolved Barium (Ba)	mg/L	1*	0.016	0.013	0.014	0.013	0.016	0.014	0.017	0.015	0.016
Dissolved Boron (B)	mg/L	5.0*	0.24	0.18	0.25	0.23	0.23	0.18	0.24	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
Dissolved Calcium (Ca)	mg/L		130	130	130	130	130	140	140	130	130
Dissolved Chloride (Cl)	mg/L	250**	26	29	26	24	23	28	25	23	21
Dissolved Iron (Fe)	mg/L	0.3**	1.2	<0.1	0.2	<0.1	1.1	<0.1	0.2	0.3	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	0.0023	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		200	190	190	200	200	200	200	200	200
Dissolved Organic Carbon	mg/L	5**	3.9	4.2	4.4	3.9	3.9	4.0	6.6	4.7	5.5
Dissolved Potassium (K)	mg/L		3.4	2.9	3.6	3.3	3.3	2.9	3.9	3.1	4.2
Dissolved Sodium (Na)	mg/L	200**	150	150	140	130	140	140	140	140	130
Dissolved Sulphate (SO4)	mg/L	500**	670	710	700	720	690	760	710	740	710
Nitrate (N)	mg/L	10.0*	0.16	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.30
pH	(pH units)	6.5-8.5	7.7	7.9	7.7	7.9	8.0	8.0	7.9	8.0	7.9
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	0.059	<0.15	<0.15	1.37	0.81	3.09
Total Dissolved Solids	mg/L	500	1610	1660	1670	1660	1560	1620	1540	1430	1690
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.1	<0.7	<0.7	1.6	1.1	3.5
Ion Percentage	%		9.0	5.8	5.6	6.2	7.0	5.6	6.3	5.3	5.6

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	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	OW54-10	OW54-10
Date			**3-May-22**	**1-Nov-22**	**2-May-23**	**1-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	330	330	320	330
Conductivity	umho/cm		2400	2400	2400	2400
Dissolved Barium (Ba)	mg/L	1*	0.011	0.013	0.012	0.011
Dissolved Boron (B)	mg/L	5.0*	0.95	1.0	0.95	0.97
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		170	180	180	170
Dissolved Chloride (Cl)	mg/L	250**	9.2	8.8	6.5	7.4
Dissolved Iron (Fe)	mg/L	0.3**	2.3	0.7	1.8	1.3
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		180	180	190	180
Dissolved Organic Carbon	mg/L	5**	2.0	2.1	1.8	2.4
Dissolved Potassium (K)	mg/L		4.5	4.5	4.6	4.6
Dissolved Sodium (Na)	mg/L	200**	160	150	150	160
Dissolved Sulphate (SO4)	mg/L	500**	1100	1100	1100	1000
Nitrate (N)	mg/L	10.0*	0.57	0.27	0.45	0.41
pH	(pH units)	6.5-8.5	8.0	7.9	8.12	7.8
Total Ammonia-N	mg/L		<0.15	0.26	0.16	<0.15
Total Dissolved Solids	mg/L	500	1920	1710	1710	1940
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		2.7	2.9	4.6	6.6

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	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	OW56-4	OW56-4
Date			**4-May-22**	**2-Nov-22**	**3-May-23**	**3-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	390	370	360	400
Conductivity	umho/cm		4800	4200	4100	4800
Dissolved Barium (Ba)	mg/L	1*	0.011	0.012	0.012	0.008
Dissolved Boron (B)	mg/L	5.0*	0.35	0.5	0.42	0.99
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		470	450	460	440
Dissolved Chloride (Cl)	mg/L	250**	5.8	7.4	5.4	5.1
Dissolved Iron (Fe)	mg/L	0.3**	0.30	2.30	0.90	0.5
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		420	470	460	450
Dissolved Organic Carbon	mg/L	5**	3.1	3.7	3.2	3.7
Dissolved Potassium (K)	mg/L		2.9	3.7	3.3	7.1
Dissolved Sodium (Na)	mg/L	200**	99	98	100	220
Dissolved Sulphate (SO4)	mg/L	500**	3000	2800	2100	3100
Nitrate (N)	mg/L	10.0*	0.36	0.14	0.37	0.36
pH	(pH units)	6.5-8.5	8.0	7.5	7.8	7.94
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	4340	3630	3740	4880
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.8	0.7	<0.7
Ion Percentage	%		5.4	0.3	13.1	2.2

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			**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	OW57-4	OW57-4
Date			**3-Nov-20**	**19-May-21**	**3-Nov-21**	**3-May-22**	**2-Nov-22**	**2-May-23**	**3-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	590	570	590	580	590	580	550
Conductivity	umho/cm		3600	3600	3500	3500	3600	3500	3600
Dissolved Barium (Ba)	mg/L	1*	0.006	0.007	0.007	0.007	0.009	0.006	0.005
Dissolved Boron (B)	mg/L	5.0*	0.43	0.37	0.39	0.35	0.45	0.37	0.34
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		340	340	340	360	340	340	260
Dissolved Chloride (Cl)	mg/L	250**	5.5	6.6	6.4	6.0	6.1	4.0	2.8
Dissolved Iron (Fe)	mg/L	0.3**	1.3	2.2	2.4	1.6	1.9	<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
Dissolved Magnesium (Mg)	mg/L		340	360	350	360	360	350	290
Dissolved Organic Carbon	mg/L	5**	3.5	3.6	3.2	3.1	3.8	3.3	3.4
Dissolved Potassium (K)	mg/L		4.7	4.3	4.8	4.1	4.6	4.1	4.4
Dissolved Sodium (Na)	mg/L	200**	130	140	130	140	130	130	110
Dissolved Sulphate (SO4)	mg/L	500**	1700	1900	1900	1800	1800	1900	1700
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.45
pH	(pH units)	6.5-8.5	7.6	7.6	7.8	8.0	7.6	7.9	7.8
Total Ammonia-N	mg/L		<0.15	<0.050	0.25	<0.15	0.2	<0.15	<0.15
Total Dissolved Solids	mg/L	500	3410	2880	2920	3160	2820	2740	3220
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.2	0.7	<0.7	0.9	0.7	<0.7
Ion Percentage	%		5.5	3.4	1.9	6.3	4.8	2.1	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	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	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**	**2-May-23**	**3-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**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	160	150
Conductivity	umho/cm		3000	3100	3000	2714	2900	3000	3000	3000	2900
Dissolved Barium (Ba)	mg/L	1*	0.009	0.009	0.009	0.009	0.01	0.009	0.01	0.009	0.009
Dissolved Boron (B)	mg/L	5.0*	1	1	1.2	1.1	1.1	1.2	1.2	1.1	1.4
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		270	280	290	290	300	290	310	270	280
Dissolved Chloride (Cl)	mg/L	250**	8.0	8.4	7.7	8.8	8.4	8.8	8.7	7.5	5.5
Dissolved Iron (Fe)	mg/L	0.3**	1.7	0.5	2.2	1.2	1.7	1.8	3.1	0.4	1.7
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
Dissolved Magnesium (Mg)	mg/L		190	210	210	200	210	210	220	200	210
Dissolved Organic Carbon	mg/L	5**	2.3	1.9	2.2	1.7	1.8	2.0	2.5	2.0	3.0
Dissolved Potassium (K)	mg/L		4.5	4.6	4.7	4.7	4.5	4.4	5	4.9	5
Dissolved Sodium (Na)	mg/L	200**	170	190	180	180	180	190	190	170	180
Dissolved Sulphate (SO4)	mg/L	500**	1500	1700	1600	1600	1800	1700	1600	1800	1600
Nitrate (N)	mg/L	10.0*	0.37	0.38	0.36	0.44	<0.10	0.80	<0.10	0.4	0.79
pH	(pH units)	6.5-8.5	7.7	7.9	7.7	8.1	7.9	7.9	7.8	7.9	7.8
Total Ammonia-N	mg/L		0.23	0.17	0.24	0.053	0.53	<0.15	1.08	0.18	0.5
Total Dissolved Solids	mg/L	500	2500	2750	2590	2710	2380	2570	2370	2410	2660
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.2	1.1	<0.7	1.2	<0.7	1.4
Ion Percentage	%		3.4	1.5	4.4	3.4	0.6	2.1	6.7	4.1	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.
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	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	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	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**	**2-May-23**	**2-Nov-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**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	370	360
Conductivity	umho/cm		3600	3800	3800	3900	3800	3700	3600	4900	3600	3700	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	0.008	0.008
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	0.65	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	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		390	390	370	390	400	400	390	470	410	400	410
Dissolved Chloride (Cl)	mg/L	250**	5.3	5.7	5	4.9	5.3	6.1	5.3	5.5	4.6	5.6	2.2
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	<0.1	1.2
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	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		270	260	250	260	260	270	270	460	270	270	280
Dissolved Organic Carbon	mg/L	5**	1.6	1.5	1.7	1.7	1.6	1.4	2.0	3.3	3.3	1.2	5
Dissolved Potassium (K)	mg/L		6.5	5.9	6	5.9	6.6	6.3	6.7	3.2	6.5	5.9	6.5
Dissolved Sodium (Na)	mg/L	200**	280	260	250	250	230	230	220	100	210	200	200
Dissolved Sulphate (SO4)	mg/L	500**	2100	2200	2000	2100	2100	2000	2100	3000	2100	2200	2000
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.47	<0.10	<0.10	<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	7.87	7.52
Total Ammonia-N	mg/L		0.22	<0.15	0.5	<0.15	0.22	<0.050	0.56	<0.15	0.16	<0.15	<0.15
Total Dissolved Solids	mg/L	500	3510	3580	3170	3580	3480	2880	3000	3310	2950	2900	3330
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.1	1.1	0.9	<0.7	<0.7	<0.7
Ion Percentage	%		2.9	0.4	1.4	1.2	0.7	3.9	0.6	2.9	1.5	1.3	4.4

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	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	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	OW58-17	OW58-17
Date			**3-Nov-20**	**18-May-21**	**3-Nov-21**	**3-May-22**	**2-Nov-22**	**2-May-23**	**2-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	66	69	65	64	64	68	66
Conductivity	umho/cm		3800	3545	3700	3800	3800	3900	3800
Dissolved Barium (Ba)	mg/L	1*	0.015	0.014	0.016	0.014	0.014	0.014	0.014
Dissolved Boron (B)	mg/L	5.0*	1.4	1.3	1.3	1.4	1.3	1.3	1.3
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		460	470	480	480	470	440	450
Dissolved Chloride (Cl)	mg/L	250**	8.6	9.5	8.4	8.4	9.5	7.7	6.1
Dissolved Iron (Fe)	mg/L	0.3**	0.6	0.5	0.9	0.9	<0.1	0.2	0.2
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		270	260	270	270	260	250	250
Dissolved Organic Carbon	mg/L	5**	2.1	1.8	1.9	1.5	2	1.7	5.7
Dissolved Potassium (K)	mg/L		4.8	4.6	4.5	4.3	4.9	4.2	4.1
Dissolved Sodium (Na)	mg/L	200**	190	190	190	200	200	180	180
Dissolved Sulphate (SO4)	mg/L	500**	2500	2500	2600	2400	2400	2500	2300
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	0.25	<0.10	0.25	0.36
pH	(pH units)	6.5-8.5	7.5	7.8	7.7	7.7	7.8	7.7	7.7
Total Ammonia-N	mg/L		0.53	0.194	0.31	0.31	0.24	<0.15	0.35
Total Dissolved Solids	mg/L	500	3660	3070	3490	3660	3370	3360	3670
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.3	0.8	0.9	<0.7	<0.7	0.8
Ion Percentage	%		0.3	0.7	1.3	3.0	1.8	3.3	1.3

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

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	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**	**2-May-23**	**3-Nov-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**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	430	420
Conductivity	umho/cm		5000	4500	4800	4900	5100	4900	4900	4800	4900	4900	5100	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	0.007	<0.03
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	0.75	0.8
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	<0.0001	<0.0005
Dissolved Calcium (Ca)	mg/L		420	430	440	420	430	440	430	460	450	430	460	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	4.5	3.5
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	<0.1	<0.5
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	<0.0005	<0.003
Dissolved Magnesium (Mg)	mg/L		430	410	460	430	440	440	470	470	460	460	460	440
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	2.4	3.0
Dissolved Potassium (K)	mg/L		7	7.1	6.6	6.8	6.4	6.8	7	6.9	6.6	6.4	6.2	6
Dissolved Sodium (Na)	mg/L	200**	330	340	330	310	320	310	310	300	290	290	270	260
Dissolved Sulphate (SO4)	mg/L	500**	3000	3000	3100	2700	3000	2900	3000	3100	3100	3200	3300	3000
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	<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	7.9	7.8
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	<0.15	<0.15
Total Dissolved Solids	mg/L	500	4570	4800	5000	4700	4860	4720	4280	4670	4830	4370	4370	4960
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	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	2.6	0.7

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	OW60-4
Date			**16-May-17**	**8-May-18**	**15-May-19**	**7-May-20**	**19-May-21**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	260	260	300	280	230	280	270
Conductivity	umho/cm		620	610	710	680	560	730	980
Dissolved Barium (Ba)	mg/L	1*	0.039	0.04	0.049	0.048	0.038	0.046	0.14
Dissolved Boron (B)	mg/L	5.0*	0.04	0.03	0.04	0.04	0.03	0.04	0.04
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002
Dissolved Calcium (Ca)	mg/L		80	81	93	94	79	97	210
Dissolved Chloride (Cl)	mg/L	250**	8.2	7.1	9.2	8.0	6.5	8.3	4.9
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	8.7
Dissolved Lead (Pb)	mg/L	0.01*	0.013	0.0086	0.0055	0.0047	0.0081	0.012	0.47
Dissolved Magnesium (Mg)	mg/L		23	23	30	26	24	29	51
Dissolved Organic Carbon	mg/L	5**	3.7	3.4	3.0	3.7	3.3	3.4	6.9
Dissolved Potassium (K)	mg/L		1.4	1.4	1.5	1.5	1.5	1.5	2.7
Dissolved Sodium (Na)	mg/L	200**	13	12	15	13	12	13	15
Dissolved Sulphate (SO4)	mg/L	500**	61	55	71	79	67	99	260
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	8.0	7.8	8.0	7.9	8.1	7.9
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.050	<0.15	<0.15
Total Dissolved Solids	mg/L	500	338	300	455	370	340	415	635
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	0.1	<0.7	<0.7
Ion Percentage	%		6.7	8.1	8.7	7.7	10.3	7.1	21.6

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	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	OW60-8
Date			**16-May-17**	**8-May-18**	**15-May-19**	**7-May-20**	**19-May-21**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	250		240	250	240	240	250
Conductivity	umho/cm		780	800	760	770	760	780	760
Dissolved Barium (Ba)	mg/L	1*	0.014	0.018	0.017	0.018	0.02	0.018	0.020
Dissolved Boron (B)	mg/L	5.0*	0.74	0.91	0.87	0.85	0.85	0.85	0.80
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		31	41	41	41	43	43	41
Dissolved Chloride (Cl)	mg/L	250**	7.6	8	8.1	8.6	8.8	8.8	6.6
Dissolved Iron (Fe)	mg/L	0.3**	<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	0.0007	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		23	29	29	28	28	26	27
Dissolved Organic Carbon	mg/L	5**	2	1.7	1.6	1.9	1.2	1.5	1.5
Dissolved Potassium (K)	mg/L		4.6	2.6	2.1	2.0	2.1	2.0	2.0
Dissolved Sodium (Na)	mg/L	200**	96	92	91	87	87	82	85
Dissolved Sulphate (SO4)	mg/L	500**	150	140	150	150	150	150	140
Nitrate (N)	mg/L	10.0*	<0.10	0.1	<0.10	<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	8.3
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.050	<0.15	<0.15
Total Dissolved Solids	mg/L	500	430	420	470	475	445	415	425
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.1	<0.7	<0.7
Ion Percentage	%		2.1		7.6	4.8	6.5	4.1	5.6

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-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	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**	**1-May-23**	**25-May-23**	**1-Nov-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**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	230	220	260
Conductivity	umho/cm		1300	770	970	840	600	880	690	780	1500	880	590	640	790
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	0.029	0.049	0.036
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	0.05	0.09	0.14
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	37	110	67	98	82	88	58	150	89	25	56	51
Dissolved Chloride (Cl)	mg/L	250**	31	15	15	12	8.1	14	12	18	23	60	13	18	<50
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	0.2	1.2	0.6
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	<0.0005	0.0019	0.0008	<0.0005
Dissolved Magnesium (Mg)	mg/L		44	12	36	21	33	24	28	17	110	24	5.9	15	13
Dissolved Organic Carbon	mg/L	5**	6.8	9	7	11	7.1	10	10	13	2.4	12	16	13	9.4
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	2.6	2.9	2
Dissolved Sodium (Na)	mg/L	200**	73	53	83	85	57	66	59	95	64	62	51	56	51
Dissolved Sulphate (SO4)	mg/L	500**	310	130	150	130	71	160	95	92	430	140	78	74	97
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	<5.0	0.10	<1.0
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	7.9	7.7	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	0.48	1.48	<0.15
Total Dissolved Solids	mg/L	500	770	500	610	495	465	615	350	495	1010	625	595	1070	ND
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	<1	13.0	<0.7
Ion Percentage	%		1.9	20.2	12.0	5.5	30.4	3.3	19.0	8.0	9.3	3.9	17.4	7.7	8.1

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.
5) ND denotes Not able to be Determined due to sample matrix interference.

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	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	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**	**1-May-23**	**1-Nov-23**
Laboratory			**Bureau Vertias**	**Bureau Vertias**	**Bureau Vertias**	**Bureau Vertias**	**Bureau Vertias**	**Bureau Vertias**	**Bureau Vertias**	**Bureau Vertias**	**Bureau Vertias**
Alkalinity (Total as CaCO3)	mg/L	30-500***	420	410	410	400	420	410	420	380	380
Conductivity	umho/cm		1500	1500	1500	1500	1500	1500	1500	1400	1400
Dissolved Barium (Ba)	mg/L	1*	0.0	0.0	0.018	0.019	0.022	0.019	0.019	0.018	0.02
Dissolved Boron (B)	mg/L	5.0*	0.5	0.5	0.56	0.51	0.53	0.47	0.58	0.43	0.44
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		140	150	140	140	150	150	140	140	130
Dissolved Chloride (Cl)	mg/L	250**	33	32	32	24	31	30	25	29	27
Dissolved Iron (Fe)	mg/L	0.3**	0.4	0.6	0.2	0.7	3.0	0.8	0.3	<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
Dissolved Magnesium (Mg)	mg/L		110	110	100	100	100	110	100	97	94
Dissolved Organic Carbon	mg/L	5**	2.8	2.8	3.2	2.8	2.8	2.8	2.8	3.0	4.1
Dissolved Potassium (K)	mg/L		4.3	4.6	4.3	4.5	4.3	4.3	4.4	4.4	5.3
Dissolved Sodium (Na)	mg/L	200**	59	56	57	53	54	53	57	48	48
Dissolved Sulphate (SO4)	mg/L	500**	390	410	400	410	410	430	430	390	360
Nitrate (N)	mg/L	10.0*	<0.10	0.3	0.43	0.14	<0.10	0.26	0.1	0.43	0.31
pH	(pH units)	6.5-8.5	7.8	7.9	7.8	8.1	8.0	7.9	7.9	8.0	7.8
Total Ammonia-N	mg/L		0.6	0.5	0.37	0.652	1.01	0.43	0.62	0.36	5.43
Total Dissolved Solids	mg/L	500	1030	1070	1050	1010	1010	1070	980	915	950
Total Kjeldahl Nitrogen (TKN)	mg/L		1.0	0.7	<0.7	0.8	1.3	<0.7	0.7	<0.7	5.2
Ion Percentage	%		8.2	8.5	5.7	5.8	5.6	7.0	3.8	6.4	6.5

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-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	
Dissolved Sodium (Na)	mg/L	200**	53	45	33	41	41	50	46	43	34	32	34	40	DRY
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		71	68	69	70			70
Dissolved Organic Carbon	mg/L	5**	2.3	2.3	3.4	2.8	2.1	DRY	2.8	2.8	3	2.6	DRY	DRY	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	OW68-5	OW68-5
Date			**4-Nov-20**	**20-May-21**	**2-Nov-21**	**4-May-22**	**2-Nov-22**	**2-May-23**	**2-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	460	470	470	480	480	500	470
Conductivity	umho/cm		1100	1100	1100	1100	1100	1000	1200
Dissolved Barium (Ba)	mg/L	1*	0.033	0.034	0.034	0.035	0.037	0.038	0.033
Dissolved Boron (B)	mg/L	5.0*	0.09	0.08	0.09	0.08	0.1	0.09	0.10
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		100	100	100	110	110	110	110
Dissolved Chloride (Cl)	mg/L	250**	8.6	9.1	8.5	9.9	9.8	7.6	6.1
Dissolved Iron (Fe)	mg/L	0.3**	0.2	<0.1	0.2	<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		82	84	79	85	81	91	82
Dissolved Organic Carbon	mg/L	5**	3	2.8	2.6	2.6	2.9	2.6	2.5
Dissolved Potassium (K)	mg/L		2.5	2.1	2.5	1.9	2.6	2.0	2.6
Dissolved Sodium (Na)	mg/L	200**	38	39	36	39	36	36	37
Dissolved Sulphate (SO4)	mg/L	500**	180	180	180	180	180	170	170
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	7.9	8.0	8.0	8.0	7.8	7.6	7.7
Total Ammonia-N	mg/L		<0.15	<0.050	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	660	615	655	590	590	630	630
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.1	<0.7	<0.7	<0.7	<0.7	<0.7
Ion Percentage	%		8.2	8.2	6.3	9.5	7.9	10.5	10.4

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	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**	**2-May-23**	**3-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**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	690	690
Conductivity	umho/cm		5700	5800	5800	5800	5800	5800	5800	5900	5700
Dissolved Barium (Ba)	mg/L	1*	0.009	<0.03	0.009	<0.03	0.009	0.007	0.009	0.008	0.009
Dissolved Boron (B)	mg/L	5.0*	0.83	0.9	1.1	1.0	0.9	0.94	1.1	0.9	0.99
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0005	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		450	450	460	460	470	500	460	480	470
Dissolved Chloride (Cl)	mg/L	250**	10	11	11	11	11	12	11	8.9	6.9
Dissolved Iron (Fe)	mg/L	0.3**	2.2	3.1	3.2	3.5	3.4	3.3	3.1	1.6	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		620	630	620	660	640	640	650	650	630
Dissolved Organic Carbon	mg/L	5**	2.8	2.6	2.8	2.3	2.7	2.8	3	2.5	3.2
Dissolved Potassium (K)	mg/L		6.2	6.0	6.8	6.0	6.7	5.9	6.6	5.9	6.3
Dissolved Sodium (Na)	mg/L	200**	270	280	290	290	290	300	290	290	290
Dissolved Sulphate (SO4)	mg/L	500**	3100	3300	3600	3800	3700	3500	3700	3900	3500
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12
pH	(pH units)	6.5-8.5	7.3	7.5	7.4	7.5	7.7	7.7	7.4	7.7	7.64
Total Ammonia-N	mg/L		0.36	0.15	0.16	0.162	0.15	<0.15	0.17	<0.15	<0.15
Total Dissolved Solids	mg/L	500	5690	5590	6160	5440	5430	5780	4950	5790	5990
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.3	0.9	0.9	0.9	1.0	<0.7
Ion Percentage	%		5.3	3.0	0.5	0.8	0.5	3.0	0.3	1.8	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

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	COMPROMISED DURING CONSTRUCTION ACTIVITIES
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	

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	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***	DRY	DRY	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				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	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	OW70B-5	OW70B-5
Date			**18-May-21**	**2-Nov-21**	**5-May-22**	**1-Nov-22**	**1-May-23**	**13-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	600	630	610	650	620	590
Conductivity	umho/cm		2100	2000	2100	2000	2100	2000
Dissolved Barium (Ba)	mg/L	1*	0.011	0.012	0.011	0.012	0.010	0.012
Dissolved Boron (B)	mg/L	5.0*	0.43	0.46	0.42	0.51	0.39	0.42
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		110	120	120	130	110	120
Dissolved Chloride (Cl)	mg/L	250**	7.0	6.4	6.8	7.2	6.0	5.5
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	0.3	0.1	1.40	<0.1	0.2
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		200	210	210	220	190	200
Dissolved Organic Carbon	mg/L	5**	2.7	2.6	2.7	2.7	2.8	8.2
Dissolved Potassium (K)	mg/L		4.3	4.9	4.1	5.2	4.1	4.4
Dissolved Sodium (Na)	mg/L	200**	90	88	92	94	82	89
Dissolved Sulphate (SO4)	mg/L	500**	620	650	630	590	630	650
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	7.8	7.9	8.0	7.9	8.2	8.3
Total Ammonia-N	mg/L		<0.050	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1300	1330	1390	1320	1360	1550
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.1	<0.7	<0.7	<0.7	<0.70	<0.7
Ion Percentage	%		6.3	6.3	8.1	11.1	2.9	6.2

Parameter	Units	ODWQS	OW71-5	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	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**	**1-May-23**	**2-Nov-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**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	420	440
Conductivity	umho/cm		1200	1200	1100	1200	1200	1300	1300	1300	1300	1300	1300	1400	1400
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	0.077	0.063
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	0.11	0.14
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		100	100	110	110	110	110	120	120	120	130	120	140	130
Dissolved Chloride (Cl)	mg/L	250**	22	24	26	27	26	27	28	29	29	30	32	30	25
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	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	<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	100	97
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	3.5	6.5
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	2.6	3.1
Dissolved Sodium (Na)	mg/L	200**	38	37	39	35	39	36	37	40	41	41	39	42	41
Dissolved Sulphate (SO4)	mg/L	500**	190	210	210	230	190	240	230	280	270	300	270	340	300
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	0.27
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	8.1	7.8
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	<0.15	0.27
Total Dissolved Solids	mg/L	500	690	675	675	750	745	775	830	730	805	810	665	845	875
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	<0.7	<0.7
Ion Percentage	%		6.2	3.1	5.6	5.6	7.2	5.5	6.8	6.1	5.3	7.0	3.3	7.5	7.4

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	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	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	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**	**2-May-23**	**2-Nov-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**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	550	540
Conductivity	umho/cm		2700	2800	2900	3000	2800	2900	2700	2100	2800	2800	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	0.008	0.007
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	0.68	0.77
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		210	210	200	200	200	200	200	110	210	210	200
Dissolved Chloride (Cl)	mg/L	250**	4.6	5.1	4.8	4.8	4.7	5.1	4.7	6.5	4.8	3.9	3.1
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	<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		300	290	290	290	280	280	290	200	300	290	290
Dissolved Organic Carbon	mg/L	5**	4.1	4	3.8	4.2	3.8	3.7	3.7	3.0	3.9	3.6	8.1
Dissolved Potassium (K)	mg/L		5.4	4.6	5.1	4.7	4.9	5	5.1	4.4	5.4	4.8	5.1
Dissolved Sodium (Na)	mg/L	200**	120	110	110	110	110	110	110	87	120	110	120
Dissolved Sulphate (SO4)	mg/L	500**	1300	1300	1200	1300	1200	1300	1300	620	1200	1200	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	<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	7.8	8.1	7.7
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15	<0.050	<0.15	<0.15	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	2290	2480	2470	2470	2530	2230	2350	1400	2230	2150	2270
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	<0.1	<0.7	<0.7	<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	6.9	7.0

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			**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	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**	**2-May-23**	**2-Nov-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**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	380	330
Conductivity	umho/cm		2600	2600	2600	2600	2500	2700	2600	2700	2700	3130	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	0.01	0.009
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	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	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		210	230	210	220	220	230	230	240	240	220	220
Dissolved Chloride (Cl)	mg/L	250**	5.6	5.9	5.5	5.2	5.3	6.3	5.3	5.7	5.4	4.4	3.4
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	4.0	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
Dissolved Magnesium (Mg)	mg/L		200	210	210	220	210	230	220	240	240	230	230
Dissolved Organic Carbon	mg/L	5**	1.7	1.9	1.8	3.2	1.9	1.5	1.6	1.5	1.8	1.7	7.5
Dissolved Potassium (K)	mg/L		5.0	4.8	5.1	5.0	5.3	5.3	5.1	5.1	5.3	5.3	5
Dissolved Sodium (Na)	mg/L	200**	140	150	150	150	150	150	140	150	140	140	140
Dissolved Sulphate (SO4)	mg/L	500**	1200	1200	1200	1200	1200	1300	1300	1300	1300	1500	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	0.13	0.40
pH	(pH units)	6.5-8.5	7.8	7.7	7.9	7.9	7.7	8.1	8.0	7.8	7.8	8.0	8.0
Total Ammonia-N	mg/L		0.23	0.47	0.38	0.18	0.44	0.189	0.44	0.46	0.15	0.17	0.29
Total Dissolved Solids	mg/L	500	2180	2320	2070	2210	2230	1850	2110	2210	1900	1960	2230
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7	0.4	0.7	0.9	<0.7	<0.7	<0.7
Ion Percentage	%		2.8	6.8	5.4	7.3	6.4	5.5	3.1	7.5	5.8	2.3	4.9

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	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**	**2-May-23**	**2-Nov-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**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	500	480
Conductivity	umho/cm		5100	5100	4500	4700	4800	4800	4700	4500	4400	5800	4400	4750	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	0.008	0.009
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	0.75	0.84
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	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		470	470	470	490	460	460	460	460	480	450	520	500	480
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	7.6	5.1
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	0.1	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	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		550	580	520	510	490	450	440	410	400	650	410	350	360
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	3.2	3.3
Dissolved Potassium (K)	mg/L		7.9	8	7.9	7.0	7.2	7	7.7	7	7.4	6.0	8.1	6.8	7.5
Dissolved Sodium (Na)	mg/L	200**	190	200	190	200	190	220	220	230	250	280	260	250	260
Dissolved Sulphate (SO4)	mg/L	500**	3200	3300	3100	3000	2800	2800	2800	2800	2600	3600	2600	2500	2500
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	7.7	7.7	7.6	7.6	7.6	7.8	7.6	7.7	7.8	7.7	7.62	7.1	7.57
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	<0.15	<0.15
Total Dissolved Solids	mg/L	500	4930	5000	4890	4850	4770	4730	4630	4030	3220	5720	3670	3820	4310
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	0.8	<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	3.1	3.7

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	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	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**	**2-May-23**	**2-Nov-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**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	280	260
Conductivity	umho/cm		3900	2600	3700	3800	3900	3700	3900	3800	3900	3900	3780	4000
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	0.007	0.006
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	1.1	1.1
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	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		380	210	390	390	380	400	390	420	420	390	410	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	6.4	7.1
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	0.3	1.3
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	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		310	200	300	310	310	320	320	330	340	340	330	320
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	1.7	2.7
Dissolved Potassium (K)	mg/L		6	5	6	6.2	5.9	6.3	6.3	6.1	6.1	6.2	6.3	5.9
Dissolved Sodium (Na)	mg/L	200**	220	140	210	230	220	220	230	230	240	230	230	210
Dissolved Sulphate (SO4)	mg/L	500**	2200	1200	2300	2200	2200	2300	2400	2500	2400	2400	2300	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	0.57	0.72
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	8.0	8.0
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	<0.15	0.23
Total Dissolved Solids	mg/L	500	3340	2180	3750	3500	3660	3780	2940	3620	3680	3280	3360	3790
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	<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	4.2	0.2

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	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	OW79-5
Date			**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	460	450
Conductivity	umho/cm		1400	1200
Dissolved Barium (Ba)	mg/L	1*	0.023	0.022
Dissolved Boron (B)	mg/L	5.0*	0.06	0.07
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		110	95
Dissolved Chloride (Cl)	mg/L	250**	26	24
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		93	85
Dissolved Organic Carbon	mg/L	5**	3.3	2.8
Dissolved Potassium (K)	mg/L		2.0	2.3
Dissolved Sodium (Na)	mg/L	200**	90	83
Dissolved Sulphate (SO4)	mg/L	500**	310	230
Nitrate (N)	mg/L	10.0*	<0.10	0.11
pH	(pH units)	6.5-8.5	8.04	7.9
Total Ammonia-N	mg/L		<0.15	<0.15
Total Dissolved Solids	mg/L	500	830	695
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.70
Ion Percentage	%		7.7	9.4

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	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	OW79-7
Date			**15-May-19**	**6-May-20**	**21-May-21**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	520	550	530	540	550
Conductivity	umho/cm		1600	1600	1600	1700	1770
Dissolved Barium (Ba)	mg/L	1*	0.024	0.025	0.023	0.027	0.026
Dissolved Boron (B)	mg/L	5.0*	0.24	0.22	0.22	0.21	0.20
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	130	130	150	140
Dissolved Chloride (Cl)	mg/L	250**	150	140	140	160	140
Dissolved Iron (Fe)	mg/L	0.3**	0.3	0.2	<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		110	100	98	98	110
Dissolved Organic Carbon	mg/L	5**	3.0	3.4	2.8	2.9	3.4
Dissolved Potassium (K)	mg/L		3.6	3.6	3.5	3.5	3.8
Dissolved Sodium (Na)	mg/L	200**	68	62	62	59	65
Dissolved Sulphate (SO4)	mg/L	500**	140	140	140	130	120
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.7	7.7	7.7	8.0	7.9
Total Ammonia-N	mg/L		<0.15	<0.15	0.069	<0.15	<0.15
Total Dissolved Solids	mg/L	500	975	905	965	900	935
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	0.1	<0.7	<0.7
Ion Percentage	%		9.1	5.4	6.0	6.8	10.8

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	OW79-26
Date			**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	260	270
Conductivity	umho/cm		860	990
Dissolved Barium (Ba)	mg/L	1*	0.022	0.023
Dissolved Boron (B)	mg/L	5.0*	1.6	1.5
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		29	31
Dissolved Chloride (Cl)	mg/L	250**	28	20
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		13	16
Dissolved Organic Carbon	mg/L	5**	1.5	1.6
Dissolved Potassium (K)	mg/L		5.4	5.8
Dissolved Sodium (Na)	mg/L	200**	130	140
Dissolved Sulphate (SO4)	mg/L	500**	130	93
Nitrate (N)	mg/L	10.0*	0.16	<0.10
pH	(pH units)	6.5-8.5	8.1	7.1
Total Ammonia-N	mg/L		<0.15	<0.15
Total Dissolved Solids	mg/L	500	470	465
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7
Ion Percentage	%		3.6	13.9

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	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	OW80-3	OW80-3
Date			**15-May-19**	**6-May-20**	**21-May-21**	**5-May-22**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	450	380	320	320	320	230
Conductivity	umho/cm		2200	1200	1200	830	830	650
Dissolved Barium (Ba)	mg/L	1*	0.064	0.059	0.046	0.037	0.037	0.035
Dissolved Boron (B)	mg/L	5.0*	0.07	0.04	0.04	0.03	0.03	<0.02
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		130	110	110	110	110	70
Dissolved Chloride (Cl)	mg/L	250**	360	140	160	67	67	46
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	2.3	0.3	<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
Dissolved Magnesium (Mg)	mg/L		83	49	47	24	24	17
Dissolved Organic Carbon	mg/L	5**	5.3	6.9	6.5	8.9	8.9	6.9
Dissolved Potassium (K)	mg/L		2.1	2.4	3.1	4.7	4.7	4.3
Dissolved Sodium (Na)	mg/L	200**	230	130	130	70	70	56
Dissolved Sulphate (SO4)	mg/L	500**	130	39	35	23	23	28
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	0.12	0.22	0.22	0.25
pH	(pH units)	6.5-8.5	7.7	7.8	7.9	8.1	8.1	7.9
Total Ammonia-N	mg/L		<0.15	<0.15	<0.050	<0.15	<0.15	0.50
Total Dissolved Solids	mg/L	500	1260	650	555	445	445	320
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	0.4	<0.7	<0.7	0.9
Ion Percentage	%		7.5	16.7	18.5	17.3	17.3	14.3

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	OW80-6
Date			**15-May-19**	**6-May-20**	**20-May-21**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	410	410	410	240	410
Conductivity	umho/cm		1400	1500	1400	450	1520
Dissolved Barium (Ba)	mg/L	1*	0.056	0.058	0.055	0.020	0.056
Dissolved Boron (B)	mg/L	5.0*	0.21	0.20	0.21	0.05	0.19
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	0.0017	<0.0001
Dissolved Calcium (Ca)	mg/L		130	130	130	59	130
Dissolved Chloride (Cl)	mg/L	250**	180	180	190	4.2	160
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	1.9	<0.1	0.2	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		81	76	76	17	80
Dissolved Organic Carbon	mg/L	5**	1.9	1.8	1.6	4.5	2.0
Dissolved Potassium (K)	mg/L		3.4	3.4	3.4	3.4	3.7
Dissolved Sodium (Na)	mg/L	200**	54	53	55	3.4	57
Dissolved Sulphate (SO4)	mg/L	500**	73	73	71	3.7	59
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	0.36	<0.10
pH	(pH units)	6.5-8.5	7.8	7.8	7.8	8.3	8.0
Total Ammonia-N	mg/L		<0.15	<0.15	<0.050	<0.15	<0.15
Total Dissolved Solids	mg/L	500	865	795	890	230	825
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.1	<0.7	<0.7
Ion Percentage	%		8.4	7.0	6.4	6.3	11.9

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	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	OW80-27
Date			**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	280	290
Conductivity	umho/cm		760	820
Dissolved Barium (Ba)	mg/L	1*	0.047	0.047
Dissolved Boron (B)	mg/L	5.0*	1.9	1.7
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		14	15
Dissolved Chloride (Cl)	mg/L	250**	47	45
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		7.0	7.6
Dissolved Organic Carbon	mg/L	5**	1.5	1.5
Dissolved Potassium (K)	mg/L		2.2	2.3
Dissolved Sodium (Na)	mg/L	200**	140	150
Dissolved Sulphate (SO4)	mg/L	500**	27	22
Nitrate (N)	mg/L	10.0*	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.2	7.9
Total Ammonia-N	mg/L		<0.15	<0.15
Total Dissolved Solids	mg/L	500	415	415
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7
Ion Percentage	%		7.2	10.7

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	OW81-5	OW81-5	OW81-5	OW81-5
Date			**11-May-20**	**21-May-21**	**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	420	400	400	400
Conductivity	umho/cm		2900	2900	2800	2800
Dissolved Barium (Ba)	mg/L	1*	0.031	0.026	0.022	0.022
Dissolved Boron (B)	mg/L	5.0*	0.61	0.54	0.54	0.54
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		290	270	280	260
Dissolved Chloride (Cl)	mg/L	250**	20	20	20	19
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		190	190	190	180
Dissolved Organic Carbon	mg/L	5**	2.2	2.1	2.0	1.8
Dissolved Potassium (K)	mg/L		6.2	5.6	5.0	5.2
Dissolved Sodium (Na)	mg/L	200**	170	170	180	160
Dissolved Sulphate (SO4)	mg/L	500**	1300	1400	1300	1300
Nitrate (N)	mg/L	10.0*	0.11	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	7.8	7.8	7.9	7.8
Total Ammonia-N	mg/L		<0.15	<0.050	<0.15	<0.15
Total Dissolved Solids	mg/L	500	2420	2130	2270	2110
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.1	<0.7	<0.7
Ion Percentage	%		4.1	0.2	4.4	0.8

Parameter	Units	ODWQS	OW81-7	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**	**4-May-23**
Laboratory			**Bureau Veritas**	**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	340
Conductivity	umho/cm		2600	2800	2600	2600	2800	2500	2500	2207	2590
Dissolved Barium (Ba)	mg/L	1*	0.026	0.024	0.026	0.026	0.023	0.023	0.022	0.019	0.020
Dissolved Boron (B)	mg/L	5.0*	0.56	0.58	0.61	0.53	0.56	0.55	0.54	0.58	0.55
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		240	260	240	220	240	250	220	230	230
Dissolved Chloride (Cl)	mg/L	250**	210	250	210	220	260	210	200	210	200
Dissolved Iron (Fe)	mg/L	0.3**	0.7	2.3	1.3	0.7	0.9	1.1	1.1	1.6	1.4
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
Dissolved Magnesium (Mg)	mg/L		170	200	160	160	180	170	160	160	170
Dissolved Organic Carbon	mg/L	5**	2.8	3	3.4	2.8	3	2.8	3.0	2.9	3.0
Dissolved Potassium (K)	mg/L		5.5	5.8	5.3	5.1	5.3	4.8	5.1	5.1	5.3
Dissolved Sodium (Na)	mg/L	200**	110	120	110	120	120	120	120	110	120
Dissolved Sulphate (SO4)	mg/L	500**	780	840	790	810	880	810	760	840	800
Nitrate (N)	mg/L	10.0*	0.13	<0.10	<0.10	0.1	<0.10	<0.10	0.16	0.12	0.16
pH	(pH units)	6.5-8.5	7.9	7.7	7.7	7.7	7.6	8.0	8.1	7.2	8.1
Total Ammonia-N	mg/L		<0.15	0.29	0.65	0.129	0.34	0.23	<0.15	<0.15	<0.15
Total Dissolved Solids	mg/L	500	1930	2240	1990	1730	2120	1770	1810	1880	1760
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.2	<0.7	<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	4.9

Parameter	Units	ODWQS	OW81-27	OW81-27	OW81-27	OW81-27
Date			**11-May-20**	**20-May-21**	**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	280	260	330	300
Conductivity	umho/cm		1500	1100	1400	1610
Dissolved Barium (Ba)	mg/L	1*	0.1	0.062	0.072	0.048
Dissolved Boron (B)	mg/L	5.0*	1.8	1.9	1.9	1.3
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		47	48	30	89
Dissolved Chloride (Cl)	mg/L	250**	40	48	30	16
Dissolved Iron (Fe)	mg/L	0.3**	<0.1	<0.1	<0.1	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Magnesium (Mg)	mg/L		38	40	19	56
Dissolved Organic Carbon	mg/L	5**	2.1	2	1.9	4.0
Dissolved Potassium (K)	mg/L		2.7	2.4	2.6	2.3
Dissolved Sodium (Na)	mg/L	200**	190	190	180	140
Dissolved Sulphate (SO4)	mg/L	500**	370	280	370	260
Nitrate (N)	mg/L	10.0*	<0.10	<0.10	<0.10	<0.10
pH	(pH units)	6.5-8.5	8.2	8.3	7.8	6.8
Total Ammonia-N	mg/L		0.23	0.346	<0.15	<0.15
Total Dissolved Solids	mg/L	500	965	615	895	1000
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.5	<0.7	<0.7
Ion Percentage	%		4.7	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	OW82-5
Date			**3-May-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	350
Conductivity	umho/cm		8
Dissolved Barium (Ba)	mg/L	1*	0.015
Dissolved Boron (B)	mg/L	5.0*	0.53
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		450
Dissolved Chloride (Cl)	mg/L	250**	8
Dissolved Iron (Fe)	mg/L	0.3**	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		350
Dissolved Organic Carbon	mg/L	5**	3.8
Dissolved Potassium (K)	mg/L		7.1
Dissolved Sodium (Na)	mg/L	200**	150
Dissolved Sulphate (SO4)	mg/L	500**	2400
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	8.0
Total Ammonia-N	mg/L		<0.15
Total Dissolved Solids	mg/L	500	3540
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7
Ion Percentage	%		1.4

Parameter	Units	ODWQS	OW82-14
Date			**3-May-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	100
Conductivity	umho/cm		2890
Dissolved Barium (Ba)	mg/L	1*	0.027
Dissolved Boron (B)	mg/L	5.0*	1.2
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		240
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		130
Dissolved Organic Carbon	mg/L	5**	4.4
Dissolved Potassium (K)	mg/L		12
Dissolved Sodium (Na)	mg/L	200**	240
Dissolved Sulphate (SO4)	mg/L	500**	1400
Nitrate (N)	mg/L	10.0*	1.12
pH	(pH units)	6.5-8.5	7.6
Total Ammonia-N	mg/L		0.42
Total Dissolved Solids	mg/L	500	2070
Total Kjeldahl Nitrogen (TKN)	mg/L		0.8
Ion Percentage	%		2.3

Parameter	Units	ODWQS	OW82-28
Date			**3-May-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	250
Conductivity	umho/cm		1140
Dissolved Barium (Ba)	mg/L	1*	0.023
Dissolved Boron (B)	mg/L	5.0*	1.0
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		25
Dissolved Chloride (Cl)	mg/L	250**	38
Dissolved Iron (Fe)	mg/L	0.3**	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		8.6
Dissolved Organic Carbon	mg/L	5**	2.4
Dissolved Potassium (K)	mg/L		6.3
Dissolved Sodium (Na)	mg/L	200**	100
Dissolved Sulphate (SO4)	mg/L	500**	200
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	8.3
Total Ammonia-N	mg/L		0.32
Total Dissolved Solids	mg/L	500	585
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7
Ion Percentage	%		18.1

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	OW83-5
Date			**3-May-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	660
Conductivity	umho/cm		2300
Dissolved Barium (Ba)	mg/L	1*	0.021
Dissolved Boron (B)	mg/L	5.0*	0.21
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		100
Dissolved Chloride (Cl)	mg/L	250**	59
Dissolved Iron (Fe)	mg/L	0.3**	1.3
Dissolved Lead (Pb)	mg/L	0.01*	0.019
Dissolved Magnesium (Mg)	mg/L		120
Dissolved Organic Carbon	mg/L	5**	31
Dissolved Potassium (K)	mg/L		5.4
Dissolved Sodium (Na)	mg/L	200**	270
Dissolved Sulphate (SO4)	mg/L	500**	570
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	8.1
Total Ammonia-N	mg/L		<0.15
Total Dissolved Solids	mg/L	500	1410
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.70
Ion Percentage	%		4.7

Parameter	Units	ODWQS	OW83-9
Date			**3-May-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	540
Conductivity	umho/cm		1880
Dissolved Barium (Ba)	mg/L	1*	0.013
Dissolved Boron (B)	mg/L	5.0*	0.41
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		120
Dissolved Chloride (Cl)	mg/L	250**	15
Dissolved Iron (Fe)	mg/L	0.3**	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		140
Dissolved Organic Carbon	mg/L	5**	2.6
Dissolved Potassium (K)	mg/L		4.2
Dissolved Sodium (Na)	mg/L	200**	79
Dissolved Sulphate (SO4)	mg/L	500**	490
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	7.5
Total Ammonia-N	mg/L		0.50
Total Dissolved Solids	mg/L	500	1260
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7
Ion Percentage	%		4.1

Parameter	Units	ODWQS	OW83-29
Date			**3-May-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	220
Conductivity	umho/cm		810
Dissolved Barium (Ba)	mg/L	1*	0.077
Dissolved Boron (B)	mg/L	5.0*	0.93
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		29
Dissolved Chloride (Cl)	mg/L	250**	25
Dissolved Iron (Fe)	mg/L	0.3**	<0.1
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		19
Dissolved Organic Carbon	mg/L	5**	4.0
Dissolved Potassium (K)	mg/L		6.5
Dissolved Sodium (Na)	mg/L	200**	100
Dissolved Sulphate (SO4)	mg/L	500**	140
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	8.2
Total Ammonia-N	mg/L		0.96
Total Dissolved Solids	mg/L	500	450
Total Kjeldahl Nitrogen (TKN)	mg/L		1.1
Ion Percentage	%		2.2

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	OW84-6
Date			**3-May-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	600
Conductivity	umho/cm		4300
Dissolved Barium (Ba)	mg/L	1*	0.021
Dissolved Boron (B)	mg/L	5.0*	0.41
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		360
Dissolved Chloride (Cl)	mg/L	250**	59
Dissolved Iron (Fe)	mg/L	0.3**	0.5
Dissolved Lead (Pb)	mg/L	0.01*	0.001
Dissolved Magnesium (Mg)	mg/L		260
Dissolved Organic Carbon	mg/L	5**	26
Dissolved Potassium (K)	mg/L		11
Dissolved Sodium (Na)	mg/L	200**	520
Dissolved Sulphate (SO4)	mg/L	500**	2200
Nitrate (N)	mg/L	10.0*	0.45
pH	(pH units)	6.5-8.5	7.8
Total Ammonia-N	mg/L		<0.15
Total Dissolved Solids	mg/L	500	3630
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.70
Ion Percentage	%		3.8

Parameter	Units	ODWQS	OW84-11
Date			**3-May-23**
Laboratory			**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	300
Conductivity	umho/cm		3050
Dissolved Barium (Ba)	mg/L	1*	0.019
Dissolved Boron (B)	mg/L	5.0*	0.94
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001
Dissolved Calcium (Ca)	mg/L		180
Dissolved Chloride (Cl)	mg/L	250**	22
Dissolved Iron (Fe)	mg/L	0.3**	1.5
Dissolved Lead (Pb)	mg/L	0.01*	<0.0005
Dissolved Magnesium (Mg)	mg/L		190
Dissolved Organic Carbon	mg/L	5**	9.8
Dissolved Potassium (K)	mg/L		9.6
Dissolved Sodium (Na)	mg/L	200**	220
Dissolved Sulphate (SO4)	mg/L	500**	1400
Nitrate (N)	mg/L	10.0*	<0.10
pH	(pH units)	6.5-8.5	7.6
Total Ammonia-N	mg/L		4.64
Total Dissolved Solids	mg/L	500	2190
Total Kjeldahl Nitrogen (TKN)	mg/L		5.3
Ion Percentage	%		0.8

Parameter	Units	ODWQS	OW84-31	OW84-31	OW84-31
Date			**3-May-23**	**23-May-23**	**3-Nov-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	310	400	380
Conductivity	umho/cm		2340	2200	2200
Dissolved Barium (Ba)	mg/L	1*	0.016	0.053	0.036
Dissolved Boron (B)	mg/L	5.0*	1.9	0.52	1.1
Dissolved Cadmium (Cd)	mg/L	0.005*	<0.0001	<0.0001	<0.0001
Dissolved Calcium (Ca)	mg/L		100	280	190
Dissolved Chloride (Cl)	mg/L	250**	34	21	19
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		51	79	61
Dissolved Organic Carbon	mg/L	5**	5.0	17.0	8.4
Dissolved Potassium (K)	mg/L		16	6.5	8.7
Dissolved Sodium (Na)	mg/L	200**	330	140	240
Dissolved Sulphate (SO4)	mg/L	500**	870	760	850
Nitrate (N)	mg/L	10.0*	6.22	6.45	5.08
pH	(pH units)	6.5-8.5	8.0	7.6	7.9
Total Ammonia-N	mg/L		0.45	0.35	0.7
Total Dissolved Solids	mg/L	500	1550	1710	1760
Total Kjeldahl Nitrogen (TKN)	mg/L		1.2	0.7	1.2
Ion Percentage	%		0.8	7.5	1.2

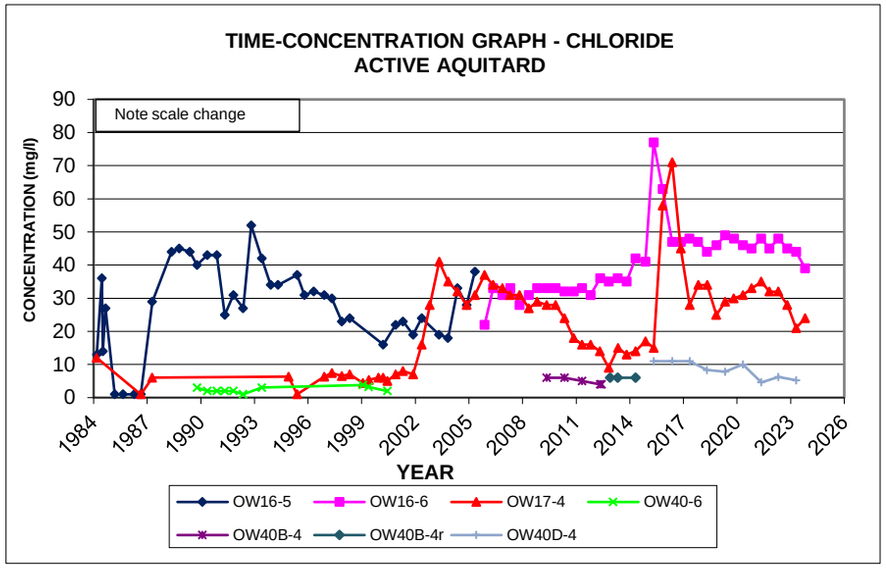
NOTES: 1) Blank denotes data not available.
2) ODWQS denotes O. Reg. 169/03: Ontario Drinking Water Quality Standards (as amended).
3) *denotes health related ODWQS.
** denotes aesthetic objective for ODWQS.
*** denotes operational guideline for ODWQS.
4) mg/L denotes milligrams per litre.

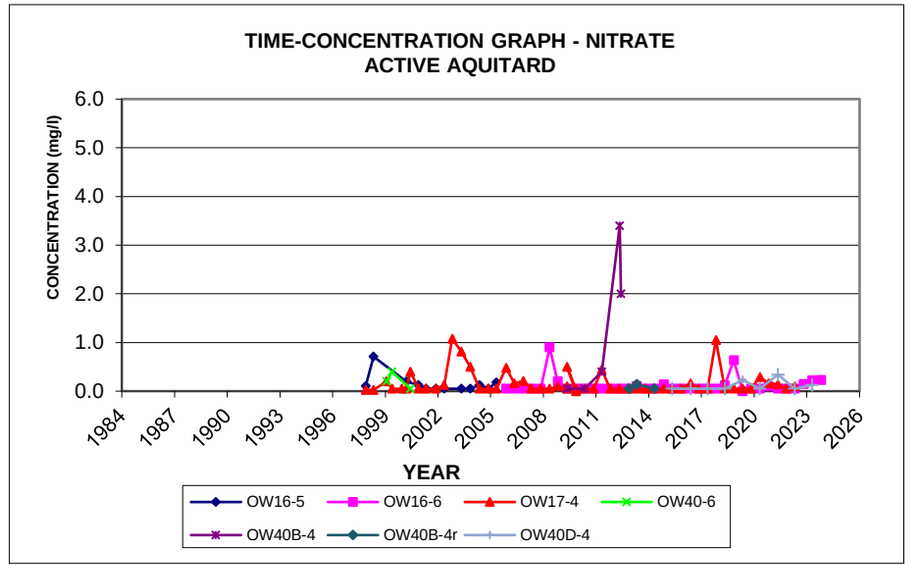
Table H-4
Groundwater - General Analytical Results
Twin Creeks Environmental Centre

Parameter	Units	ODWQS	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	Cemetery Well
Date			**21-May-21**	**6-May-22**	**2-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Alkalinity (Total as CaCO3)	mg/L	30-500***	230	230	240
Conductivity	umho/cm		450	450	590
Total Barium (Ba)	mg/L	1*	0.021	0.020	0.020
Total Boron (B)	mg/L	5.0*	0.03	0.03	0.06
Total Cadmium (Cd)	mg/L	0.005*	0.0001	0.0021	<0.0001
Total Calcium (Ca)	mg/L		61	61	64
Total Chloride (Cl)	mg/L	250**	4.4	3.8	2.6
Total Iron (Fe)	mg/L	0.3**	<0.1	1.0	0.1
Total Lead (Pb)	mg/L	0.01*	<0.0005	0.0060	0.0006
Total Magnesium (Mg)	mg/L		19	18	19
Dissolved Organic Carbon	mg/L	5**	7.6	4.7	4.8
Total Potassium (K)	mg/L		4.4	3.3	3.5
Total Sodium (Na)	mg/L	200**	3.6	3.5	3.5
Total Sulphate (SO4)	mg/L	500**	7	4.4	3.7
Nitrate (N)	mg/L	10.0*	0.98	0.33	0.25
pH	(pH units)	6.5-8.5	8.0	8.1	8.2
Total Ammonia-N	mg/L		<0.050	<0.15	<0.15
Total Dissolved Solids	mg/L	500	185	235	235
Total Kjeldahl Nitrogen (TKN)	mg/L		0.1	<0.7	<0.7
Ion Percentage	%		10.5	10.2	11.2

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
Note scale change
CONCENTRATION (mg/l)
YEAR
OW16-5
OW16-6
OW17-4
OW40-6
OW40B-4
OW40B-4r
OW40D-4


TIME-CONCENTRATION GRAPH - NITRATE
ACTIVE AQUITARD
CONCENTRATION (mg/l)
YEAR
OW16-5
OW16-6
OW17-4
OW40-6
OW40B-4
OW40B-4r
OW40D-4

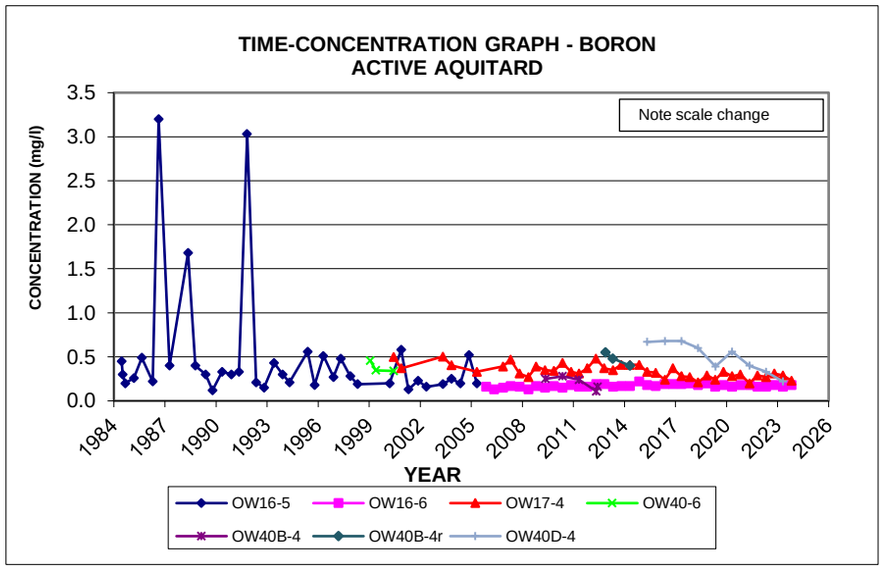
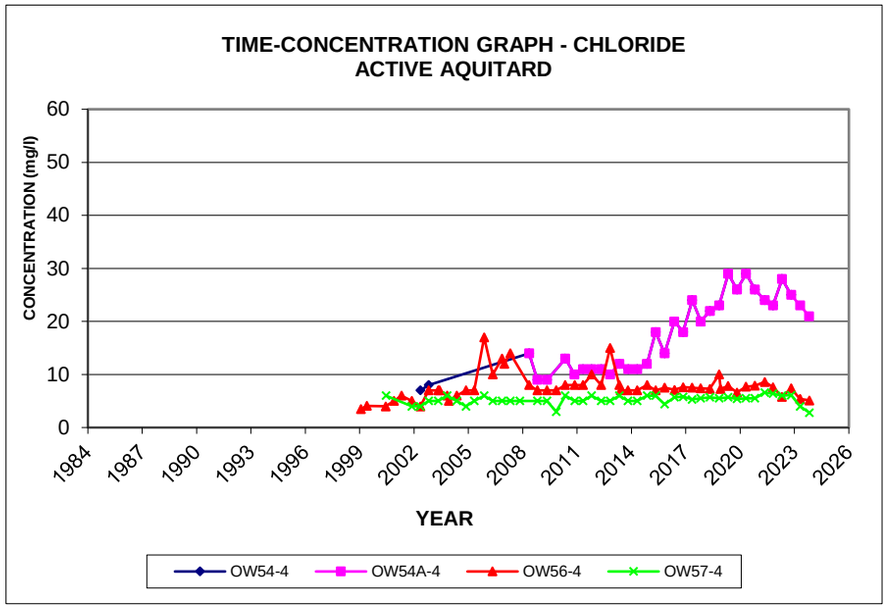
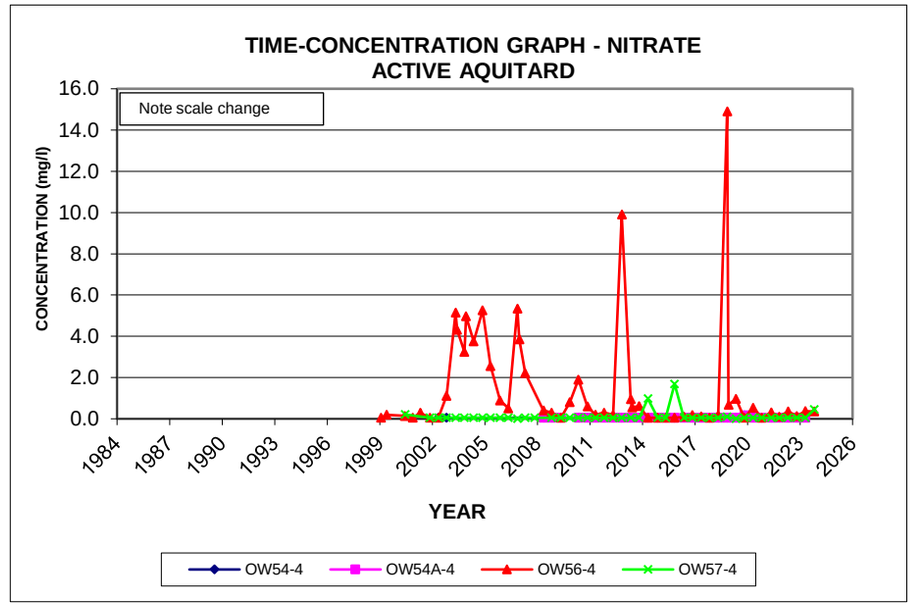

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
Note scale change
CONCENTRATION (mg/l)
YEAR
OW16-5
OW16-6
OW17-4
OW40-6
OW40B-4
OW40B-4r
OW40D-4

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
Note scale change
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

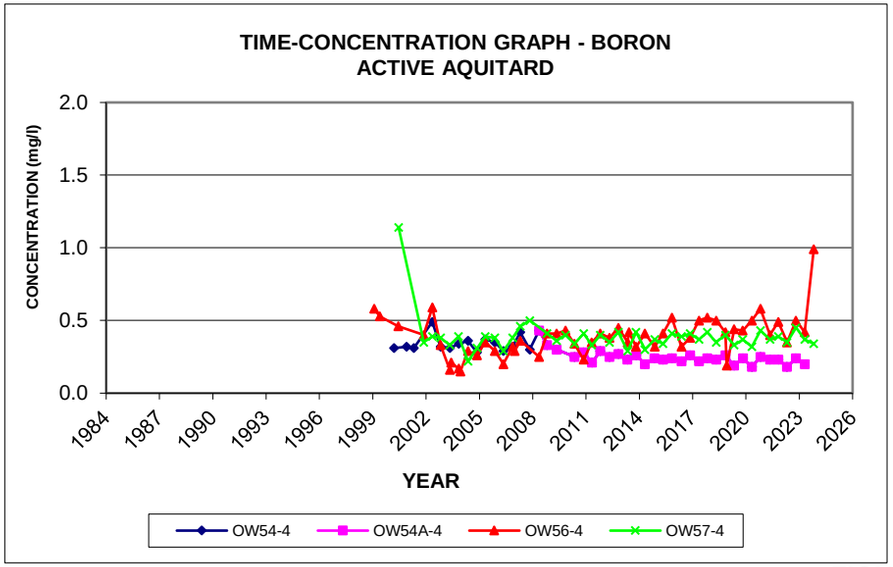
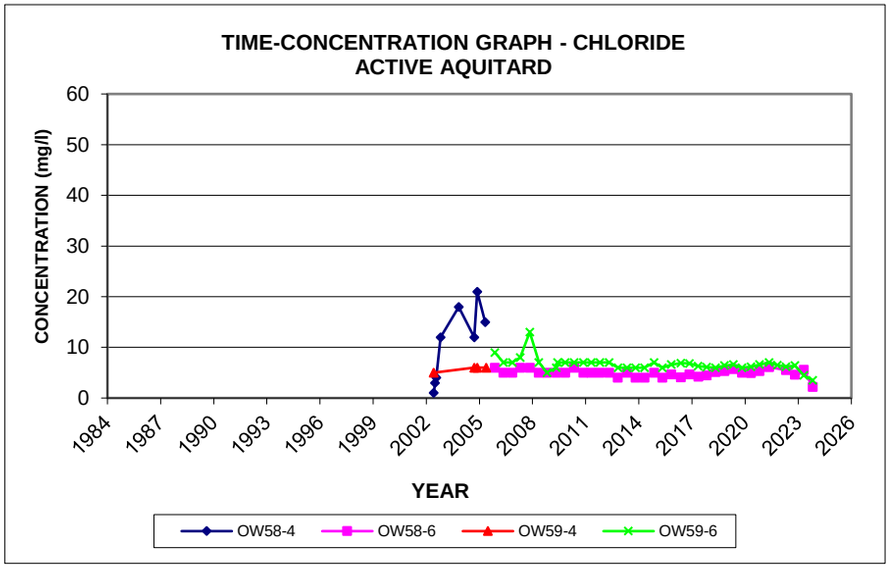
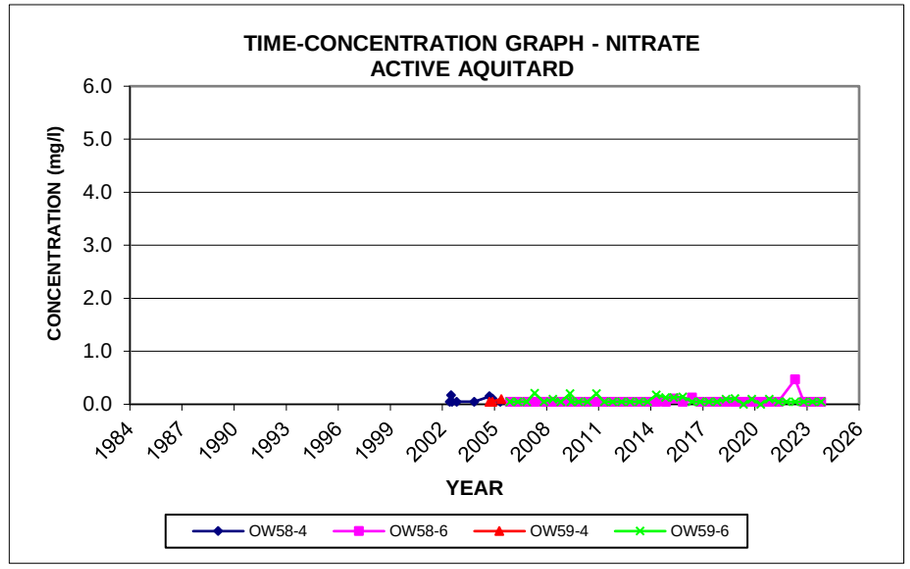

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW54-4
OW54A-4
OW56-4
OW57-4

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
OW58-4
OW58-6
OW59-4
OW59-6


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
OW58-4
OW58-6
OW59-4
OW59-6

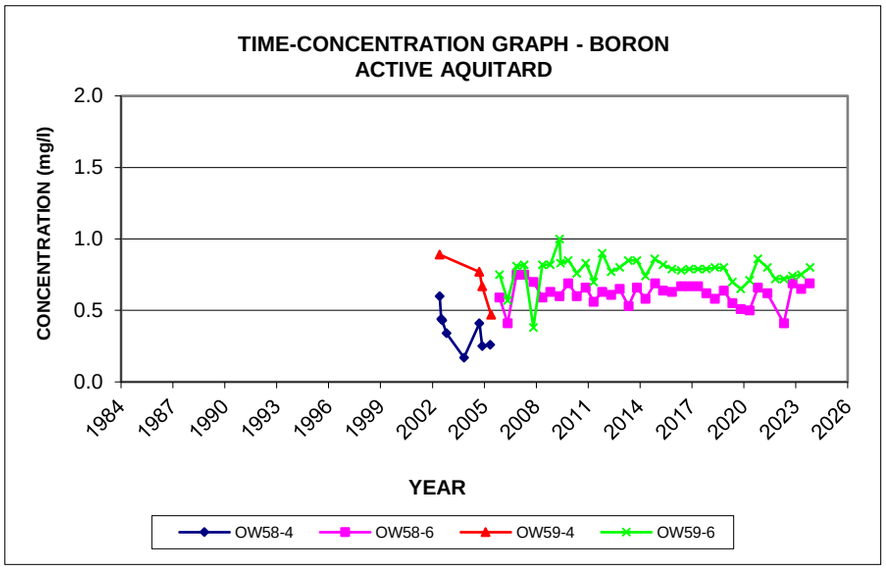
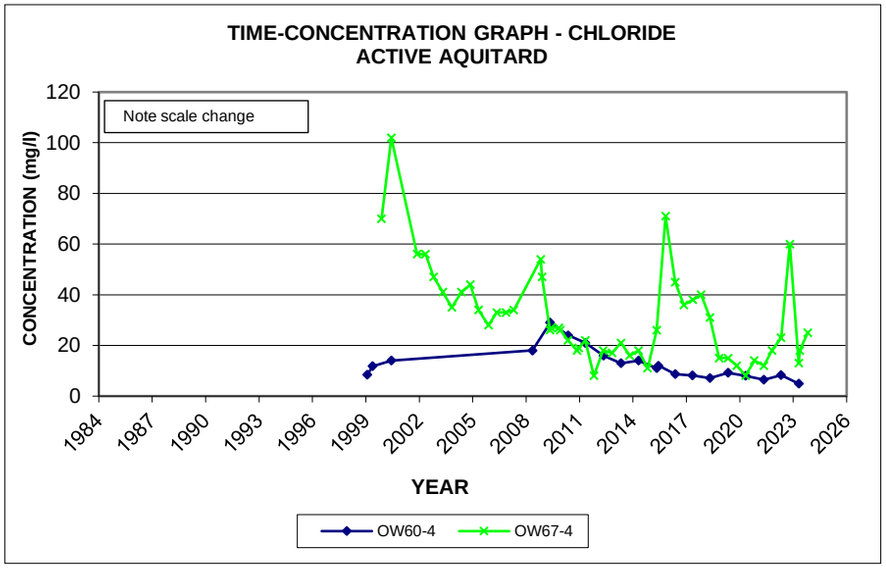
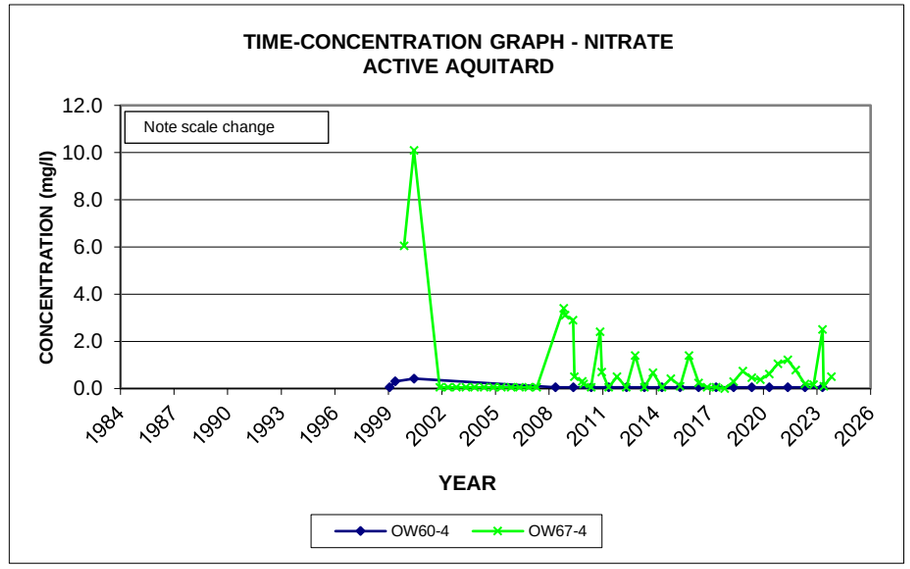

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW58-4
OW58-6
OW59-4
OW59-6

FIGURE H-3


TIME-CONCENTRATION GRAPH - CHLORIDE
ACTIVE AQUITARD
Note scale change
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
Note scale change
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

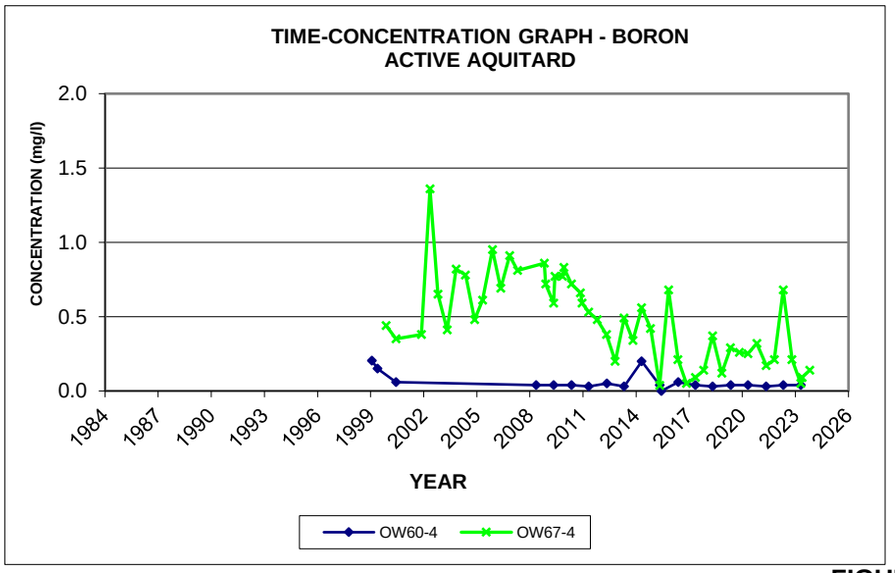
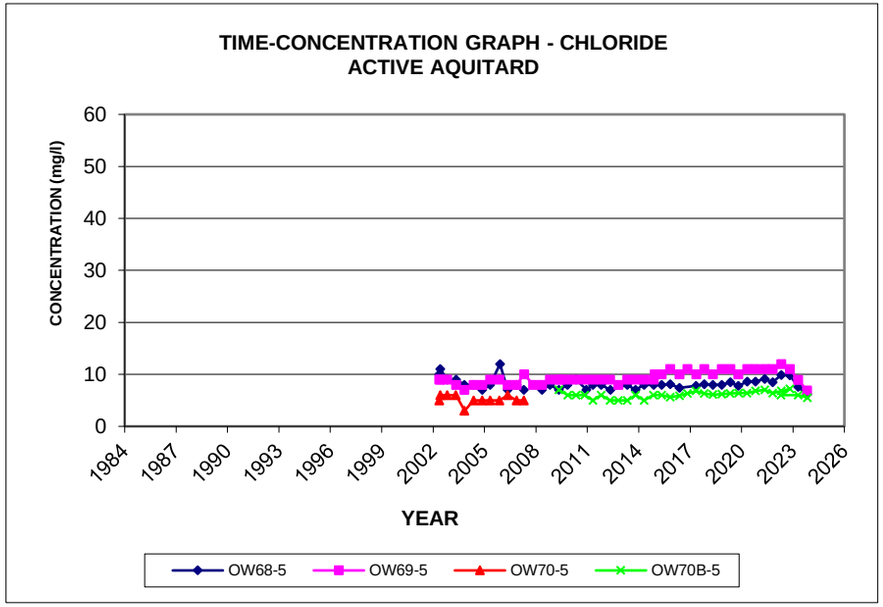
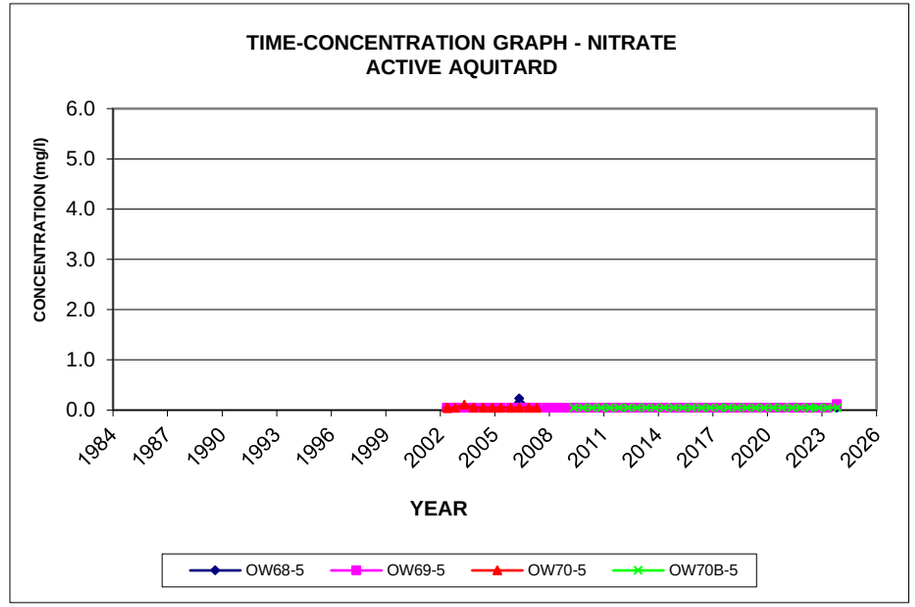

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW60-4
OW67-4

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
OW68-5
OW69-5
OW70-5
OW70B-5


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
OW68-5
OW69-5
OW70-5
OW70B-5

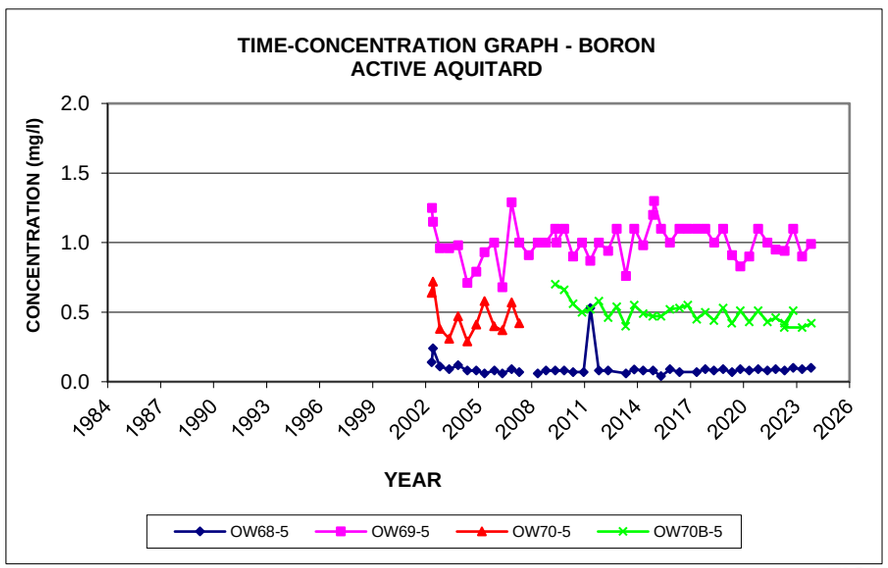
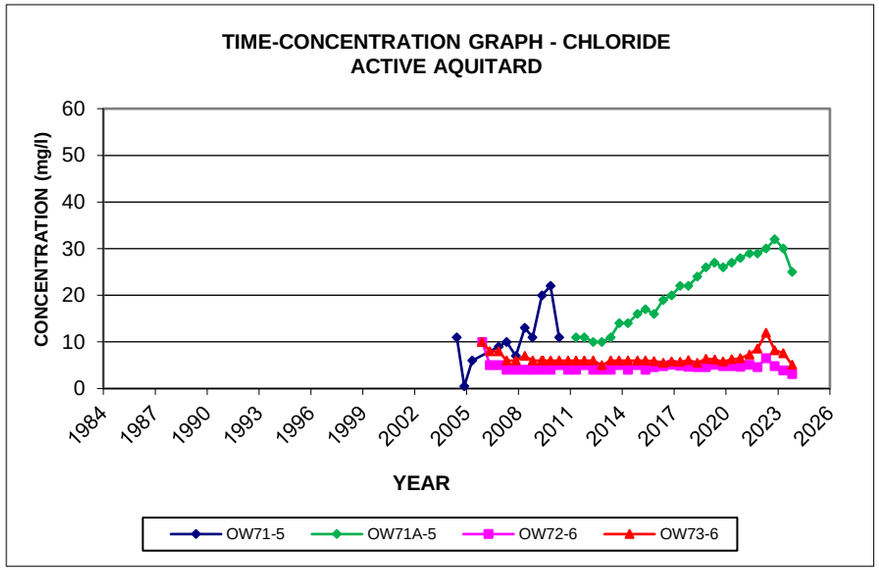
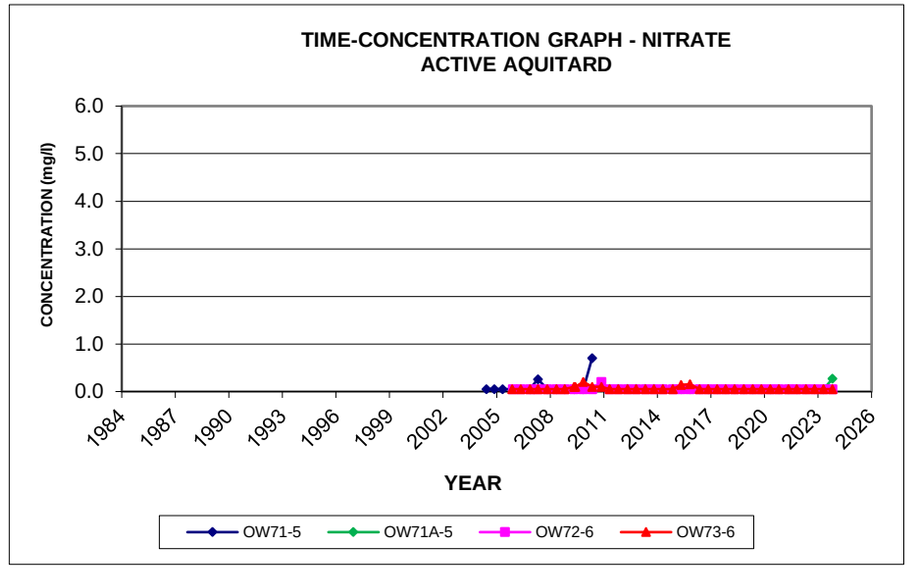

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW68-5
OW69-5
OW70-5
OW70B-5

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

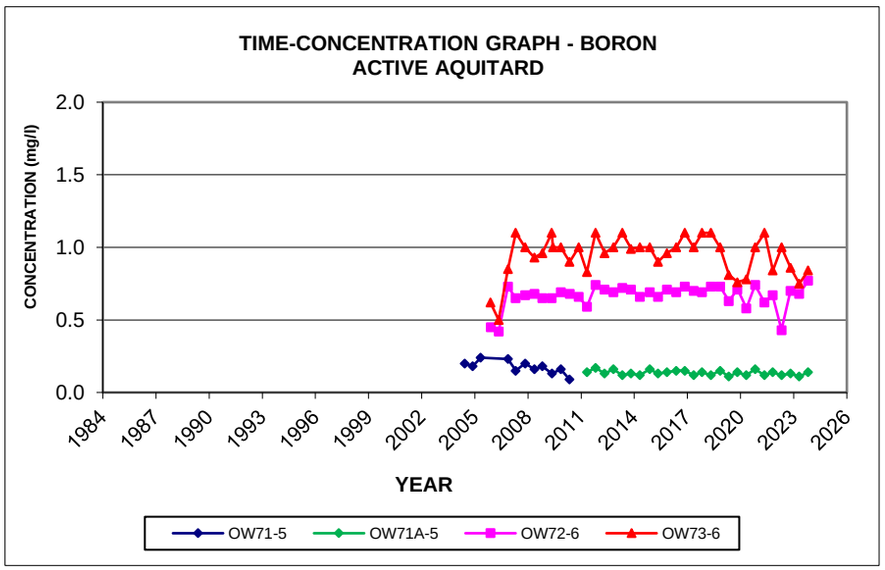
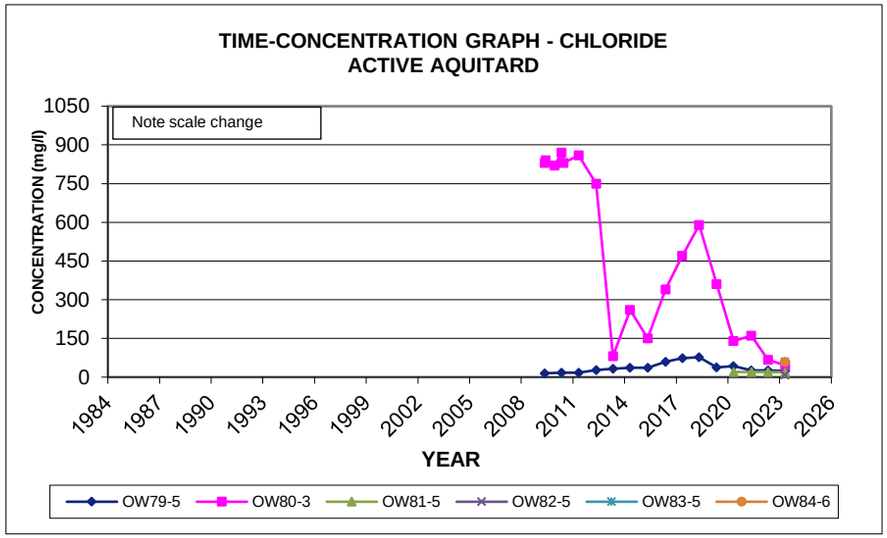
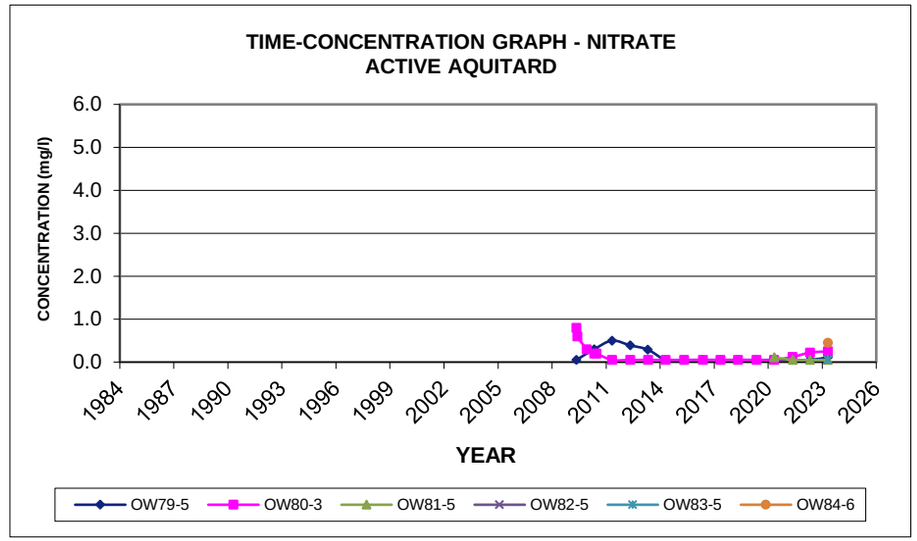

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW71-5
OW71A-5
OW72-6
OW73-6

FIGURE H-6


TIME-CONCENTRATION GRAPH - CHLORIDE
ACTIVE AQUITARD
Note scale change
CONCENTRATION (mg/l)
1050
900
750
600
450
300
150
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-5
OW80-3
OW81-5
OW82-5
OW83-5
OW84-6


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
OW79-5
OW80-3
OW81-5
OW82-5
OW83-5
OW84-6

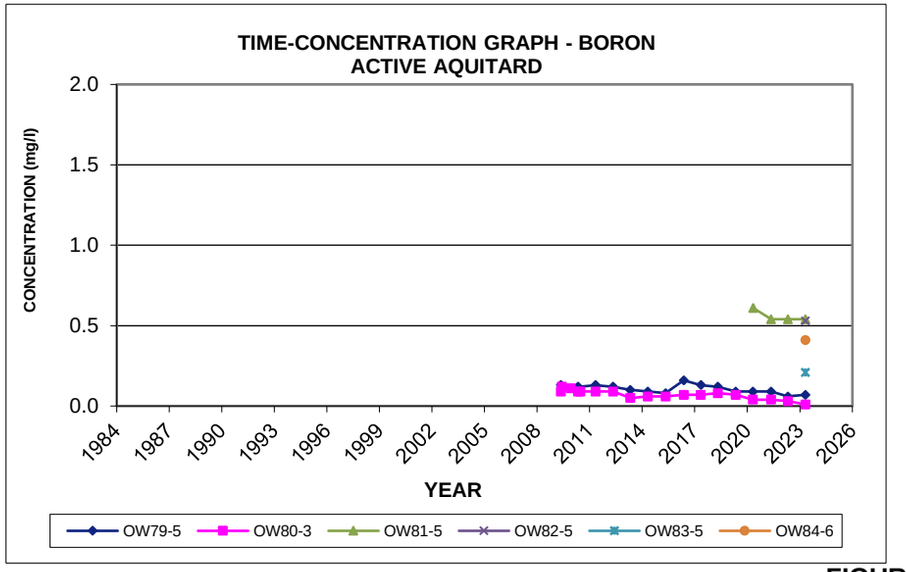
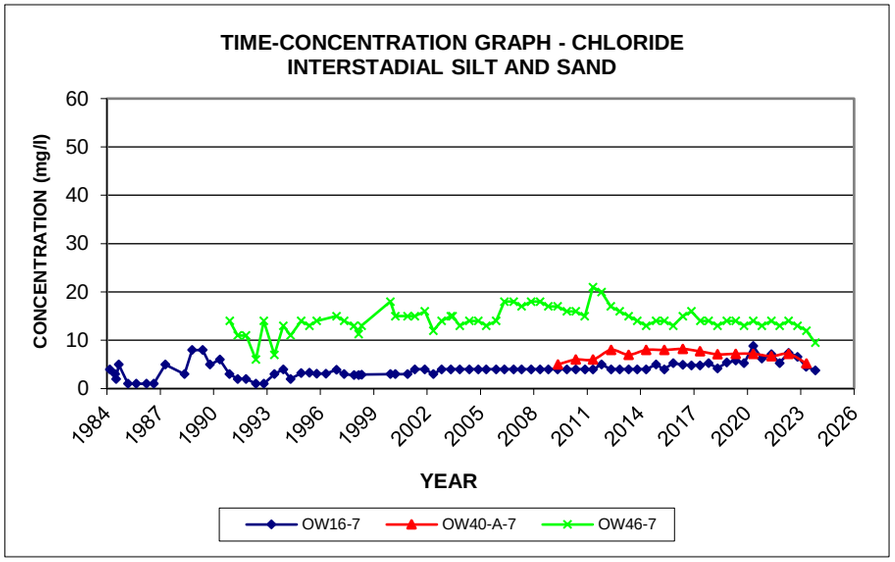
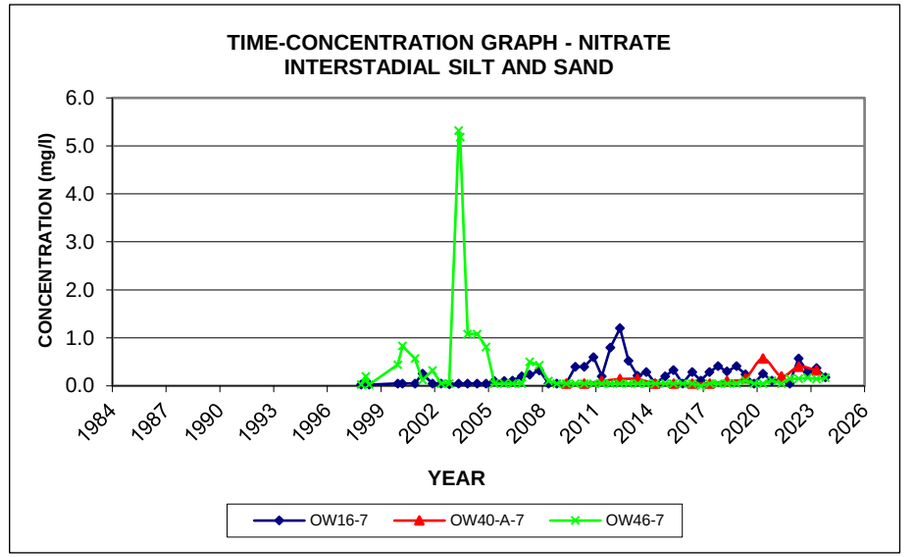

TIME-CONCENTRATION GRAPH - BORON
ACTIVE AQUITARD
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-5
OW80-3
OW81-5
OW82-5
OW83-5
OW84-6

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

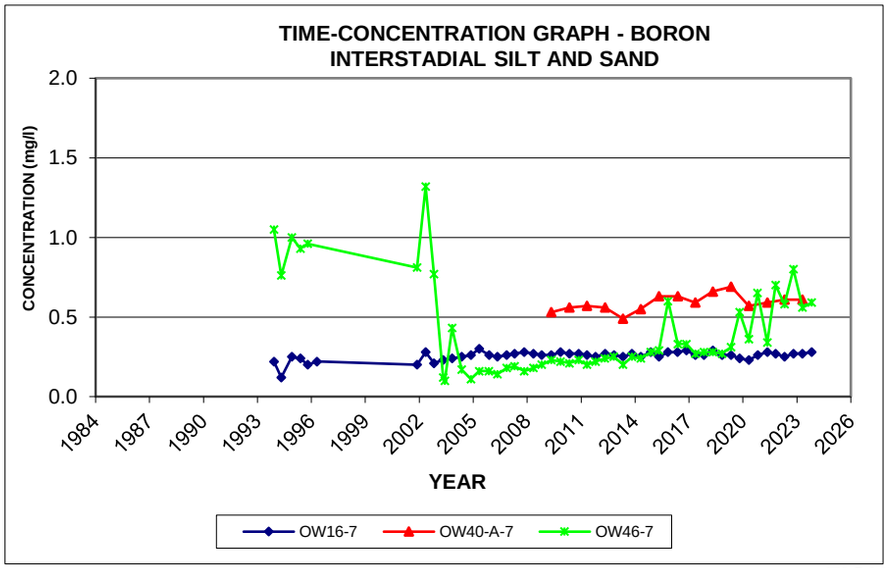
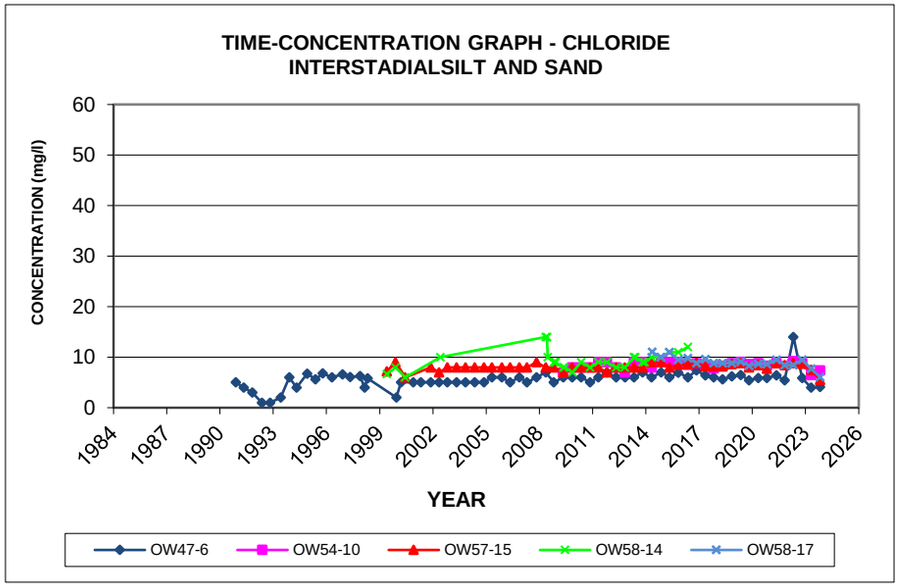
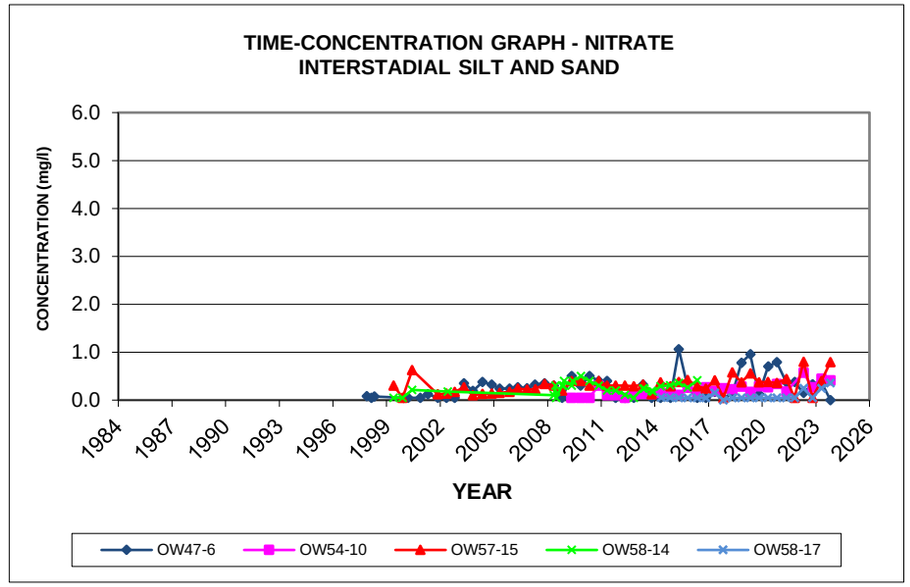

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW16-7
OW40-A-7
OW46-7

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

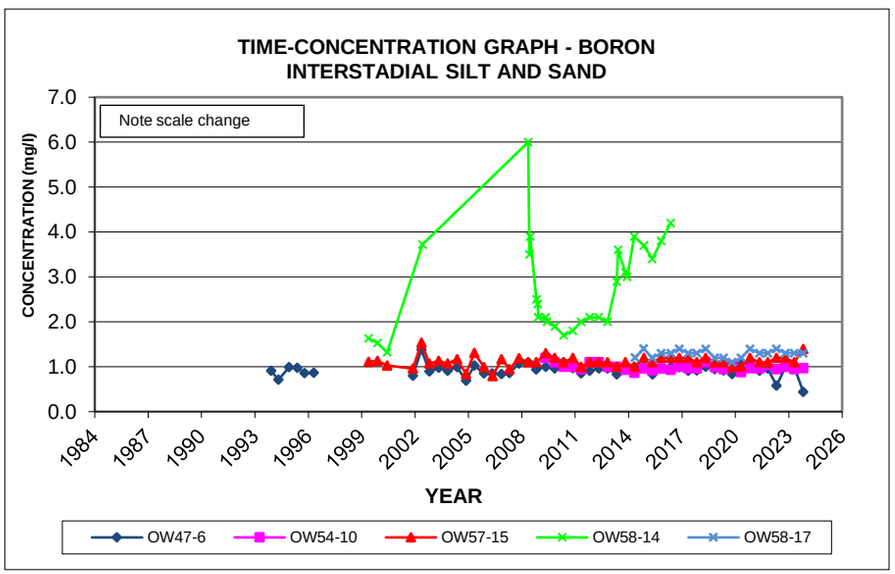
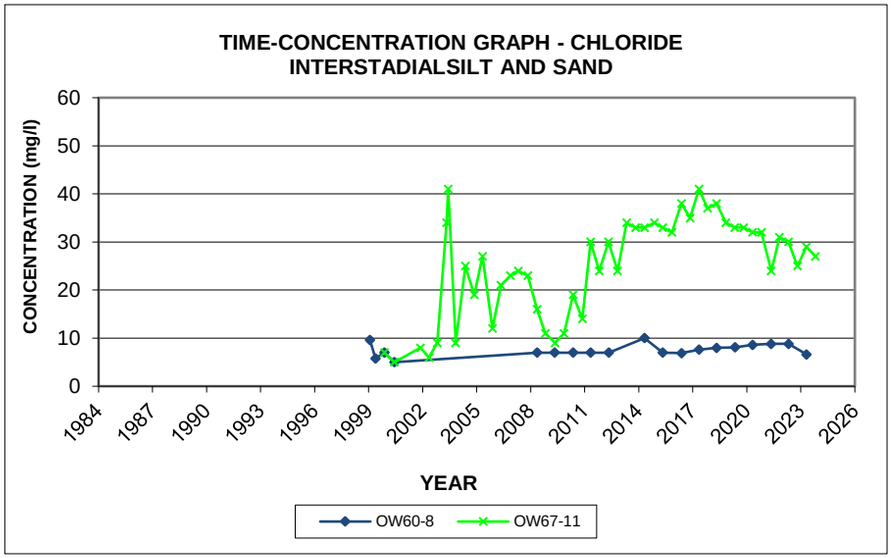
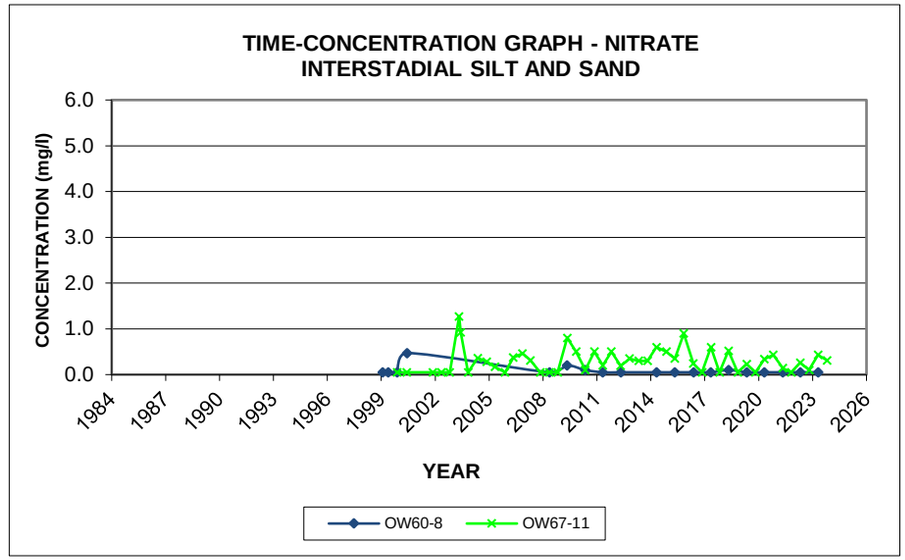

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
Note scale change
CONCENTRATION (mg/l)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW47-6
OW54-10
OW57-15
OW58-14
OW58-17

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

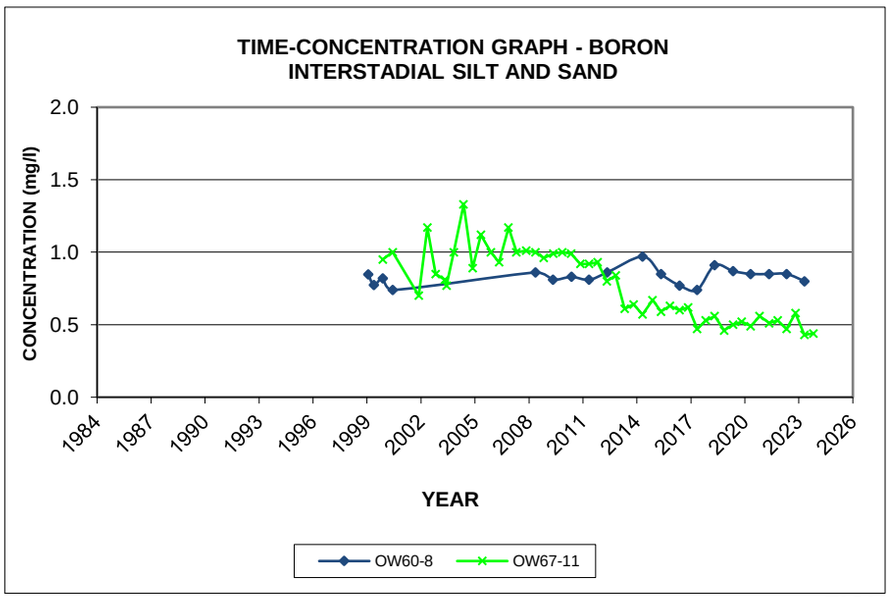
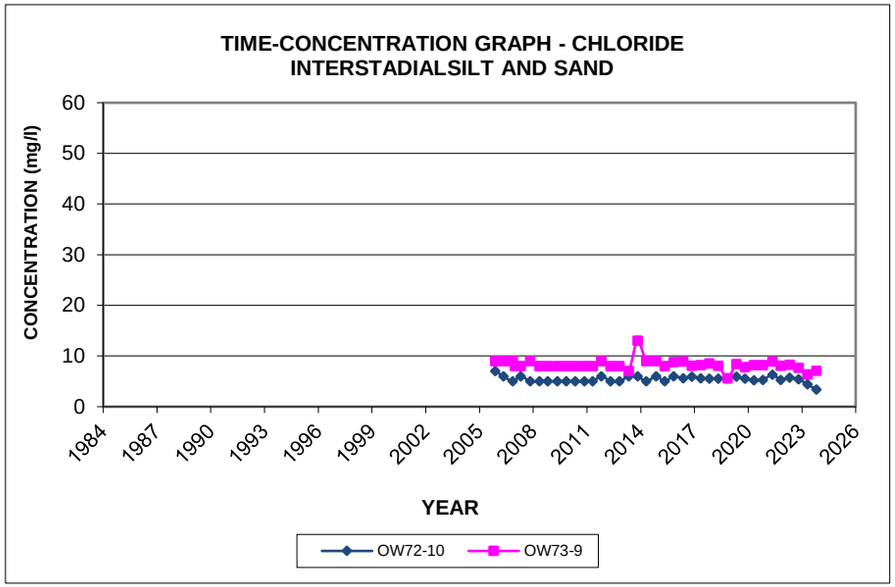
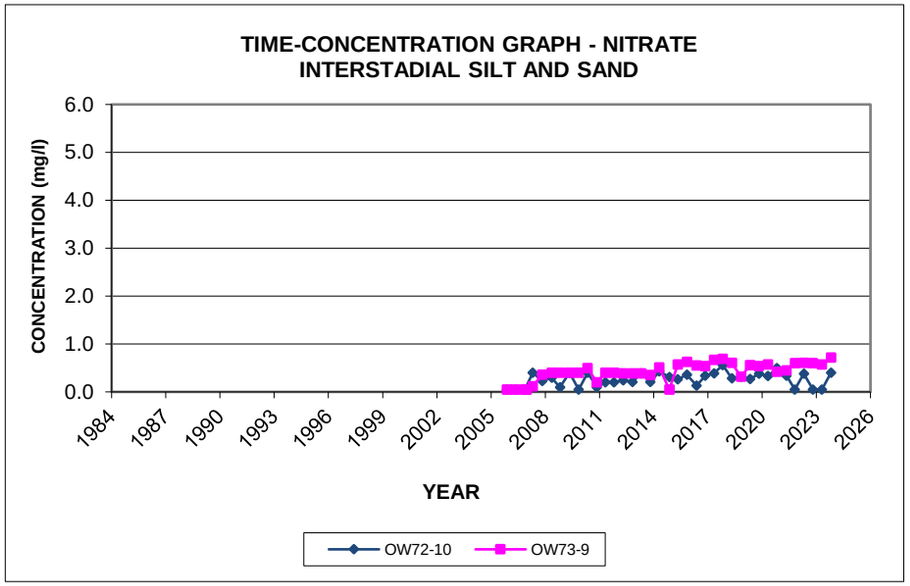

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW60-8
OW67-11

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

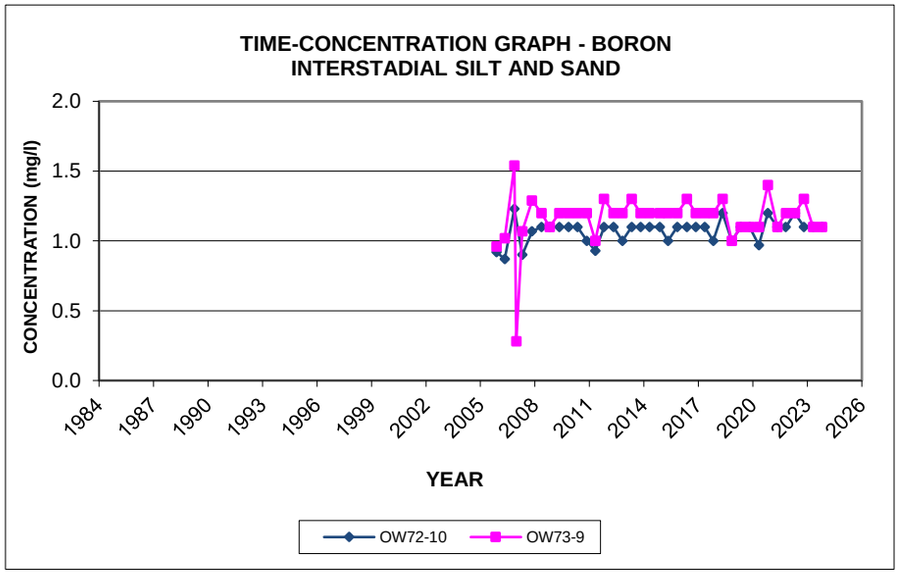
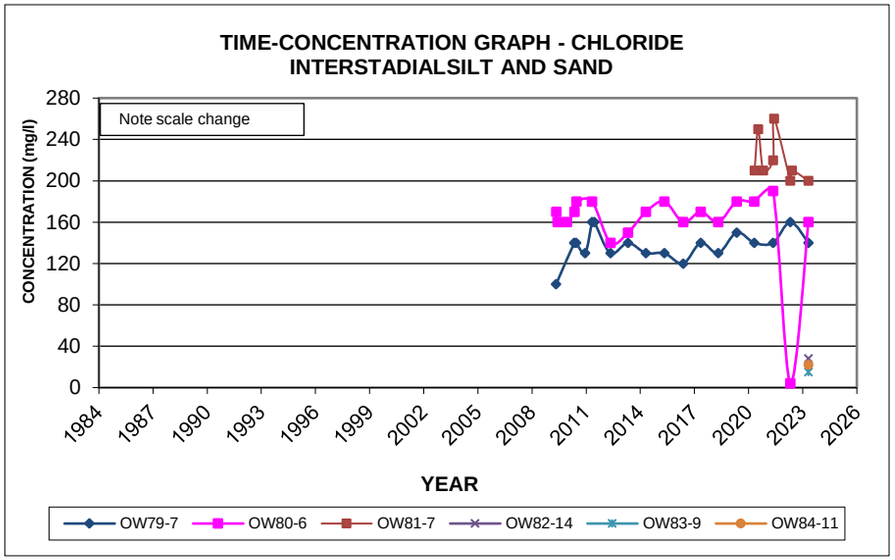
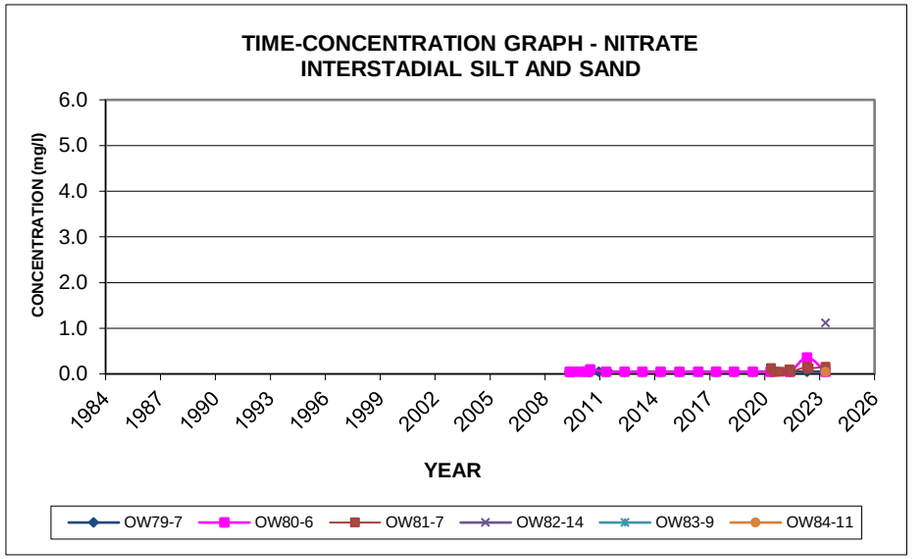

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW72-10
OW73-9

FIGURE H-11


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERSTADIALSILT AND SAND
Note scale change
CONCENTRATION (mg/l)
280
240
200
160
120
80
40
0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-7
OW80-6
OW81-7
OW82-14
OW83-9
OW84-11


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
OW79-7
OW80-6
OW81-7
OW82-14
OW83-9
OW84-11

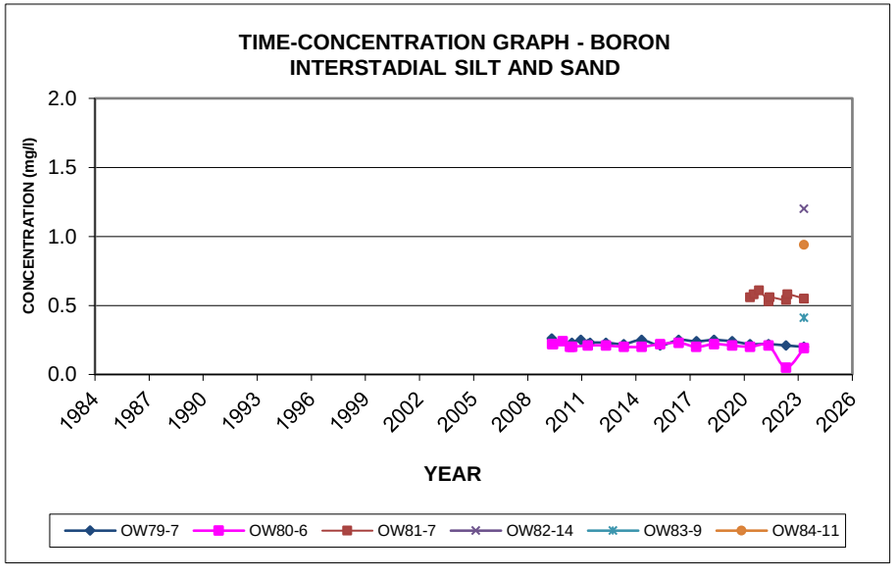
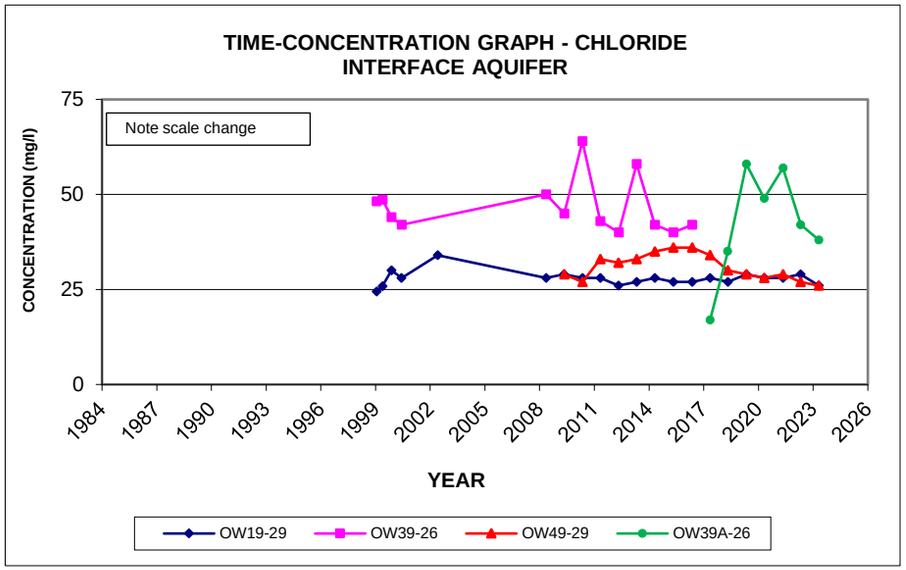
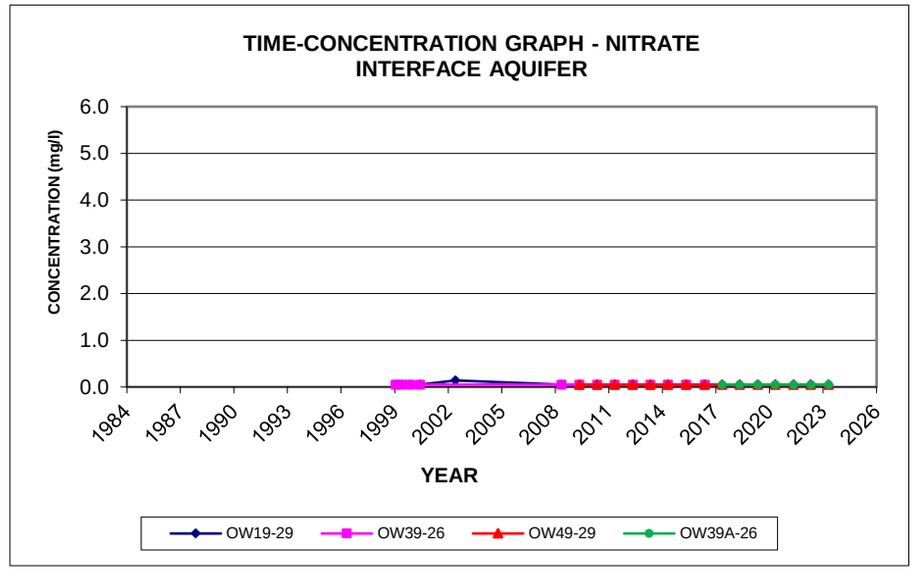

TIME-CONCENTRATION GRAPH - BORON
INTERSTADIAL SILT AND SAND
CONCENTRATION (mg/l)
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-7
OW80-6
OW81-7
OW82-14
OW83-9
OW84-11

FIGURE H-12


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERFACE AQUIFER
Note scale change
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

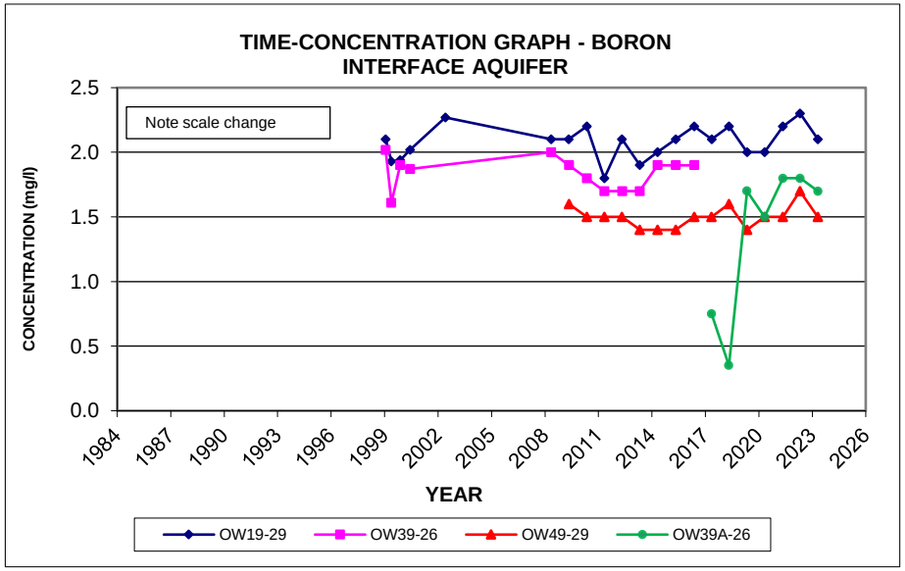
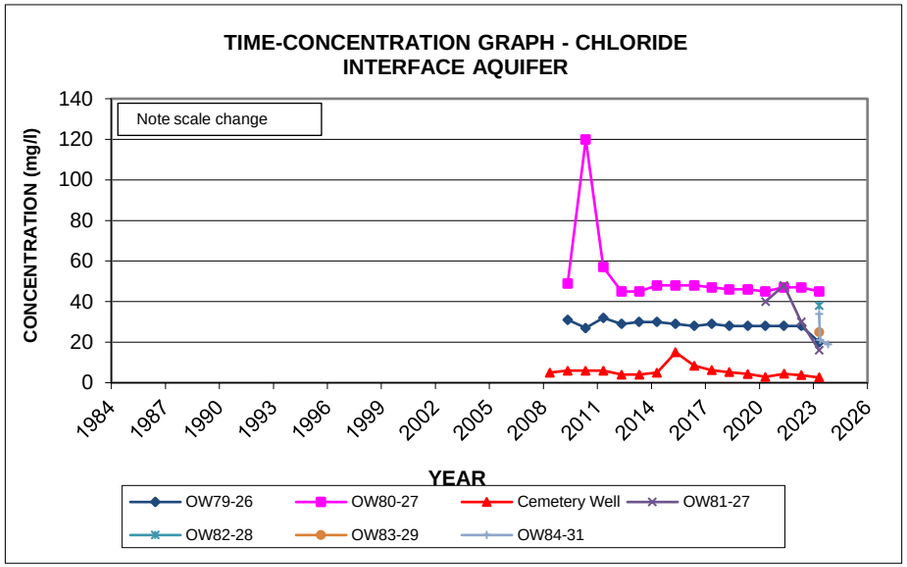
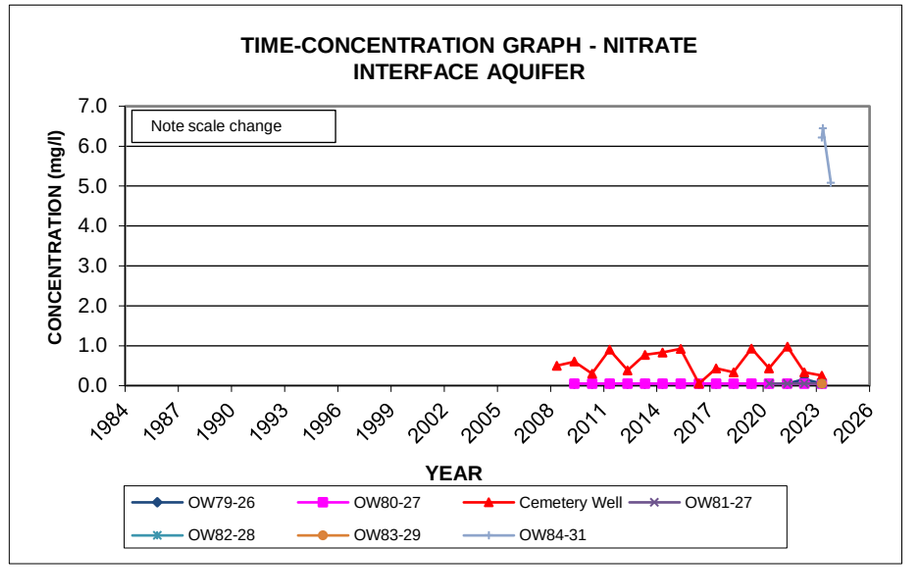

TIME-CONCENTRATION GRAPH - BORON
INTERFACE AQUIFER
Note scale change
CONCENTRATION (mg/l)
2.5
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW19-29
OW39-26
OW49-29
OW39A-26

FIGURE H-13


TIME-CONCENTRATION GRAPH - CHLORIDE
INTERFACE AQUIFER
Note scale change
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
OW82-28
OW83-29
OW84-31


TIME-CONCENTRATION GRAPH - NITRATE
INTERFACE AQUIFER
Note scale change
CONCENTRATION (mg/l)
7.0
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
OW82-28
OW83-29
OW84-31

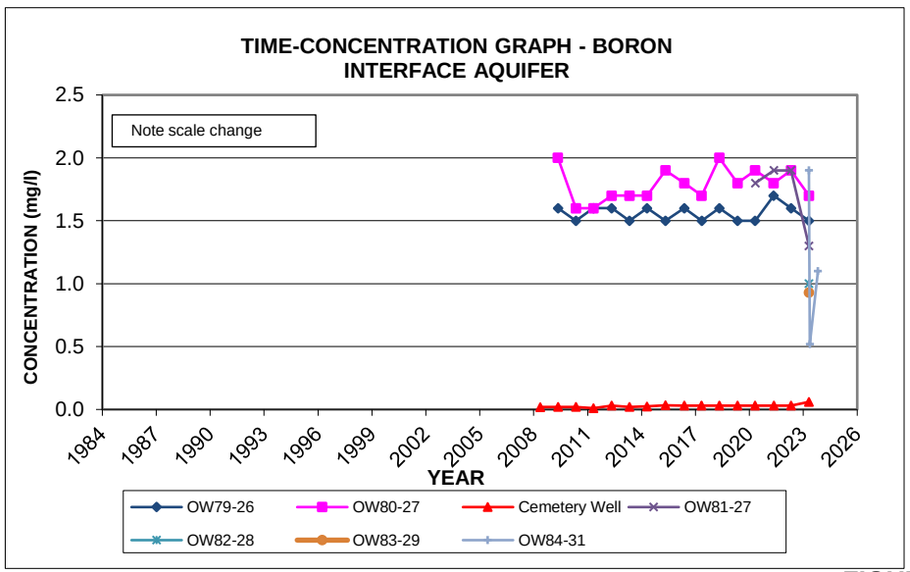

TIME-CONCENTRATION GRAPH - BORON
INTERFACE AQUIFER
Note scale change
CONCENTRATION (mg/l)
2.5
2.0
1.5
1.0
0.5
0.0
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
2023
2026
YEAR
OW79-26
OW80-27
Cemetery Well
OW81-27
OW82-28
OW83-29
OW84-31

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	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	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	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	2-May-23	2-Nov-23
Laboratory			Bureau Veritas	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	<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	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<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	<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	<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	OW16-7	OW16-7
Date			**2-May-23**	**2-Nov-23**
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	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

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-23**
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	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

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

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	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

Parameter	Units	ODWQS	OW40D-4	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**	**4-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**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	<0.20	<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
m&p-Xylenes	µg/L	90	<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
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<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	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	OW40A-7
Date			**7-May-20**	**20-May-21**	**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<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	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	OW46-7
Date			**10-May-18**	**14-May-19**	**11-May-20**	**18-May-21**	**4-May-22**	**3-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**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	<0.20	<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
m&p-Xylenes	µg/L	90	<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
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<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	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	OW47-6
Date			**10-May-18**	**14-May-19**	**11-May-20**	**18-May-21**	**4-May-22**	**3-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**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	<0.20	<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
m&p-Xylenes	µg/L	90	<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
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<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

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	OW54A-4
Date			**8-May-20**	**19-May-21**	**4-May-22**	**2-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<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	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	OW54-10
Date			**8-May-20**	**18-May-21**	**3-May-22**	**2-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<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	OW56-4
Date			11-May-20	19-May-21	4-May-22	3-May-23
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<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	OW57-4
Date			19-May-21	3-May-22	2-May-23
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	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	OW57-15
Date			**22-May-08**	**16-May-19**	**8-May-20**	**18-May-21**	**3-May-22**	**2-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.2	<0.50	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<0.5	<2.0	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.2	<0.20	<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	OW58-6
Date			26-May-16	19-May-17	10-May-18	14-May-19	8-May-20	19-May-21	4-May-22	2-May-23
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<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	<0.10	<0.10	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<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	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<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	<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	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	2-May-23
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	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	<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	<0.20	<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	<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	<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	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<0.50	<0.50	<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	<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	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	2-May-23
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	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	<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	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.10	<0.20	<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	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<0.50	<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	<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	OW60-4
Date			8-May-18	15-May-19	7-May-20	19-May-21	5-May-22	4-May-23
Laboratory			MAXXAM	MAXXAM	Bureau Veritas	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	<0.20	<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
m&p-Xylenes	µg/L	90	<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
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<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	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	OW60-8
Date			**8-May-18**	**15-May-19**	**7-May-20**	**19-May-21**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**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	<0.20	<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
m&p-Xylenes	µg/L	90	<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
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	13	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<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
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	OW67-4	OW67-4
Date			**8-May-18**	**13-May-19**	**6-May-20**	**20-May-21**	**5-May-22**	**1-May-23**	**25-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	*<10*	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20	<0.20	<10	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20	<0.20	<10	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20	<10	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20	<10	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<0.40	<0.40	*<20*	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0	<2.0	*<100*	<2.0
Vinyl Chloride	µg/L	1	<0.20	<0.20	<0.20	<0.20	<0.20	*<10*	<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.
5) *Italics* denotes parameter concentration was below the laboratory reportable detection limit (RDL), where the RDL exceeds the relevant ODWQS.

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	OW67-11
Date			**14-Nov-18**	**8-May-18**	**13-May-19**	**6-May-20**	**18-May-21**	**3-May-22**	**1-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**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	0.21	<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	0.58	<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	<0.50	<0.50	<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

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	OW68-5
Date			7-May-20	20-May-21	4-May-22	2-May-23
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<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	OW69-5
Date			11-May-20	20-May-21	5-May-22	2-May-23
Laboratory			Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<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	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	OW70B-5
Date			**18-May-21**	**5-May-22**	**1-Nov-22**	**1-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<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	OW71A-5
Date			25-May-16	17-May-17	9-May-18	13-May-19	6-May-20	19-May-21	5-May-22	1-May-23
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<1.0	<0.20	<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	<0.20
Ethylbenzene	µg/L	140	<0.10	<0.10	<1.0	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<1.0	<0.20	<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	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<10	<2.0	<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	<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	OW72-6
Date			26-May-16	18-May-17	9-May-18	14-May-19	8-May-20	21-May-21	5-May-22	2-May-23
Laboratory			MAXXAM	MAXXAM	MAXXAM	MAXXAM	Bureau Veritas	Bureau Veritas	Bureau Veritas	Bureau Veritas
Benzene	µg/L	1	<0.10	<0.10	<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	<0.10	<0.10	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<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	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<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	<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	OW72-10
Date			**9-May-18**	**14-May-19**	**8-May-20**	**18-May-21**	**3-May-22**	**2-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**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	<0.20	<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
m&p-Xylenes	µg/L	90	<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
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<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	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	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**	**2-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**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	<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	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.10	<0.20	<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	<0.40
Dichloromethane	µg/L	50	1.4	<0.50	<0.50	<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	<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	OW73-9
Date			**10-May-18**	**14-May-19**	**8-May-20**	**18-May-21**	**3-May-22**	**2-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**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	<0.20	<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
m&p-Xylenes	µg/L	90	<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
1,4-Dichlorobenzene	µg/L	5	<0.50	<0.50	<0.40	<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	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	OW79-5
Date			**6-May-20**	**21-May-21**	**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<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	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	OW79-7
Date			**27-May-16**	**17-May-17**	**8-May-18**	**15-May-19**	**6-May-20**	**21-May-21**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Vertias**	**Bureau Vertias**	**Bureau Vertias**	**Bureau Vertias**
Benzene	µg/L	1	<0.10	<0.10	<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	<0.10	<0.10	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<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	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<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	<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	OW80-3
Date			**27-May-16**	**16-May-17**	**8-May-18**	**15-May-19**	**6-May-20**	**21-May-21**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.10	<0.10	<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	<0.10	<0.10	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<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	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<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	<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	OW80-6
Date			**27-May-16**	**16-May-17**	**8-May-18**	**15-May-19**	**6-May-20**	**20-May-21**	**5-May-22**	**4-May-23**
Laboratory			**MAXXAM**	**MAXXAM**	**MAXXAM**	**MAXXAM**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.10	<0.10	<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	<0.10	<0.10	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.10	<0.10	<0.20	<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	<0.40
Dichloromethane	µg/L	50	<0.50	<0.50	<2.0	<2.0	<2.0	6.3	<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	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	OW81-5
Date			**11-May-20**	**20-May-21**	**5-May-22**	**4-May-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**
Benzene	µg/L	1	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	60	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	140	<0.20	<0.20	<0.20	<0.20
m&p-Xylenes	µg/L	90	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<0.40	<0.40	<0.40
Dichloromethane	µg/L	50	<2.0	<2.0	<2.0	<2.0
Vinyl Chloride	µg/L	1	<0.20	<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	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**	**4-May-23**
Laboratory			**Bureau Veritas**	**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	<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	<0.20	<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	<0.20
o-Xylene	µg/L	90	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	5	<0.40	<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	<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	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

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	OW82-5
Date			**3-May-23**
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	OW82-14
Date			**3-May-23**
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	OW83-5
Date			**3-May-23**
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	OW83-9
Date			**3-May-23**
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	OW84-6
Date			**3-May-23**
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	OW84-11
Date			**3-May-23**
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	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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/10
Report #: R7622829
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C4973
Received: 2023/05/03, 09:40

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/05/06	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/05/04	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2023/05/05		
Conductivity	1	N/A	2023/05/06	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/05/10	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/05/05	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/05/08	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2023/05/04	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/05/04	2023/05/06	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	1	N/A	2023/05/05		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/05/04	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/05/06	2023/05/08	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	1	N/A	2023/05/05		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/05/05	2023/05/09	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	1	N/A	2023/05/05		
Volatile Organic Compounds in Water	1	N/A	2023/05/05	CAM SOP-00228	EPA 8260D

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.

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/10
Report #: R7622829
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C4973
Received: 2023/05/03, 09:40

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

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.

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

Bureau Veritas Job #: C3C4973
Report Date: 2023/05/10

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSD381		
Sampling Date		2023/05/01		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW67-11**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	1640	N/A	ONSITE
Field Temperature	Celsius	11.5	N/A	ONSITE
Field Turbidity	NTU	86.5	N/A	ONSITE
Field Measured pH	pH	7.07		ONSITE
Inorganics				
Total Ammonia-N	mg/L	0.36	0.15	8651620
Conductivity	umho/cm	1400	1.0	8645563
Total Dissolved Solids	mg/L	915	10	8650196
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8649424
Dissolved Organic Carbon	mg/L	3.0	0.4	8651528
pH	pH	7.95		8645564
Dissolved Sulphate (SO4)	mg/L	390	2.0	8645699
Alkalinity (Total as CaCO3)	mg/L	380	1.0	8645556
Dissolved Chloride (Cl-)	mg/L	29	1.0	8645688
Nitrate (N)	mg/L	0.43	0.10	8645480

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

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

Bureau Veritas Job #: C3C4973
Report Date: 2023/05/10

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VSD381		
Sampling Date		2023/05/01		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW67-11**	**RDL**	**QC Batch**
Metals				
Dissolved Barium (Ba)	mg/L	0.018	0.005	8645495
Dissolved Boron (B)	mg/L	0.43	0.02	8645495
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	8645495
Dissolved Calcium (Ca)	mg/L	140	0.2	8645495
Dissolved Iron (Fe)	mg/L	<0.1	0.1	8645495
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	8645495
Dissolved Magnesium (Mg)	mg/L	97	0.05	8645495
Dissolved Potassium (K)	mg/L	4.4	0.2	8645495
Dissolved Sodium (Na)	mg/L	48	0.1	8645495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3C4973
Report Date: 2023/05/10

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VSD381		
Sampling Date		2023/05/01		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW67-11**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8643122
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8643122
Ethylbenzene	ug/L	<0.20	0.20	8643122
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8643122
Toluene	ug/L	<0.20	0.20	8643122
Vinyl Chloride	ug/L	<0.20	0.20	8643122
p+m-Xylene	ug/L	<0.20	0.20	8643122
o-Xylene	ug/L	<0.20	0.20	8643122
Total Xylenes	ug/L	<0.20	0.20	8643122
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	100		8643122
D4-1,2-Dichloroethane	%	104		8643122
D8-Toluene	%	96		8643122

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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 #: C3C4973
Report Date: 2023/05/10

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8643122	4-Bromofluorobenzene	2023/05/05	101	70 - 130	101	70 - 130	102	%				
8643122	D4-1,2-Dichloroethane	2023/05/05	106	70 - 130	103	70 - 130	99	%				
8643122	D8-Toluene	2023/05/05	96	70 - 130	99	70 - 130	97	%				
8643122	1,4-Dichlorobenzene	2023/05/05	103	70 - 130	112	70 - 130	<0.40	ug/L	NC (1)	30		
8643122	Benzene	2023/05/05	85	70 - 130	89	70 - 130	<0.20	ug/L	NC (1)	30		
8643122	Ethylbenzene	2023/05/05	84	70 - 130	90	70 - 130	<0.20	ug/L	NC (1)	30		
8643122	Methylene Chloride(Dichloromethane)	2023/05/05	97	70 - 130	100	70 - 130	<2.0	ug/L	NC (1)	30		
8643122	o-Xylene	2023/05/05	84	70 - 130	90	70 - 130	<0.20	ug/L	NC (1)	30		
8643122	p+m-Xylene	2023/05/05	87	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
8643122	Toluene	2023/05/05	81	70 - 130	86	70 - 130	<0.20	ug/L	NC (1)	30		
8643122	Total Xylenes	2023/05/05					<0.20	ug/L	NC (1)	30		
8643122	Vinyl Chloride	2023/05/05	86	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
8645480	Nitrate (N)	2023/05/04	100	80 - 120	104	80 - 120	<0.10	mg/L	0.041 (1)	20		
8645495	Dissolved Barium (Ba)	2023/05/05	101	80 - 120	102	80 - 120	<0.005	mg/L	0.38 (1)	20		
8645495	Dissolved Boron (B)	2023/05/05	89	80 - 120	88	80 - 120	<0.02	mg/L	6.0 (1)	20		
8645495	Dissolved Cadmium (Cd)	2023/05/05	103	80 - 120	101	80 - 120	<0.0001	mg/L				
8645495	Dissolved Calcium (Ca)	2023/05/05	NC	80 - 120	104	80 - 120	<0.2	mg/L	2.2 (1)	20		
8645495	Dissolved Iron (Fe)	2023/05/05	100	80 - 120	104	80 - 120	<0.1	mg/L	NC (1)	20		
8645495	Dissolved Lead (Pb)	2023/05/05	99	80 - 120	99	80 - 120	<0.0005	mg/L	NC (1)	20		
8645495	Dissolved Magnesium (Mg)	2023/05/05	98	80 - 120	100	80 - 120	<0.05	mg/L	0.47 (1)	20		
8645495	Dissolved Potassium (K)	2023/05/05	105	80 - 120	104	80 - 120	<0.2	mg/L	1.2 (1)	20		
8645495	Dissolved Sodium (Na)	2023/05/05	NC	80 - 120	100	80 - 120	<0.1	mg/L	0.69 (1)	20		
8645556	Alkalinity (Total as CaCO3)	2023/05/06			98	85 - 115	<1.0	mg/L	0.78 (1)	20		
8645563	Conductivity	2023/05/06			102	85 - 115	<1.0	umho/cm	0.42 (1)	25		
8645564	pH	2023/05/06			101	98 - 103			0.19 (1)	N/A		
8645688	Dissolved Chloride (Cl-)	2023/05/04	NC	80 - 120	103	80 - 120	<1.0	mg/L	2.2 (1)	20		
8645699	Dissolved Sulphate (SO4)	2023/05/04	96	75 - 125	103	80 - 120	<1.0	mg/L	4.9 (1)	20		
8649424	Total Kjeldahl Nitrogen (TKN)	2023/05/09	116	80 - 120	97	80 - 120	<0.7	mg/L	NC (1)	20	97	80 - 120
8650196	Total Dissolved Solids	2023/05/08					<10	mg/L	1.4 (1)	20	97	90 - 110

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

Bureau Veritas Job #: C3C4973
Report Date: 2023/05/10

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8651528	Dissolved Organic Carbon	2023/05/09	95	80 - 120	98	80 - 120	<0.4	mg/L	1.0 (1)	20		
8651620	Total Ammonia-N	2023/05/08	103	75 - 125	100	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

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

Bureau Veritas Job #: C3C4973
Report Date: 2023/05/10

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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.

S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: DW 67+11 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N 0.45 or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: ____ Units ____
05 01 23	7.07	mS 1.64	11.5	86.5			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: [illegible] Odor: N/A Color: clear Other: ____

Weather Conditions (required daily, or as conditions change): 7°C Direction/Speed: 20 km/h W Outlook: cloudy Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): ____

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/01/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0715

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

nont05-023

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFOR	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	TCEC-GWCM-MAY
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Sampled By:	EW

TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary ODWS
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 11-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERSTADIAL SILT & SAND)							# of Cont.	COMMENTS / TAT COMMENTS
1	OW67-11	1-May-23	PM	GW	N	Y	X							8	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															Metals and Filtered DOC field filtered
12															See lab addendum for analysis.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 2-May-23 - AM	[illegible]	02/05/23	0940	Temperature (°C) on Receipt 4/4.5	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

cooler sealed broken

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/10
Report #: R7622825
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C5004
Received: 2023/05/03, 09:40

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/05/06	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/05/08	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2023/05/08		
Conductivity	1	N/A	2023/05/06	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/05/10	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/05/05	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/05/08	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2023/05/04	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/05/04	2023/05/06	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	1	N/A	2023/05/08		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/05/08	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/05/06	2023/05/08	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	1	N/A	2023/05/08		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/05/05	2023/05/10	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	1	N/A	2023/05/08		

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.

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

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/10
Report #: R7622825
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C5004
Received: 2023/05/03, 09:40

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

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.

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Bureau Veritas Job #: C3C5004
Report Date: 2023/05/10

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSD562		
Sampling Date		2023/05/01		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW49-29**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	2650	N/A	ONSITE
Field Temperature	Celsius	10.8	N/A	ONSITE
Field Turbidity	NTU	12.1	N/A	ONSITE
Field Measured pH	pH	6.40		ONSITE
Inorganics				
Total Ammonia-N	mg/L	0.77	0.15	8651620
Conductivity	umho/cm	2100	1.0	8645563
Total Dissolved Solids	mg/L	1430	10	8650196
Total Kjeldahl Nitrogen (TKN)	mg/L	1.0	0.7	8649424
Dissolved Organic Carbon	mg/L	1.1	0.4	8651528
pH	pH	7.98		8645564
Dissolved Sulphate (SO4)	mg/L	960	10	8646267
Alkalinity (Total as CaCO3)	mg/L	110	1.0	8645556
Dissolved Chloride (Cl-)	mg/L	26	1.0	8646263
Nitrate (N)	mg/L	<0.10	0.10	8645480

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

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

Bureau Veritas Job #: C3C5004
Report Date: 2023/05/10

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VSD562		
Sampling Date		2023/05/01		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW49-29**	**RDL**	**QC Batch**
Metals				
Dissolved Barium (Ba)	mg/L	0.010	0.005	8645495
Dissolved Boron (B)	mg/L	1.5	0.02	8645495
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	8645495
Dissolved Calcium (Ca)	mg/L	140	0.4	8645495
Dissolved Iron (Fe)	mg/L	0.4	0.1	8645495
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	8645495
Dissolved Magnesium (Mg)	mg/L	75	0.05	8645495
Dissolved Potassium (K)	mg/L	6.3	0.2	8645495
Dissolved Sodium (Na)	mg/L	250	0.1	8645495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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

Bureau Veritas Job #: C3C5004
Report Date: 2023/05/10

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8645480	Nitrate (N)	2023/05/04	100	80 - 120	104	80 - 120	<0.10	mg/L	0.041 (1)	20		
8645495	Dissolved Barium (Ba)	2023/05/05	101	80 - 120	102	80 - 120	<0.005	mg/L	0.38 (1)	20		
8645495	Dissolved Boron (B)	2023/05/05	89	80 - 120	88	80 - 120	<0.02	mg/L	6.0 (1)	20		
8645495	Dissolved Cadmium (Cd)	2023/05/05	103	80 - 120	101	80 - 120	<0.0001	mg/L				
8645495	Dissolved Calcium (Ca)	2023/05/05	NC	80 - 120	104	80 - 120	<0.2	mg/L	2.2 (1)	20		
8645495	Dissolved Iron (Fe)	2023/05/05	100	80 - 120	104	80 - 120	<0.1	mg/L	NC (1)	20		
8645495	Dissolved Lead (Pb)	2023/05/05	99	80 - 120	99	80 - 120	<0.0005	mg/L	NC (1)	20		
8645495	Dissolved Magnesium (Mg)	2023/05/05	98	80 - 120	100	80 - 120	<0.05	mg/L	0.47 (1)	20		
8645495	Dissolved Potassium (K)	2023/05/05	105	80 - 120	104	80 - 120	<0.2	mg/L	1.2 (1)	20		
8645495	Dissolved Sodium (Na)	2023/05/05	NC	80 - 120	100	80 - 120	<0.1	mg/L	0.69 (1)	20		
8645556	Alkalinity (Total as CaCO3)	2023/05/06			98	85 - 115	<1.0	mg/L	0.78 (1)	20		
8645563	Conductivity	2023/05/06			102	85 - 115	<1.0	umho/cm	0.42 (1)	25		
8645564	pH	2023/05/06			101	98 - 103			0.19 (1)	N/A		
8646263	Dissolved Chloride (Cl-)	2023/05/08	200 (2)	80 - 120	92	80 - 120	<1.0	mg/L	1.5 (1)	20		
8646267	Dissolved Sulphate (SO4)	2023/05/08	NC	75 - 125	95	80 - 120	<1.0	mg/L	5.6 (1)	20		
8649424	Total Kjeldahl Nitrogen (TKN)	2023/05/09	116	80 - 120	97	80 - 120	<0.7	mg/L	NC (1)	20	97	80 - 120
8650196	Total Dissolved Solids	2023/05/08					<10	mg/L	1.4 (1)	20	97	90 - 110
8651528	Dissolved Organic Carbon	2023/05/09	95	80 - 120	98	80 - 120	<0.4	mg/L	1.0 (1)	20		

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Bureau Veritas Job #: C3C5004
Report Date: 2023/05/10

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8651620	Total Ammonia-N	2023/05/08	103	75 - 125	100	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.

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.

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

Bureau Veritas Job #: C3C5004
Report Date: 2023/05/10

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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.

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S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: GW49-29 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: ~~Y~~ or N — ~~0.45~~ µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (mS µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 01 23	6.40	2.65	10.8	12.1			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear — Odor: none — Color: clear — Other:

Weather Conditions (required daily, or as conditions change): 7°C — Direction/Speed: 20 km/h W — Outlook: cloudy — Precipitation: (Y) or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/01/23	Eric Wilson	E. Wilson.	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0712

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

nont05-025

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORM	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-MAY
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks
				Sampled By:	EW

CHAIN OF CUSTODY #: TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

- [ ] MISA
- [ ] PWQO
- [ ] Reg. 558

Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3

Sewer Use: [ ] Sanitary [ ] Storm Region _____

[x] Other ODWS specify

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: 11-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERFACE AQUIFER) No VOCs							# of Cont.	COMMENTS / TAT COMMENTS
1	OW49-29	1-May-23	PM	GW	N	Y	X							6	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															Metals and Filtered DOC field filtered
12															See lab addendum for analysis.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 2-May-23 - AM	[illegible]	02/05/23	0940	Temperature (°C) on Receipt: 7.74 / 4.15	Condition of Sample on Receipt: [ ] OK [ ] SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/24
Report #: R7641235
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C5037
Received: 2023/05/03, 09:40

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2023/05/11	CAM SOP-00448	SM 23 2320 B m
Alkalinity	1	N/A	2023/05/18	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/05/11	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	2	N/A	2023/05/16	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	3	N/A	2023/05/08		
Conductivity	2	N/A	2023/05/11	CAM SOP-00414	SM 23 2510 m
Conductivity	1	N/A	2023/05/18	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2023/05/09	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/05/12	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2023/05/23	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2023/05/05	CAM SOP-00447	EPA 6020B m
Ammonia-N	3	N/A	2023/05/08	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	3	N/A	2023/05/05	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/05/18	2023/05/18	CAM SOP-00413	SM 4500H+ B m
pH	2	2023/05/04	2023/05/07	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	3	N/A	2023/05/08		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/05/11	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	2	N/A	2023/05/16	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/05/10	2023/05/11	CAM SOP-00428	SM 23 2540C m
Total Dissolved Solids	2	2023/05/06	2023/05/08	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	3	N/A	2023/05/08		Field Thermometer
Total Kjeldahl Nitrogen in Water	3	2023/05/05	2023/05/09	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	3	N/A	2023/05/08		
Volatile Organic Compounds in Water	2	N/A	2023/05/05	CAM SOP-00228	EPA 8260D
Volatile Organic Compounds in Water	1	N/A	2023/05/09	CAM SOP-00228	EPA 8260D

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, MELCCFP, 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.bvna.com

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/24
Report #: R7641235
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C5037
Received: 2023/05/03, 09:40

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) 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

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.

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

Bureau Veritas Job #: C3C5037
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSD717			VSD718			VSD719		
Sampling Date		2023/05/01			2023/05/01			2023/05/01		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	**OW67-4**	**RDL**	**QC Batch**	**OW71A-5**	**RDL**	**QC Batch**	**OW70B-5**	**RDL**	**QC Batch**
Field Measurements										
Field Conductivity	uS/cm	890	N/A	ONSITE	1520	N/A	ONSITE	2470	N/A	ONSITE
Field Temperature	Celsius	10.7	N/A	ONSITE	10.2	N/A	ONSITE	10.1	N/A	ONSITE
Field Turbidity	NTU	79.99	N/A	ONSITE	29.7	N/A	ONSITE	16.7	N/A	ONSITE
Field Measured pH	pH	7.49		ONSITE	7.40		ONSITE	7.10		ONSITE
Inorganics										
Total Ammonia-N	mg/L	0.48	0.15	8651620	<0.15	0.15	8651620	<0.15	0.15	8651620
Conductivity	umho/cm	590	1.0	8671992	1400	1.0	8657547	2100	1.0	8657547
Total Dissolved Solids	mg/L	595	10	8655843	845	10	8650196	1360	10	8650196
Total Kjeldahl Nitrogen (TKN)	mg/L	<1 (1)	1	8649424	<0.7	0.7	8649424	<0.7	0.7	8649424
Dissolved Organic Carbon	mg/L	16	0.4	8651528	3.5	0.4	8651528	2.8	0.4	8651528
pH	pH	7.91		8671979	8.11		8646040	8.19		8646040
Dissolved Sulphate (SO4)	mg/L	78	1.0	8665926	340	1.0	8665926	630	3.0	8657563
Alkalinity (Total as CaCO3)	mg/L	230	1.0	8671971	420	1.0	8657558	620	1.0	8657558
Dissolved Chloride (Cl-)	mg/L	13	1.0	8665919	30	1.0	8665919	6.0	1.0	8657560
Nitrate (N)	mg/L	<5.0	5.0	8646058	<0.10	0.10	8646058	<0.10	0.10	8646058

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) TKN : Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

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

Bureau Veritas Job #: C3C5037
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VSD717		VSD718		VSD719		
Sampling Date		2023/05/01		2023/05/01		2023/05/01		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW67-4**	**QC Batch**	**OW71A-5**	**QC Batch**	**OW70B-5**	**RDL**	**QC Batch**
Metals								
Dissolved Barium (Ba)	mg/L	0.029	8678682	0.077	8645495	0.010	0.005	8658403
Dissolved Boron (B)	mg/L	0.05	8678682	0.11	8645495	0.39	0.02	8658403
Dissolved Cadmium (Cd)	mg/L	<0.0001	8678682	<0.0001	8645495	<0.0001	0.0001	8658403
Dissolved Calcium (Ca)	mg/L	25	8678682	140	8645495	110	0.2	8658403
Dissolved Iron (Fe)	mg/L	0.2	8678682	0.7	8645495	<0.1	0.1	8658403
Dissolved Lead (Pb)	mg/L	0.0019	8678682	<0.0005	8645495	<0.0005	0.0005	8658403
Dissolved Magnesium (Mg)	mg/L	5.9	8678682	100	8645495	190	0.05	8658403
Dissolved Potassium (K)	mg/L	2.6	8678682	2.6	8645495	4.1	0.2	8658403
Dissolved Sodium (Na)	mg/L	51	8678682	42	8645495	82	0.1	8658403

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3C5037
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VSD717		VSD718		VSD719		
Sampling Date		2023/05/01		2023/05/01		2023/05/01		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW67-4**	**RDL**	**OW71A-5**	**QC Batch**	**OW70B-5**	**RDL**	**QC Batch**
Volatile Organics								
Benzene	ug/L	<10	10	<0.20	8645615	<0.20	0.20	8651087
1,4-Dichlorobenzene	ug/L	<20	20	<0.40	8645615	<0.40	0.40	8651087
Ethylbenzene	ug/L	<10	10	<0.20	8645615	<0.20	0.20	8651087
Methylene Chloride(Dichloromethane)	ug/L	<100	100	<2.0	8645615	<2.0	2.0	8651087
Toluene	ug/L	<10	10	<0.20	8645615	<0.20	0.20	8651087
Vinyl Chloride	ug/L	<10	10	<0.20	8645615	<0.20	0.20	8651087
p+m-Xylene	ug/L	<10	10	<0.20	8645615	<0.20	0.20	8651087
o-Xylene	ug/L	<10	10	<0.20	8645615	<0.20	0.20	8651087
Total Xylenes	ug/L	<10	10	<0.20	8645615	<0.20	0.20	8651087
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	98		97	8645615	99		8651087
D4-1,2-Dichloroethane	%	112		119	8645615	117		8651087
D8-Toluene	%	87		86	8645615	86		8651087

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 #: C3C5037
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

GENERAL COMMENTS

Sample VSD717 [OW67-4] : Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.
TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample VSD717 [OW67-4] : VOC Analysis: Due to sample matrix, sample required dilution. Detection limits were adjusted accordingly

Results relate only to the items tested.

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

Bureau Veritas Job #: C3C5037
Report Date: 2023/05/24

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8645615	4-Bromofluorobenzene	2023/05/05	101 (2)	70 - 130	102	70 - 130	102	%				
8645615	D4-1,2-Dichloroethane	2023/05/05	108 (2)	70 - 130	102	70 - 130	113	%				
8645615	D8-Toluene	2023/05/05	106 (2)	70 - 130	107	70 - 130	88	%				
8651087	4-Bromofluorobenzene	2023/05/09	101 (6)	70 - 130	103	70 - 130	107	%				
8651087	D4-1,2-Dichloroethane	2023/05/09	105 (6)	70 - 130	104	70 - 130	115	%				
8651087	D8-Toluene	2023/05/09	106 (6)	70 - 130	106	70 - 130	84	%				
8645495	Dissolved Barium (Ba)	2023/05/05	101	80 - 120	102	80 - 120	<0.005	mg/L	0.38 (1)	20		
8645495	Dissolved Boron (B)	2023/05/05	89	80 - 120	88	80 - 120	<0.02	mg/L	6.0 (1)	20		
8645495	Dissolved Cadmium (Cd)	2023/05/05	103	80 - 120	101	80 - 120	<0.0001	mg/L				
8645495	Dissolved Calcium (Ca)	2023/05/05	NC	80 - 120	104	80 - 120	<0.2	mg/L	2.2 (1)	20		
8645495	Dissolved Iron (Fe)	2023/05/05	100	80 - 120	104	80 - 120	<0.1	mg/L	NC (1)	20		
8645495	Dissolved Lead (Pb)	2023/05/05	99	80 - 120	99	80 - 120	<0.0005	mg/L	NC (1)	20		
8645495	Dissolved Magnesium (Mg)	2023/05/05	98	80 - 120	100	80 - 120	<0.05	mg/L	0.47 (1)	20		
8645495	Dissolved Potassium (K)	2023/05/05	105	80 - 120	104	80 - 120	<0.2	mg/L	1.2 (1)	20		
8645495	Dissolved Sodium (Na)	2023/05/05	NC	80 - 120	100	80 - 120	<0.1	mg/L	0.69 (1)	20		
8645615	1,4-Dichlorobenzene	2023/05/05	109 (2)	70 - 130	111	70 - 130	<0.40	ug/L	NC (3)	30		
8645615	Benzene	2023/05/05	90 (2)	70 - 130	93	70 - 130	<0.20	ug/L	NC (3)	30		
8645615	Ethylbenzene	2023/05/05	87 (2)	70 - 130	95	70 - 130	<0.20	ug/L	NC (3)	30		
8645615	Methylene Chloride(Dichloromethane)	2023/05/05	100 (2)	70 - 130	98	70 - 130	<2.0	ug/L	NC (3)	30		
8645615	o-Xylene	2023/05/05	86 (2)	70 - 130	98	70 - 130	<0.20	ug/L	NC (3)	30		
8645615	p+m-Xylene	2023/05/05	92 (2)	70 - 130	101	70 - 130	<0.20	ug/L	NC (3)	30		
8645615	Toluene	2023/05/05	94 (2)	70 - 130	98	70 - 130	<0.20	ug/L	NC (3)	30		
8645615	Total Xylenes	2023/05/05					<0.20	ug/L	NC (3)	30		
8645615	Vinyl Chloride	2023/05/05	94 (2)	70 - 130	97	70 - 130	<0.20	ug/L	NC (3)	30		
8646040	pH	2023/05/07			101	98 - 103			0.52 (1)	N/A		
8646058	Nitrate (N)	2023/05/05	99	80 - 120	94	80 - 120	<0.10	mg/L	0.041 (1)	20		
8649424	Total Kjeldahl Nitrogen (TKN)	2023/05/09	116 (4)	80 - 120	97	80 - 120	<0.7	mg/L	NC (5)	20	97	80 - 120
8650196	Total Dissolved Solids	2023/05/08					<10	mg/L	1.4 (1)	20	97	90 - 110
8651087	1,4-Dichlorobenzene	2023/05/09	104 (6)	70 - 130	95	70 - 130	<0.40	ug/L	NC (7)	30		
8651087	Benzene	2023/05/09	91 (6)	70 - 130	84	70 - 130	<0.20	ug/L	NC (7)	30		

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

Bureau Veritas Job #: C3C5037
Report Date: 2023/05/24

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8651087	Ethylbenzene	2023/05/09	88 (6)	70 - 130	82	70 - 130	<0.20	ug/L	NC (7)	30		
8651087	Methylene Chloride(Dichloromethane)	2023/05/09	98 (6)	70 - 130	90	70 - 130	<2.0	ug/L	NC (7)	30		
8651087	o-Xylene	2023/05/09	86 (6)	70 - 130	85	70 - 130	<0.20	ug/L	NC (7)	30		
8651087	p+m-Xylene	2023/05/09	93 (6)	70 - 130	87	70 - 130	<0.20	ug/L	NC (7)	30		
8651087	Toluene	2023/05/09	94 (6)	70 - 130	86	70 - 130	<0.20	ug/L	NC (7)	30		
8651087	Total Xylenes	2023/05/09					<0.20	ug/L	NC (7)	30		
8651087	Vinyl Chloride	2023/05/09	100 (6)	70 - 130	91	70 - 130	<0.20	ug/L	NC (7)	30		
8651528	Dissolved Organic Carbon	2023/05/09	95	80 - 120	98	80 - 120	<0.4	mg/L	1.0 (1)	20		
8651620	Total Ammonia-N	2023/05/08	103 (8)	75 - 125	100	80 - 120	<0.15	mg/L	NC (9)	20		
8655843	Total Dissolved Solids	2023/05/11					<10	mg/L	3.5 (1)	20	95	90 - 110
8657547	Conductivity	2023/05/11			101	85 - 115	<1.0	umho/cm	0.073 (10)	25		
8657558	Alkalinity (Total as CaCO3)	2023/05/11			98	85 - 115	<1.0	mg/L	0.64 (10)	20		
8657560	Dissolved Chloride (Cl-)	2023/05/11	94 (11)	80 - 120	91	80 - 120	<1.0	mg/L	1.4 (12)	20		
8657563	Dissolved Sulphate (SO4)	2023/05/11	NC (11)	75 - 125	89	80 - 120	<1.0	mg/L	0.62 (12)	20		
8658403	Dissolved Barium (Ba)	2023/05/11	101 (13)	80 - 120	99	80 - 120	<0.005	mg/L	8.5 (14)	20		
8658403	Dissolved Boron (B)	2023/05/11	107 (13)	80 - 120	97	80 - 120	<0.02	mg/L	9.4 (14)	20		
8658403	Dissolved Cadmium (Cd)	2023/05/11	103 (13)	80 - 120	101	80 - 120	<0.0001	mg/L	NC (14)	20		
8658403	Dissolved Calcium (Ca)	2023/05/11	NC (13)	80 - 120	102	80 - 120	<0.2	mg/L	9.3 (14)	20		
8658403	Dissolved Iron (Fe)	2023/05/11	104 (13)	80 - 120	100	80 - 120	<0.1	mg/L	NC (14)	20		
8658403	Dissolved Lead (Pb)	2023/05/11	96 (13)	80 - 120	96	80 - 120	<0.0005	mg/L	NC (14)	20		
8658403	Dissolved Magnesium (Mg)	2023/05/11	NC (13)	80 - 120	98	80 - 120	<0.05	mg/L	7.8 (14)	20		
8658403	Dissolved Potassium (K)	2023/05/11	106 (13)	80 - 120	105	80 - 120	<0.2	mg/L	8.8 (14)	20		
8658403	Dissolved Sodium (Na)	2023/05/11	NC (13)	80 - 120	100	80 - 120	<0.1	mg/L	8.5 (14)	20		
8665919	Dissolved Chloride (Cl-)	2023/05/16	NC	80 - 120	100	80 - 120	<1.0	mg/L	2.7 (1)	20		
8665926	Dissolved Sulphate (SO4)	2023/05/16	NC	75 - 125	102	80 - 120	<1.0	mg/L	12 (1)	20		
8671971	Alkalinity (Total as CaCO3)	2023/05/18			100	85 - 115	<1.0	mg/L	0.72 (1)	20		
8671979	pH	2023/05/18			102	98 - 103			0.62 (1)	N/A		
8671992	Conductivity	2023/05/18			101	85 - 115	<1.0	umho/cm	1.0 (1)	25		

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 #: C3C5037
Report Date: 2023/05/24

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8678682	Dissolved Barium (Ba)	2023/05/23	102 (16)	80 - 120	97	80 - 120	<0.005	mg/L	4.1 (17)	20		
8678682	Dissolved Boron (B)	2023/05/23	99 (16)	80 - 120	97	80 - 120	<0.02	mg/L	0.86 (17)	20		
8678682	Dissolved Cadmium (Cd)	2023/05/23	102 (16)	80 - 120	97	80 - 120	<0.0001	mg/L	NC (17)	20		
8678682	Dissolved Calcium (Ca)	2023/05/23	100 (16)	80 - 120	102	80 - 120	<0.2	mg/L	1.1 (17)	20		
8678682	Dissolved Iron (Fe)	2023/05/23	104 (16)	80 - 120	101	80 - 120	<0.1	mg/L	10 (17)	20		
8678682	Dissolved Lead (Pb)	2023/05/23	99 (16)	80 - 120	95	80 - 120	<0.0005	mg/L	7.4 (17)	20		
8678682	Dissolved Magnesium (Mg)	2023/05/23	103 (16)	80 - 120	101	80 - 120	<0.05	mg/L	0.95 (17)	20		
8678682	Dissolved Potassium (K)	2023/05/23	104 (16)	80 - 120	102	80 - 120	<0.2	mg/L	0.36 (17)	20		
8678682	Dissolved Sodium (Na)	2023/05/23	97 (16)	80 - 120	100	80 - 120	<0.1	mg/L	0.55 (17)	20		

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

Bureau Veritas Job #: C3C5037
Report Date: 2023/05/24

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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

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 [VSD718-07]

(3) Duplicate Parent ID [VSD718-07]

(4) Matrix Spike Parent ID [VSD719-04]

(5) Duplicate Parent ID [VSD719-04]

(6) Matrix Spike Parent ID [VSD719-07]

(7) Duplicate Parent ID [VSD719-07]

(8) Matrix Spike Parent ID [VSD719-05]

(9) Duplicate Parent ID [VSD719-05]

(10) Duplicate Parent ID [VSD718-01]

(11) Matrix Spike Parent ID [VSD719-01]

(12) Duplicate Parent ID [VSD719-01]

(13) Matrix Spike Parent ID [VSD719-03]

(14) Duplicate Parent ID [VSD719-03]

(15) Duplicate Parent ID [VSD717-01]

(16) Matrix Spike Parent ID [VSD717-03]

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

Bureau Veritas Job #: C3C5037
Report Date: 2023/05/24

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
(17) Duplicate Parent ID [VSD717-03]												

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

Bureau Veritas Job #: C3C5037
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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

James Klapperich, Project Manager Assistant

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.

S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SWE7+4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050123	7.49	mS 089	10.7	>999			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: cloudy, black

Odor: N/A

Color: black

Other:

Weather Conditions (required daily, or as conditions change): 7°C

Direction/Speed: 20km/h W

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/01/23	Eric Wilson	E.W./[illegible]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0714

S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW71A-5 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: ~~Y~~ or N ~~0.45~~ µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 01 23	7.40	mS 1.52	10.2	29.7			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear, black particles Odor: N/O Color: clear Other:

Weather Conditions (required daily, or as conditions change): -7°C Direction/Speed: 20km/h W Outlook: cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/01/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/2

0716

S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 70B-5 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: C or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050123	7.10	mS 2.47	10.1	16.7			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: N/A

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 7°C

Direction/Speed: 20 km/h W

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/01/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0713

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

03-May-23 09:40
Patricia Legette
C3C5037
RJM ENV-637

0713

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORM	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	TCEC-GWCM-MAY
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Sampled By:	EW

CHAIN OF CUSTODY #: TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other ODWS specify

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 11-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD)							# of Cont.	COMMENTS / TAT COMMENTS
1	OW67-4	1-May-23	PM	GW	N	Y	X							8	
2	OW71A-5	1-May-23	PM	GW	N	Y	X							8	
3	OW70B-5	1-May-23	PM	GW	N	Y	X							8	
4															
5															
6															
7															
8															
9															
10															
11															Metals and Filtered DOC field filtered
12															See lab addendum for analysis.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 2-May-23 - AM	[illegible]	03/05/23	0940	Temperature (°C) on Receipt: 4/4/5	Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

custody seal broken

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/17
Report #: R7633233
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6278
Received: 2023/05/04, 09:00

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/05/12	CAM SOP-00448	SM 23 2320 B m
Alkalinity	4	N/A	2023/05/13	CAM SOP-00448	SM 23 2320 B m
Alkalinity	1	N/A	2023/05/07	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	5	N/A	2023/05/16	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2023/05/08	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	6	N/A	2023/05/11		
Conductivity	6	N/A	2023/05/08	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	6	N/A	2023/05/09	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	5	N/A	2023/05/12	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2023/05/05	CAM SOP-00447	EPA 6020B m
Ammonia-N	6	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	6	N/A	2023/05/05	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	6	2023/05/04	2023/05/07	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	6	N/A	2023/05/11		Field pH Meter
Sulphate by Automated Turbidimetry	5	N/A	2023/05/16	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	1	N/A	2023/05/08	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	6	2023/05/08	2023/05/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	6	N/A	2023/05/11		Field Thermometer
Total Kjeldahl Nitrogen in Water	5	2023/05/08	2023/05/10	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2023/05/08	2023/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	6	N/A	2023/05/11		
Volatile Organic Compounds in Water	2	N/A	2023/05/08	CAM SOP-00228	EPA 8260D
Volatile Organic Compounds in Water	4	N/A	2023/05/09	CAM SOP-00228	EPA 8260D

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

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/17
Report #: R7633233
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6278
Received: 2023/05/04, 09:00

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

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.

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

Bureau Veritas Job #: C3C6278
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSK178		VSK179		VSK180		
Sampling Date		2023/05/02		2023/05/02		2023/05/02		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW16-7**	**RDL**	**OW57-15**	**RDL**	**OW58-17**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	1370	N/A	3240	N/A	3940	N/A	ONSITE
Field Temperature	Celsius	10.7	N/A	10.0	N/A	11.3	N/A	ONSITE
Field Turbidity	NTU	34.7	N/A	29.5	N/A	7.04	N/A	ONSITE
Field Measured pH	pH	7.73		7.33		7.28		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.15	0.15	0.18	0.15	<0.15	0.15	8653597
Conductivity	umho/cm	1100	1.0	3000	1.0	3900	1.0	8647240
Total Dissolved Solids	mg/L	765	10	2410	10	3360	10	8651798
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	0.7	<0.7	0.7	8652276
Dissolved Organic Carbon	mg/L	2.3	0.4	2.0	0.4	1.7	0.4	8651924
pH	pH	8.19		7.92		7.69		8647236
Dissolved Sulphate (SO4)	mg/L	260	1.0	1800	5.0	2500	10	8665926
Alkalinity (Total as CaCO3)	mg/L	450	1.0	160	1.0	68	1.0	8661168
Dissolved Chloride (Cl-)	mg/L	4.5	1.0	7.5	1.0	7.7	1.0	8665919
Nitrate (N)	mg/L	0.37	0.10	0.40	0.10	0.25	0.10	8647171

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

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

Bureau Veritas Job #: C3C6278
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSK181			VSK182		VSK183		
Sampling Date		2023/05/02			2023/05/02		2023/05/02		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW72-10**	**RDL**	**QC Batch**	**OW73-9**	**QC Batch**	**GWDUP1**	**RDL**	**QC Batch**
Field Measurements									
Field Conductivity	uS/cm	3130	N/A	ONSITE	3780	ONSITE	3780	N/A	ONSITE
Field Temperature	Celsius	9.4	N/A	ONSITE	9.7	ONSITE	9.7	N/A	ONSITE
Field Turbidity	NTU	30.6	N/A	ONSITE	13.6	ONSITE	13.6	N/A	ONSITE
Field Measured pH	pH	7.16		ONSITE	7.36	ONSITE	7.36		ONSITE
Inorganics									
Total Ammonia-N	mg/L	0.17	0.15	8653597	<0.15	8653597	<0.15	0.15	8653597
Conductivity	umho/cm	2700	1.0	8647240	4000	8647240	4000	1.0	8647240
Total Dissolved Solids	mg/L	1960	10	8651798	3360	8651798	3200	10	8651798
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8652276	<0.7	8652276	<0.7	0.7	8652276
Dissolved Organic Carbon	mg/L	1.7	0.4	8651924	1.7	8651924	1.6	0.4	8651924
pH	pH	8.02		8647236	8.05	8647236	8.18		8647236
Dissolved Sulphate (SO4)	mg/L	1500	5.0	8665926	2300	8647201	2500	10	8665926
Alkalinity (Total as CaCO3)	mg/L	380	1.0	8661168	280	8647203	290	1.0	8661168
Dissolved Chloride (Cl-)	mg/L	4.4	1.0	8665919	6.4	8647194	6.9	1.0	8665919
Nitrate (N)	mg/L	0.13	0.10	8647171	0.57	8647171	0.61	0.10	8647171

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

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Bureau Veritas Job #: C3C6278
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VSK178		VSK179		VSK180		
Sampling Date		2023/05/02		2023/05/02		2023/05/02		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW16-7**	**RDL**	**OW57-15**	**RDL**	**OW58-17**	**RDL**	**QC Batch**
Metals								
Dissolved Barium (Ba)	mg/L	0.014	0.005	0.009	0.005	0.014	0.005	8661015
Dissolved Boron (B)	mg/L	0.27	0.02	1.1	0.02	1.3	0.02	8661015
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	8661015
Dissolved Calcium (Ca)	mg/L	100	0.2	270	0.4	440	1	8661015
Dissolved Iron (Fe)	mg/L	0.6	0.1	0.4	0.1	0.2	0.1	8661015
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	8661015
Dissolved Magnesium (Mg)	mg/L	77	0.05	200	0.05	250	0.05	8661015
Dissolved Potassium (K)	mg/L	3.8	0.2	4.9	0.2	4.2	0.2	8661015
Dissolved Sodium (Na)	mg/L	60	0.1	170	0.1	180	0.1	8661015

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSK181		VSK182		VSK183		
Sampling Date		2023/05/02		2023/05/02		2023/05/02		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW72-10**	**QC Batch**	**OW73-9**	**QC Batch**	**GWDUP1**	**RDL**	**QC Batch**
Metals								
Dissolved Barium (Ba)	mg/L	0.010	8661015	0.007	8648495	0.006	0.005	8661015
Dissolved Boron (B)	mg/L	1.1	8661015	1.1	8648495	1.1	0.02	8661015
Dissolved Cadmium (Cd)	mg/L	<0.0001	8661015	<0.0001	8648495	<0.0001	0.0001	8661015
Dissolved Calcium (Ca)	mg/L	220	8661015	410	8648495	370	0.4	8661015
Dissolved Iron (Fe)	mg/L	4.0	8661015	0.3	8648495	0.3	0.1	8661015
Dissolved Lead (Pb)	mg/L	<0.0005	8661015	<0.0005	8648495	<0.0005	0.0005	8661015
Dissolved Magnesium (Mg)	mg/L	230	8661015	330	8648495	310	0.05	8661015
Dissolved Potassium (K)	mg/L	5.3	8661015	6.3	8648495	6.0	0.2	8661015
Dissolved Sodium (Na)	mg/L	140	8661015	230	8648495	210	0.1	8661015

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3C6278
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VSK178	VSK179	VSK180	VSK181		
Sampling Date		2023/05/02	2023/05/02	2023/05/02	2023/05/02		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW16-7**	**OW57-15**	**OW58-17**	**OW72-10**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650459
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8650459
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650459
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8650459
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650459
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650459
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650459
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650459
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650459
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	96	98	96	96		8650459
D4-1,2-Dichloroethane	%	119	117	119	119		8650459
D8-Toluene	%	87	85	86	87		8650459

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSK182	VSK183		
Sampling Date		2023/05/02	2023/05/02		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW73-9**	**GWDUP1**	**RDL**	**QC Batch**
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	8650459
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	8650459
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8650459
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	8650459
Toluene	ug/L	<0.20	<0.20	0.20	8650459
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	8650459
p+m-Xylene	ug/L	<0.20	<0.20	0.20	8650459
o-Xylene	ug/L	<0.20	<0.20	0.20	8650459
Total Xylenes	ug/L	<0.20	<0.20	0.20	8650459
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	96	96		8650459
D4-1,2-Dichloroethane	%	119	119		8650459
D8-Toluene	%	87	87		8650459

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C3C6278
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8650459	4-Bromofluorobenzene	2023/05/08	101 (4)	70 - 130	101	70 - 130	101	%				
8650459	D4-1,2-Dichloroethane	2023/05/08	108 (4)	70 - 130	104	70 - 130	113	%				
8650459	D8-Toluene	2023/05/08	106 (4)	70 - 130	108	70 - 130	87	%				
8647171	Nitrate (N)	2023/05/05	84	80 - 120	97	80 - 120	<0.10	mg/L	0.92 (1)	20		
8647194	Dissolved Chloride (Cl-)	2023/05/08	NC	80 - 120	93	80 - 120	<1.0	mg/L	0.25 (1)	20		
8647201	Dissolved Sulphate (SO4)	2023/05/08	NC	75 - 125	96	80 - 120	<1.0	mg/L	0.36 (1)	20		
8647203	Alkalinity (Total as CaCO3)	2023/05/07			100	85 - 115	1.1, RDL=1.0	mg/L	2.1 (2)	20		
8647236	pH	2023/05/07			101	98 - 103			0.77 (2)	N/A		
8647240	Conductivity	2023/05/07			104	85 - 115	<1.0	umho/cm	0.76 (2)	25		
8648495	Dissolved Barium (Ba)	2023/05/05	103 (3)	80 - 120	101	80 - 120	<0.005	mg/L				
8648495	Dissolved Boron (B)	2023/05/05	88 (3)	80 - 120	95	80 - 120	<0.02	mg/L				
8648495	Dissolved Cadmium (Cd)	2023/05/05	104 (3)	80 - 120	100	80 - 120	<0.0001	mg/L				
8648495	Dissolved Calcium (Ca)	2023/05/05	NC (3)	80 - 120	99	80 - 120	<0.2	mg/L				
8648495	Dissolved Iron (Fe)	2023/05/05	102 (3)	80 - 120	103	80 - 120	<0.1	mg/L				
8648495	Dissolved Lead (Pb)	2023/05/05	99 (3)	80 - 120	99	80 - 120	<0.0005	mg/L				
8648495	Dissolved Magnesium (Mg)	2023/05/05	NC (3)	80 - 120	100	80 - 120	<0.05	mg/L				
8648495	Dissolved Potassium (K)	2023/05/05	104 (3)	80 - 120	103	80 - 120	<0.2	mg/L				
8648495	Dissolved Sodium (Na)	2023/05/05	NC (3)	80 - 120	101	80 - 120	<0.1	mg/L				
8650459	1,4-Dichlorobenzene	2023/05/08	110 (4)	70 - 130	112	70 - 130	<0.40	ug/L	NC (5)	30		
8650459	Benzene	2023/05/08	95 (4)	70 - 130	90	70 - 130	<0.20	ug/L	NC (5)	30		
8650459	Ethylbenzene	2023/05/08	92 (4)	70 - 130	89	70 - 130	<0.20	ug/L	NC (5)	30		
8650459	Methylene Chloride(Dichloromethane)	2023/05/08	104 (4)	70 - 130	98	70 - 130	<2.0	ug/L	NC (5)	30		
8650459	o-Xylene	2023/05/08	92 (4)	70 - 130	94	70 - 130	<0.20	ug/L	NC (5)	30		
8650459	p+m-Xylene	2023/05/08	98 (4)	70 - 130	94	70 - 130	<0.20	ug/L	NC (5)	30		
8650459	Toluene	2023/05/08	100 (4)	70 - 130	95	70 - 130	<0.20	ug/L	NC (5)	30		
8650459	Total Xylenes	2023/05/08					<0.20	ug/L	NC (5)	30		
8650459	Vinyl Chloride	2023/05/08	97 (4)	70 - 130	91	70 - 130	<0.20	ug/L	NC (5)	30		
8651798	Total Dissolved Solids	2023/05/09					<10	mg/L	1.2 (6)	20	102	90 - 110
8651924	Dissolved Organic Carbon	2023/05/09	99 (7)	80 - 120	97	80 - 120	<0.4	mg/L	1.8 (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.bvna.com

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

Bureau Veritas Job #: C3C6278
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8652276	Total Kjeldahl Nitrogen (TKN)	2023/05/10	109 (9)	80 - 120	101	80 - 120	<0.7	mg/L	NC (10)	20	92	80 - 120
8653597	Total Ammonia-N	2023/05/10	100	75 - 125	100	80 - 120	<0.15	mg/L	NC (1)	20		
8661015	Dissolved Barium (Ba)	2023/05/12	97 (11)	80 - 120	95	80 - 120	<0.005	mg/L	3.1 (12)	20		
8661015	Dissolved Boron (B)	2023/05/12	NC (11)	80 - 120	97	80 - 120	<0.02	mg/L	1.1 (12)	20		
8661015	Dissolved Cadmium (Cd)	2023/05/12	100 (11)	80 - 120	95	80 - 120	<0.0001	mg/L	NC (12)	20		
8661015	Dissolved Calcium (Ca)	2023/05/12	NC (11)	80 - 120	94	80 - 120	<0.2	mg/L	2.2 (12)	20		
8661015	Dissolved Iron (Fe)	2023/05/12	103 (11)	80 - 120	97	80 - 120	<0.1	mg/L	0.80 (12)	20		
8661015	Dissolved Lead (Pb)	2023/05/12	96 (11)	80 - 120	93	80 - 120	<0.0005	mg/L	NC (12)	20		
8661015	Dissolved Magnesium (Mg)	2023/05/12	NC (11)	80 - 120	96	80 - 120	<0.05	mg/L	1.1 (12)	20		
8661015	Dissolved Potassium (K)	2023/05/12	98 (11)	80 - 120	97	80 - 120	<0.2	mg/L	1.6 (12)	20		
8661015	Dissolved Sodium (Na)	2023/05/12	NC (11)	80 - 120	97	80 - 120	<0.1	mg/L	0.57 (12)	20		
8661168	Alkalinity (Total as CaCO3)	2023/05/12			101	85 - 115	<1.0	mg/L	1.0 (13)	20		
8665919	Dissolved Chloride (Cl-)	2023/05/16	NC	80 - 120	100	80 - 120	<1.0	mg/L	2.7 (1)	20		
8665926	Dissolved Sulphate (SO4)	2023/05/16	NC	75 - 125	102	80 - 120	<1.0	mg/L	12 (1)	20		

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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

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 [VSK182-01]

(3) Matrix Spike Parent ID [VSK178-03]

(4) Matrix Spike Parent ID [VSK179-07]

(5) Duplicate Parent ID [VSK179-07]

(6) Duplicate Parent ID [VSK180-02]

(7) Matrix Spike Parent ID [VSK179-05]

(8) Duplicate Parent ID [VSK179-05]

(9) Matrix Spike Parent ID [VSK182-04]

(10) Duplicate Parent ID [VSK182-04]

(11) Matrix Spike Parent ID [VSK179-03]

(12) Duplicate Parent ID [VSK179-03]

(13) Duplicate Parent ID [VSK183-01]

(14) Duplicate Parent ID [VSK178-01]

(15) Duplicate Parent ID [VSK179-01]

(16) Duplicate Parent ID [VSK180-01]

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

Bureau Veritas Job #: C3C6278
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
(17) Duplicate Parent ID [VSK181-01]												

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 #: C3C6278
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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.

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

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW16-7
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (mS ~~µmhos/cm~~ @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	7.73	1.37	10.7	34.7			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: None

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: Rain/W

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0734

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 57-15 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, ~~from TOC~~) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C) mS	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	7.33	3.74	10.0	29.5			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: slight yellow, black particles

Odor: None

Color: yellow

Other:

Weather Conditions (required daily, or as conditions change): 0°C

Direction/Speed: 10mph W

Outlook: cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
03/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0727

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 518-17 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: (Y) or N — (0.45 µ) or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050723	7.28	mS 3.94	11.3	7.04			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: No

Color: n/c

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 9 km/h W

Outlook: Rain

Precipitation: (Y) or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0725

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW72-10 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C) mS	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	7.16	3.13	9.4	30.6			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: None

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 5°C

Direction/Speed: 8kmlh W

Outlook: clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0719

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 73 + 9 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 μ or ____ μ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (μmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (μmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	7.36	mS 3.78	9.7	13.6			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 19km/h W

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

GWDUP1 collected

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWD1

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0721

Maxxam Analytics Inc IMMEDIATE 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-MAY
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks
				Sampled By:	EW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other ODWS specify

Report Criteria on C of A ? n

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 12-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERSTADIAL SILT & SAND)	# of Cont.	COMMENTS / TAT COMMENTS
1	OW16-7	2-May-23	PM	GW	N	Y	X	8	
2	OW57-15	2-May-23	PM	GW	N	Y	X	8	
3	OW58-17	2-May-23	PM	GW	N	Y	X	8	
4	OW72-10	2-May-23	AM	GW	N	Y	X	8	
5	OW73-9	2-May-23	AM	GW	N	Y	X	8	GWDUP1 Collected
6	GWDUP1	2-May-23	AM	GW	N	Y	X	8	
7									
8									
9									
10									
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

04-May-23 09:00 Patricia Legette C3C6278 JDK ENV-1089

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 3-May-23 - AM	[signature]	2023/05/04	09:00	Temperature (°C) on Receipt: see ACTR	Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/18
Report #: R7634191
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6281
Received: 2023/05/04, 09:00

Sample Matrix: Ground Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2023/05/15	CAM SOP-00448	SM 23 2320 B m
Alkalinity	1	N/A	2023/05/17	CAM SOP-00448	SM 23 2320 B m
Alkalinity	7	N/A	2023/05/06	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	6	N/A	2023/05/10	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	2	N/A	2023/05/15	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2023/05/17	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2023/05/08	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	10	N/A	2023/05/12		
Conductivity	1	N/A	2023/05/17	CAM SOP-00414	SM 23 2510 m
Conductivity	9	N/A	2023/05/08	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	2	N/A	2023/05/10	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1)	8	N/A	2023/05/09	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	3	N/A	2023/05/15	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	6	N/A	2023/05/05	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2023/05/08	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Ammonia-N	9	N/A	2023/05/09	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	10	N/A	2023/05/05	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	10	2023/05/05	2023/05/06	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	10	N/A	2023/05/12		Field pH Meter
Sulphate by Automated Turbidimetry	6	N/A	2023/05/10	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	2	N/A	2023/05/15	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	1	N/A	2023/05/17	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	1	N/A	2023/05/08	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	8	2023/05/05	2023/05/06	CAM SOP-00428	SM 23 2540C m
Total Dissolved Solids	2	2023/05/06	2023/05/08	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	10	N/A	2023/05/12		Field Thermometer
Total Kjeldahl Nitrogen in Water	5	2023/05/09	2023/05/10	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	5	2023/05/09	2023/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	10	N/A	2023/05/12		
Volatile Organic Compounds in Water	10	N/A	2023/05/08	CAM SOP-00228	EPA 8260D

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/18
Report #: R7634191
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6281
Received: 2023/05/04, 09:00

Sample Matrix: Ground Water
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Volatile Organic Compounds in Water	1	N/A	2023/05/08	CAM SOP-00228	EPA 8260D

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.

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.

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Your P.O. #: 12285756
Your Project #: 2303459.01
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Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/18
Report #: R7634191
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6281
Received: 2023/05/04, 09:00

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 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 #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		VSK188		VSK189		VSK190		
Sampling Date		2023/05/02		2023/05/02		2023/05/02		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW16-6**	**RDL**	**OW54-10**	**RDL**	**OW54A-4**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	2130	N/A	2490	N/A	2550	N/A	ONSITE
Field Temperature	Celsius	9.1	N/A	9.5	N/A	10.5	N/A	ONSITE
Field Turbidity	NTU	19.3	N/A	99.5	N/A	56.5	N/A	ONSITE
Field Measured pH	pH	7.29		7.32		7.13		ONSITE
Inorganics								
Total Ammonia-N	mg/L	1.29	0.15	0.16	0.15	0.81	0.15	8653556
Conductivity	umho/cm	1800	1.0	2400	1.0	2200	1.0	8648644
Total Dissolved Solids	mg/L	1020	10	1710	10	1430	10	8647908
Total Kjeldahl Nitrogen (TKN)	mg/L	1.4	0.7	<0.7	0.7	1.1	0.7	8653894
Dissolved Organic Carbon	mg/L	3.4	0.4	1.8	0.4	4.7	0.4	8651924
pH	pH	7.99		8.12		8.00		8648642
Dissolved Sulphate (SO4)	mg/L	390	1.0	1100	10	740	5.0	8651018
Alkalinity (Total as CaCO3)	mg/L	610	1.0	320	1.0	620	1.0	8648631
Dissolved Chloride (Cl-)	mg/L	44	1.0	6.5	1.0	23	1.0	8651017
Nitrate (N)	mg/L	0.22	0.10	0.45	0.10	<0.10	0.10	8648593

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 #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		VSK191			VSK192	VSK193		
Sampling Date		2023/05/02			2023/05/02	2023/05/02		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW57-4**	**RDL**	**QC Batch**	**OW58-6**	**OW59-6**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	3790	N/A	ONSITE	3900	5020	N/A	ONSITE
Field Temperature	Celsius	8.9	N/A	ONSITE	11.4	10.6	N/A	ONSITE
Field Turbidity	NTU	4.74	N/A	ONSITE	4.88	3.56	N/A	ONSITE
Field Measured pH	pH	7.38		ONSITE	7.30	7.14		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.15	0.15	8653556	<0.15	<0.15	0.15	8653556
Conductivity	umho/cm	3500	1.0	8648644	3700	5100	1.0	8648644
Total Dissolved Solids	mg/L	2740	10	8647908	2900	4370	10	8647908
Total Kjeldahl Nitrogen (TKN)	mg/L	0.7	0.7	8653894	<0.7	0.7	0.7	8653894
Dissolved Organic Carbon	mg/L	3.3	0.4	8651924	1.2	2.4	0.4	8651924
pH	pH	7.94		8648642	7.87	7.89		8648642
Dissolved Sulphate (SO4)	mg/L	1900	20	8651018	2200	3300	10	8664679
Alkalinity (Total as CaCO3)	mg/L	580	1.0	8648631	370	430	1.0	8664706
Dissolved Chloride (Cl-)	mg/L	4.0	1.0	8651017	5.6	4.5	1.0	8664673
Nitrate (N)	mg/L	<0.10	0.10	8648593	<0.10	<0.10	0.10	8648593

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 #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		VSK194			VSK195			VSK196		
Sampling Date		2023/05/02			2023/05/02			2023/05/02		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	**OW68-5**	**RDL**	**QC Batch**	**OW69-5**	**RDL**	**QC Batch**	**OW72-6**	**RDL**	**QC Batch**
Field Measurements										
Field Conductivity	uS/cm	1260	N/A	ONSITE	5930	N/A	ONSITE	2850	N/A	ONSITE
Field Temperature	Celsius	9.4	N/A	ONSITE	9.5	N/A	ONSITE	8.5	N/A	ONSITE
Field Turbidity	NTU	37.1	N/A	ONSITE	39.7	N/A	ONSITE	6.13	N/A	ONSITE
Field Measured pH	pH	7.45		ONSITE	7.06		ONSITE	7.21		ONSITE
Inorganics										
Total Ammonia-N	mg/L	<0.15	0.15	8653556	<0.15	0.15	8653556	<0.15	0.15	8653556
Conductivity	umho/cm	1000	1.0	8648644	5900	1.0	8648644	2800	1.0	8648644
Total Dissolved Solids	mg/L	630	10	8647908	5790	10	8650483	2150	10	8648489
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8653894	1.0	0.7	8653894	<0.7	0.7	8653894
Dissolved Organic Carbon	mg/L	2.6	0.4	8651924	2.5	0.4	8651924	3.6	0.4	8653853
pH	pH	8.04		8648642	7.73		8648642	8.08		8648642
Dissolved Sulphate (SO4)	mg/L	170	1.0	8651018	3900	20	8651018	1200	5.0	8649175
Alkalinity (Total as CaCO3)	mg/L	500	1.0	8648631	690	1.0	8648631	550	1.0	8648631
Dissolved Chloride (Cl-)	mg/L	7.6	1.0	8651017	8.9	1.0	8651017	3.9	1.0	8649172
Nitrate (N)	mg/L	<0.10	0.10	8648593	<0.10	0.10	8648593	<0.10	0.10	8648593

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

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

Bureau Veritas Job #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		VSK197		
Sampling Date		2023/05/02		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW73-6**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	4750	N/A	ONSITE
Field Temperature	Celsius	8.9	N/A	ONSITE
Field Turbidity	NTU	13.6	N/A	ONSITE
Field Measured pH	pH	7.07		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8653597
Conductivity	umho/cm	4400	1.0	8668238
Total Dissolved Solids	mg/L	3820	10	8650483
Total Kjeldahl Nitrogen (TKN)	mg/L	0.8	0.7	8653894
Dissolved Organic Carbon	mg/L	3.2	0.4	8653853
pH	pH	7.82		8648642
Dissolved Sulphate (SO4)	mg/L	2500	15	8668020
Alkalinity (Total as CaCO3)	mg/L	500	1.0	8668192
Dissolved Chloride (Cl-)	mg/L	7.6	1.0	8668005
Nitrate (N)	mg/L	<0.10	0.10	8648593

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 #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (GROUND WATER)

Bureau Veritas ID		VSK188		VSK189		VSK190	VSK191		
Sampling Date		2023/05/02		2023/05/02		2023/05/02	2023/05/02		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW16-6**	**RDL**	**OW54-10**	**RDL**	**OW54A-4**	**OW57-4**	**RDL**	**QC Batch**
Metals									
Dissolved Barium (Ba)	mg/L	0.012	0.005	0.012	0.005	0.015	0.006	0.005	8648495
Dissolved Boron (B)	mg/L	0.16	0.02	0.95	0.02	0.20	0.37	0.02	8648495
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	8648495
Dissolved Calcium (Ca)	mg/L	120	0.2	180	0.4	130	340	0.2	8648495
Dissolved Iron (Fe)	mg/L	<0.1	0.1	1.8	0.1	0.3	<0.1	0.1	8648495
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	<0.0005	<0.0005	0.0005	8648495
Dissolved Magnesium (Mg)	mg/L	100	0.05	190	0.05	200	350	0.05	8648495
Dissolved Potassium (K)	mg/L	5.2	0.2	4.6	0.2	3.1	4.1	0.2	8648495
Dissolved Sodium (Na)	mg/L	170	0.1	150	0.1	140	130	0.1	8648495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSK192		VSK193			VSK194		
Sampling Date		2023/05/02		2023/05/02			2023/05/02		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	**OW58-6**	**RDL**	**OW59-6**	**RDL**	**QC Batch**	**OW68-5**	**RDL**	**QC Batch**
Metals									
Dissolved Barium (Ba)	mg/L	0.008	0.005	0.007	0.005	8664482	0.038	0.005	8648495
Dissolved Boron (B)	mg/L	0.65	0.02	0.75	0.02	8664482	0.09	0.02	8648495
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	8664482	<0.0001	0.0001	8648495
Dissolved Calcium (Ca)	mg/L	400	0.4	460	0.4	8664482	110	0.2	8648495
Dissolved Iron (Fe)	mg/L	<0.1	0.1	<0.1	0.1	8664482	<0.1	0.1	8648495
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	8664482	<0.0005	0.0005	8648495
Dissolved Magnesium (Mg)	mg/L	270	0.05	460	0.3	8664482	91	0.05	8648495
Dissolved Potassium (K)	mg/L	5.9	0.2	6.2	0.2	8664482	2.0	0.2	8648495
Dissolved Sodium (Na)	mg/L	200	0.1	270	0.1	8664482	36	0.1	8648495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (GROUND WATER)

Bureau Veritas ID		VSK195		VSK196			VSK197		
Sampling Date		2023/05/02		2023/05/02			2023/05/02		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	**OW69-5**	**RDL**	**OW72-6**	**RDL**	**QC Batch**	**OW73-6**	**RDL**	**QC Batch**
Metals									
Dissolved Barium (Ba)	mg/L	0.008	0.005	0.008	0.005	8648495	0.008	0.005	8664482
Dissolved Boron (B)	mg/L	0.90	0.02	0.68	0.02	8648495	0.75	0.02	8664482
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	8648495	<0.0001	0.0001	8664482
Dissolved Calcium (Ca)	mg/L	480	0.4	210	0.2	8648495	500	0.4	8664482
Dissolved Iron (Fe)	mg/L	1.6	0.1	<0.1	0.1	8648495	0.1	0.1	8664482
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	8648495	<0.0005	0.0005	8664482
Dissolved Magnesium (Mg)	mg/L	650	0.3	290	0.05	8648495	350	0.05	8664482
Dissolved Potassium (K)	mg/L	5.9	0.2	4.8	0.2	8648495	6.8	0.2	8664482
Dissolved Sodium (Na)	mg/L	290	0.1	110	0.1	8648495	250	0.1	8664482

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (GROUND WATER)

Bureau Veritas ID		VSK188	VSK189	VSK190	VSK191		
Sampling Date		2023/05/02	2023/05/02	2023/05/02	2023/05/02		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW16-6**	**OW54-10**	**OW54A-4**	**OW57-4**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8647989
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8647989
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	102	102	102	103		8647989
D4-1,2-Dichloroethane	%	103	101	103	103		8647989
D8-Toluene	%	94	96	95	96		8647989

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSK192	VSK193	VSK194	VSK195		
Sampling Date		2023/05/02	2023/05/02	2023/05/02	2023/05/02		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW58-6**	**OW59-6**	**OW68-5**	**OW69-5**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8647989
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8647989
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8647989
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	102	101	102	103		8647989
D4-1,2-Dichloroethane	%	103	103	104	105		8647989
D8-Toluene	%	95	94	95	94		8647989

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (GROUND WATER)

Bureau Veritas ID		VSK196	VSK197		
Sampling Date		2023/05/02	2023/05/02		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW72-6**	**OW73-6**	**RDL**	**QC Batch**
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	8647989
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	8647989
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8647989
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	8647989
Toluene	ug/L	<0.20	<0.20	0.20	8647989
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	8647989
p+m-Xylene	ug/L	<0.20	<0.20	0.20	8647989
o-Xylene	ug/L	<0.20	<0.20	0.20	8647989
Total Xylenes	ug/L	<0.20	<0.20	0.20	8647989
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	102	104		8647989
D4-1,2-Dichloroethane	%	103	104		8647989
D8-Toluene	%	95	96		8647989

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VSK198		
Sampling Date		2023/05/03		
COC Number		TCEC-GWCM-MAY		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8647989
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8647989
Ethylbenzene	ug/L	<0.20	0.20	8647989
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8647989
Toluene	ug/L	<0.20	0.20	8647989
Vinyl Chloride	ug/L	<0.20	0.20	8647989
p+m-Xylene	ug/L	<0.20	0.20	8647989
o-Xylene	ug/L	<0.20	0.20	8647989
Total Xylenes	ug/L	<0.20	0.20	8647989
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	101		8647989
D4-1,2-Dichloroethane	%	103		8647989
D8-Toluene	%	95		8647989

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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

Bureau Veritas Job #: C3C6281
Report Date: 2023/05/18

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8647989	4-Bromofluorobenzene	2023/05/08	103 (2)	70 - 130	100	70 - 130	101	%				
8647989	D4-1,2-Dichloroethane	2023/05/08	107 (2)	70 - 130	102	70 - 130	100	%				
8647989	D8-Toluene	2023/05/08	98 (2)	70 - 130	99	70 - 130	96	%				
8647908	Total Dissolved Solids	2023/05/06					<10	mg/L	0.35 (1)	20	95	90 - 110
8647989	1,4-Dichlorobenzene	2023/05/08	108 (2)	70 - 130	108	70 - 130	<0.40	ug/L	NC (3)	30		
8647989	Benzene	2023/05/08	89 (2)	70 - 130	88	70 - 130	<0.20	ug/L	NC (3)	30		
8647989	Ethylbenzene	2023/05/08	90 (2)	70 - 130	90	70 - 130	<0.20	ug/L	NC (3)	30		
8647989	Methylene Chloride(Dichloromethane)	2023/05/08	101 (2)	70 - 130	99	70 - 130	<2.0	ug/L	NC (3)	30		
8647989	o-Xylene	2023/05/08	91 (2)	70 - 130	90	70 - 130	<0.20	ug/L	NC (3)	30		
8647989	p+m-Xylene	2023/05/08	93 (2)	70 - 130	92	70 - 130	<0.20	ug/L	NC (3)	30		
8647989	Toluene	2023/05/08	86 (2)	70 - 130	85	70 - 130	<0.20	ug/L	NC (3)	30		
8647989	Total Xylenes	2023/05/08					<0.20	ug/L	NC (3)	30		
8647989	Vinyl Chloride	2023/05/08	88 (2)	70 - 130	89	70 - 130	<0.20	ug/L	NC (3)	30		
8648489	Total Dissolved Solids	2023/05/06					<10	mg/L	0.46 (4)	20	100	90 - 110
8648495	Dissolved Barium (Ba)	2023/05/05	103	80 - 120	101	80 - 120	<0.005	mg/L				
8648495	Dissolved Boron (B)	2023/05/05	88	80 - 120	95	80 - 120	<0.02	mg/L				
8648495	Dissolved Cadmium (Cd)	2023/05/05	104	80 - 120	100	80 - 120	<0.0001	mg/L				
8648495	Dissolved Calcium (Ca)	2023/05/05	NC	80 - 120	99	80 - 120	<0.2	mg/L				
8648495	Dissolved Iron (Fe)	2023/05/05	102	80 - 120	103	80 - 120	<0.1	mg/L				
8648495	Dissolved Lead (Pb)	2023/05/05	99	80 - 120	99	80 - 120	<0.0005	mg/L				
8648495	Dissolved Magnesium (Mg)	2023/05/05	NC	80 - 120	100	80 - 120	<0.05	mg/L				
8648495	Dissolved Potassium (K)	2023/05/05	104	80 - 120	103	80 - 120	<0.2	mg/L				
8648495	Dissolved Sodium (Na)	2023/05/05	NC	80 - 120	101	80 - 120	<0.1	mg/L				
8648593	Nitrate (N)	2023/05/05	93	80 - 120	92	80 - 120	<0.10	mg/L	NC (1)	20		
8648631	Alkalinity (Total as CaCO3)	2023/05/06			97	85 - 115	<1.0	mg/L	0.52 (5)	20		
8648642	pH	2023/05/06			101	98 - 103			0.081 (5)	N/A		
8648644	Conductivity	2023/05/06			104	85 - 115	<1.0	umho/cm	1.4 (5)	25		
8649172	Dissolved Chloride (Cl-)	2023/05/08	NC	80 - 120	95	80 - 120	<1.0	mg/L	0.28 (1)	20		
8649175	Dissolved Sulphate (SO4)	2023/05/08	NC	75 - 125	94	80 - 120	<1.0	mg/L	0.39 (1)	20		

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Bureau Veritas Job #: C3C6281
Report Date: 2023/05/18

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8650483	Total Dissolved Solids	2023/05/08					<10	mg/L	1.9 (6)	20	100	90 - 110
8651017	Dissolved Chloride (Cl-)	2023/05/10	83 (7)	80 - 120	102	80 - 120	<1.0	mg/L	1.8 (5)	20		
8651018	Dissolved Sulphate (SO4)	2023/05/10	NC (7)	75 - 125	102	80 - 120	<1.0	mg/L	4.3 (5)	20		
8651924	Dissolved Organic Carbon	2023/05/09	99	80 - 120	97	80 - 120	<0.4	mg/L	1.8 (1)	20		
8653556	Total Ammonia-N	2023/05/09	96	75 - 125	100	80 - 120	<0.15	mg/L	NC (1)	20		
8653597	Total Ammonia-N	2023/05/10	100	75 - 125	100	80 - 120	<0.15	mg/L	NC (1)	20		
8653853	Dissolved Organic Carbon	2023/05/09	NC	80 - 120	98	80 - 120	<0.4	mg/L	0.64 (1)	20		
8653894	Total Kjeldahl Nitrogen (TKN)	2023/05/10	108 (8)	80 - 120	102	80 - 120	<0.7	mg/L	5.7 (9)	20	103	80 - 120
8664482	Dissolved Barium (Ba)	2023/05/15	100 (10)	80 - 120	102	80 - 120	<0.005	mg/L	2.0 (11)	20		
8664482	Dissolved Boron (B)	2023/05/15	NC (10)	80 - 120	98	80 - 120	<0.02	mg/L	0.71 (11)	20		
8664482	Dissolved Cadmium (Cd)	2023/05/15	101 (10)	80 - 120	101	80 - 120	<0.0001	mg/L	NC (11)	20		
8664482	Dissolved Calcium (Ca)	2023/05/15	NC (10)	80 - 120	100	80 - 120	<0.2	mg/L	3.0 (11)	20		
8664482	Dissolved Iron (Fe)	2023/05/15	97 (10)	80 - 120	99	80 - 120	<0.1	mg/L	1.3 (11)	20		
8664482	Dissolved Lead (Pb)	2023/05/15	95 (10)	80 - 120	96	80 - 120	<0.0005	mg/L	NC (11)	20		
8664482	Dissolved Magnesium (Mg)	2023/05/15	NC (10)	80 - 120	97	80 - 120	<0.05	mg/L	2.7 (11)	20		
8664482	Dissolved Potassium (K)	2023/05/15	99 (10)	80 - 120	101	80 - 120	<0.2	mg/L	1.2 (11)	20		
8664482	Dissolved Sodium (Na)	2023/05/15	NC (10)	80 - 120	94	80 - 120	<0.1	mg/L	3.2 (11)	20		
8664673	Dissolved Chloride (Cl-)	2023/05/15	NC	80 - 120	93	80 - 120	<1.0	mg/L	18 (1)	20		
8664679	Dissolved Sulphate (SO4)	2023/05/15	NC	75 - 125	92	80 - 120	<1.0	mg/L	1.9 (1)	20		
8664706	Alkalinity (Total as CaCO3)	2023/05/15			98	85 - 115	<1.0	mg/L	0.13 (1)	20		
8668005	Dissolved Chloride (Cl-)	2023/05/17	NC	80 - 120	103	80 - 120	<1.0	mg/L	0.68 (1)	20		
8668020	Dissolved Sulphate (SO4)	2023/05/17	NC	75 - 125	99	80 - 120	<1.0	mg/L	3.4 (1)	20		
8668192	Alkalinity (Total as CaCO3)	2023/05/17			99	85 - 115	<1.0	mg/L	NC (1)	20		

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

Bureau Veritas Job #: C3C6281
Report Date: 2023/05/18

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8668238	Conductivity	2023/05/17			100	85 - 115	<1.0	umho/cm	NC (1)	25		

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 [VSK188-07]

(3) Duplicate Parent ID [VSK188-07]

(4) Duplicate Parent ID [VSK196-02]

(5) Duplicate Parent ID [VSK195-01]

(6) Duplicate Parent ID [VSK195-02]

(7) Matrix Spike Parent ID [VSK195-01]

(8) Matrix Spike Parent ID [VSK188-04]

(9) Duplicate Parent ID [VSK188-04]

(10) Matrix Spike Parent ID [VSK197-03]

(11) Duplicate Parent ID [VSK197-03]

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Bureau Veritas Job #: C3C6281
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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

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FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW16-6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (~~µmhos~~ mS/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	7.29	2.13	9.1	19.3			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: None

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 19 km/h W

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	KWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0732

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW54-10 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05/02/23	7.32	2.49 mS	9.5	99.5			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: light yellowish, clear

Odor: None

Color: yellow

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 14 km/h W

Outlook: cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0717

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 54A-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C

Sampling Device: C

A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Device: ~~Y~~ or N ~~0.45~~ µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) ____ (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 02 23	7.13	mS 2.55	19.5	56.5			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: sulfur

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 8°C

Direction/Speed: 19 km/h

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0718

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 57-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	7.38	3.79 mS	8.9	4.74			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: none

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 10 mph W

Outlook: Cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0729

FIELD INFORMATION FORM

Site Name: TCEC

Site No.:

Sample: OW58-6
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (mS µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 02 23	7.30	3.90	11.4	4.88			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear Odor: none Color: Clear Other:

Weather Conditions (required daily, or as conditions change): 6°C Direction/Speed: 10 km/h W Outlook: Cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0724

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW591-6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	7.14	mS 5.02	10.6	3.56			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: None

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 14mph W

Outlook: cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson.	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0726

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 08-5 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45) or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	7.45	mS 1.26	9.4	37.1			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear Odor: None Color: clear Other:

Weather Conditions (required daily, or as conditions change): 6°C Direction/Speed: 14mph W Outlook: cloudy Precipitation: (Y) or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0731

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 09-5 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) ____ (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C) mS	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: ____ Units ____
05 02 23	7.06	5.93	9.5	39.7			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: None

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 14 km/h W

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0730

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW72-6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	7.21	mS 2.85	8.5	6.13			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: NNW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05 02 23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0720

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 173-6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by State/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 02 23	7.07	mS 4.75	8.9	13.6			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 62

Direction/Speed: 19mph W

Outlook: cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0722

Maxxam 6740 Campobello Road Mississauga, ON L5N 2L8
IMMEDIATE Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

04-May-23 09:00
Patricia Legette
C3C6281
RUK ENV-1609

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMA	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-MAY
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks
				Sampled By:	EW

CHAIN OF CUSTODY # : TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558
Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3
Sewer Use: ☐ Sanitary ☐ Storm Region _____
[x] Other: ODWS (specify)
Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 12-May-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD) TRIP BLANK						# of Cont.	COMMENTS / TAT COMMENTS
1	OW16-6	2-May-23	PM	GW	N	Y	X							8	
2	OW54-10	2-May-23	AM	GW	N	Y	X							8	
3	OW54A-4	2-May-23	AM	GW	N	Y	X							8	
4	OW57-4	2-May-23	PM	GW	N	Y	X							8	
5	OW58-6	2-May-23	PM	GW	N	Y	X							8	
6	OW59-6	2-May-23	PM	GW	N	Y	X							8	
7	OW68-5	2-May-23	PM	GW	N	Y	X							8	
8	OW69-5	2-May-23	PM	GW	N	Y	X							8	
9	OW72-6	2-May-23	AM	GW	N	Y	X							8	
10	OW73-6	2-May-23	AM	GW	N	Y	X							8	
11	Trip Blank	3-May-23	AM	W	N	Y		X						2	Metals and Filtered DOC field filtered
12															See lab addendum for analysis.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 3-May-23 - AM	Tyn	2023/05/04	09:00	Temperature (°C) on Receipt: See ACTR	Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/12
Report #: R7625882
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6332
Received: 2023/05/04, 09:00

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2023/05/09	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	2	N/A	2023/05/08	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	2	N/A	2023/05/11		
Conductivity	2	N/A	2023/05/09	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	2	N/A	2023/05/09	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/05/05	CAM SOP-00447	EPA 6020B m
Total Metals by ICPMS	1	N/A	2023/05/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	2	N/A	2023/05/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2023/05/05	2023/05/09	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	2	N/A	2023/05/11		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/05/08	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	2	2023/05/08	2023/05/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	2	N/A	2023/05/11		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/05/08	2023/05/10	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2023/05/08	2023/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	2	N/A	2023/05/11		

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

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/12
Report #: R7625882
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6332
Received: 2023/05/04, 09:00
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

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 #: C3C6332
Report Date: 2023/05/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSK461		VSK462		
Sampling Date		2023/05/02		2023/05/02		
COC Number		N/A		N/A		
	UNITS	**CEMETERY WALL**	**RDL**	**OW19-29**	**RDL**	**QC Batch**
Field Measurements						
Field Conductivity	uS/cm	590	N/A	2710	N/A	ONSITE
Field Temperature	Celsius	6.9	N/A	11.3	N/A	ONSITE
Field Turbidity	NTU	5.64	N/A	9.77	N/A	ONSITE
Field Measured pH	pH	8.1		7.50		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	0.15	0.58	0.15	8653597
Conductivity	umho/cm	460	1.0	2500	1.0	8650000
Total Dissolved Solids	mg/L	235	10	1760	10	8651798
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	0.7	0.7	8652276
Dissolved Organic Carbon	mg/L	4.8	0.4	1.0	0.4	8651924
pH	pH	8.22		7.94		8649999
Dissolved Sulphate (SO4)	mg/L	3.7	1.0	1100	10	8649175
Alkalinity (Total as CaCO3)	mg/L	240	1.0	190	1.0	8649995
Dissolved Chloride (Cl-)	mg/L	2.6	1.0	26	1.0	8649172
Nitrate (N)	mg/L	0.25	0.10	<0.10	0.10	8650001

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

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

Bureau Veritas Job #: C3C6332
Report Date: 2023/05/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VSK461			VSK462		
Sampling Date		2023/05/02			2023/05/02		
COC Number		N/A			N/A		
	UNITS	**CEMETERY WALL**	**RDL**	**QC Batch**	**OW19-29**	**RDL**	**QC Batch**
Metals							
Dissolved Barium (Ba)	mg/L				0.007	0.005	8648495
Total Barium (Ba)	mg/L	0.020	0.005	8652592			
Dissolved Boron (B)	mg/L				2.1	0.02	8648495
Total Boron (B)	mg/L	0.06	0.02	8652592			
Dissolved Cadmium (Cd)	mg/L				<0.0001	0.0001	8648495
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8652592			
Dissolved Calcium (Ca)	mg/L				190	0.4	8648495
Total Calcium (Ca)	mg/L	64	0.2	8652592			
Dissolved Iron (Fe)	mg/L				<0.1	0.1	8648495
Total Iron (Fe)	mg/L	0.1	0.1	8652592			
Dissolved Lead (Pb)	mg/L				<0.0005	0.0005	8648495
Total Lead (Pb)	mg/L	0.0006	0.0005	8652592			
Dissolved Magnesium (Mg)	mg/L				94	0.05	8648495
Total Magnesium (Mg)	mg/L	19	0.05	8652592			
Dissolved Potassium (K)	mg/L				7.1	0.2	8648495
Total Potassium (K)	mg/L	3.5	0.2	8652592			
Dissolved Sodium (Na)	mg/L				270	0.1	8648495
Total Sodium (Na)	mg/L	3.5	0.1	8652592			

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 #: C3C6332
Report Date: 2023/05/12

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8648495	Dissolved Barium (Ba)	2023/05/05	103	80 - 120	101	80 - 120	<0.005	mg/L				
8648495	Dissolved Boron (B)	2023/05/05	88	80 - 120	95	80 - 120	<0.02	mg/L				
8648495	Dissolved Cadmium (Cd)	2023/05/05	104	80 - 120	100	80 - 120	<0.0001	mg/L				
8648495	Dissolved Calcium (Ca)	2023/05/05	NC	80 - 120	99	80 - 120	<0.2	mg/L				
8648495	Dissolved Iron (Fe)	2023/05/05	102	80 - 120	103	80 - 120	<0.1	mg/L				
8648495	Dissolved Lead (Pb)	2023/05/05	99	80 - 120	99	80 - 120	<0.0005	mg/L				
8648495	Dissolved Magnesium (Mg)	2023/05/05	NC	80 - 120	100	80 - 120	<0.05	mg/L				
8648495	Dissolved Potassium (K)	2023/05/05	104	80 - 120	103	80 - 120	<0.2	mg/L				
8648495	Dissolved Sodium (Na)	2023/05/05	NC	80 - 120	101	80 - 120	<0.1	mg/L				
8649172	Dissolved Chloride (Cl-)	2023/05/08	NC (1)	80 - 120	95	80 - 120	<1.0	mg/L	0.28 (2)	20		
8649175	Dissolved Sulphate (SO4)	2023/05/08	NC (1)	75 - 125	94	80 - 120	<1.0	mg/L	0.39 (2)	20		
8649995	Alkalinity (Total as CaCO3)	2023/05/09			97	85 - 115	<1.0	mg/L	0.61 (3)	20		
8649999	pH	2023/05/09			101	98 - 103			0.31 (3)	N/A		
8650000	Conductivity	2023/05/09			101	85 - 115	1.4, RDL=1.0	umho/cm	0.18 (3)	25		
8650001	Nitrate (N)	2023/05/08	96	80 - 120	97	80 - 120	<0.10	mg/L	NC (3)	20		
8651798	Total Dissolved Solids	2023/05/09					<10	mg/L	1.2 (3)	20	102	90 - 110
8651924	Dissolved Organic Carbon	2023/05/09	99	80 - 120	97	80 - 120	<0.4	mg/L	1.8 (3)	20		
8652276	Total Kjeldahl Nitrogen (TKN)	2023/05/10	109	80 - 120	101	80 - 120	<0.7	mg/L	NC (3)	20	92	80 - 120
8652592	Total Barium (Ba)	2023/05/10	NC (4)	80 - 120	92	80 - 120	<0.005	mg/L	3.1 (3)	20		
8652592	Total Boron (B)	2023/05/10	NC (4)	80 - 120	100	80 - 120	<0.02	mg/L	1.4 (3)	20		
8652592	Total Cadmium (Cd)	2023/05/10	NC (4)	80 - 120	98	80 - 120	<0.0001	mg/L	NC (3)	20		
8652592	Total Calcium (Ca)	2023/05/10	NC (4)	80 - 120	99	80 - 120	<0.2	mg/L	3.7 (3)	20		
8652592	Total Iron (Fe)	2023/05/10	NC (4)	80 - 120	100	80 - 120	<0.1	mg/L	5.2 (3)	20		
8652592	Total Lead (Pb)	2023/05/10	NC (4)	80 - 120	98	80 - 120	<0.0005	mg/L	NC (3)	20		
8652592	Total Magnesium (Mg)	2023/05/10	NC (4)	80 - 120	102	80 - 120	<0.05	mg/L	3.2 (3)	20		
8652592	Total Potassium (K)	2023/05/10	NC (4)	80 - 120	98	80 - 120	<0.2	mg/L	3.3 (3)	20		
8652592	Total Sodium (Na)	2023/05/10	NC (4)	80 - 120	104	80 - 120	<0.1	mg/L	4.0 (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.bvna.com

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

Bureau Veritas Job #: C3C6332
Report Date: 2023/05/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8653597	Total Ammonia-N	2023/05/10	100	75 - 125	100	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.

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 [VSK462-01]

(2) Duplicate Parent ID [VSK462-01]

(3) Duplicate Parent ID

(4) Matrix Spike not calculated. Original sample and matrix spike sample were analyzed at a dilution, due to high target analytes, or sample matrix interference.

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

Bureau Veritas Job #: C3C6332
Report Date: 2023/05/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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

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.

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: Cemetery Well
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050223	8.1	0.59	6.9	5.64			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: N/O

Color: N/C

Other:

Weather Conditions (required daily, or as conditions change): 4°C

Direction/Speed: 19 km/h W

Outlook: Light rain

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/2023	Brady Crubb	Brady Crubb	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0744

FIELD INFORMATION FORM

Site Name: TCEC

Site No.:

Sample: OW19-F29
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C
A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Filter Type: A
A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type:
A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 02 23	7.50	2.71 mS	11.3	9.77			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: Sulfur

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 62

Direction/Speed: 9 mph W

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0723

Maxxam Analytics Inc IMMEDIATE 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

04-May-23 09:00
Patricia Legette
C3C6332

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMA	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756 RUK ENV-1609
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-MAY
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks
				Sampled By:	EW

CHAIN OF CUSTODY # : TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other ODWS specify

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 12-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERFACE AQUIFER) No VOCs	ON-WLF-2023 TCLS - GW (INTERSTADIAL CEMETeRY WELL)	# of Cont.	COMMENTS / TAT COMMENTS
1	Cemetery Well	2-May-23	AM	GW	N	N		X	6	
2	OW19-29	2-May-23	AM	GW	N	Y	X		6	Metals and Filtered DOC field filtered
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										See lab addendum for analysis.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 3-May-23 - AM	[illegible]	023/05/04	09:00	Temperature (°C) on Receipt: See ACTR	Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/18
Report #: R7634829
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8030
Received: 2023/05/05, 09:20

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/05/17	CAM SOP-00448	SM 23 2320 B m
Alkalinity	6	N/A	2023/05/09	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	2	N/A	2023/05/10	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2023/05/17	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	4	N/A	2023/05/08	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	7	N/A	2023/05/12		
Conductivity	1	N/A	2023/05/17	CAM SOP-00414	SM 23 2510 m
Conductivity	6	N/A	2023/05/09	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	2	N/A	2023/05/10	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1)	5	N/A	2023/05/09	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/05/10	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2023/05/15	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	5	N/A	2023/05/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	7	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	7	N/A	2023/05/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	7	2023/05/05	2023/05/09	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	7	N/A	2023/05/12		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/05/10	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	1	N/A	2023/05/17	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	4	N/A	2023/05/08	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	7	2023/05/09	2023/05/10	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	7	N/A	2023/05/12		Field Thermometer
Total Kjeldahl Nitrogen in Water	6	2023/05/09	2023/05/10	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2023/05/09	2023/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	7	N/A	2023/05/12		
Volatile Organic Compounds in Water	7	N/A	2023/05/09	CAM SOP-00228	EPA 8260D

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.

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/18
Report #: R7634829
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8030
Received: 2023/05/05, 09:20

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) 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

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 #: C3C8030
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VST237			VST238			VST239		
Sampling Date		2023/05/03			2023/05/03			2023/05/03		
COC Number		N/A			N/A			N/A		
	UNITS	**OW17-4**	**RDL**	**QC Batch**	**GWDUP3**	**RDL**	**QC Batch**	**OW56-4**	**RDL**	**QC Batch**
Field Measurements										
Field Conductivity	uS/cm	1770	N/A	ONSITE	1770	N/A	ONSITE	4140	N/A	ONSITE
Field Temperature	Celsius	12.5	N/A	ONSITE	12.5	N/A	ONSITE	12.9	N/A	ONSITE
Field Turbidity	NTU	7.92	N/A	ONSITE	7.92	N/A	ONSITE	15.6	N/A	ONSITE
Field Measured pH	pH	7.63		ONSITE	7.63		ONSITE	7.49		ONSITE
Inorganics										
Total Ammonia-N	mg/L	<0.15	0.15	8654031	<0.15	0.15	8654031	<0.15	0.15	8654031
Conductivity	umho/cm	1600	1.0	8668238	1800	1.0	8650000	4100	1.0	8649988
Total Dissolved Solids	mg/L	1010	10	8650294	1030	10	8650294	3740	10	8650294
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8653894	<0.7	0.7	8653894	0.7	0.7	8653894
Dissolved Organic Carbon	mg/L	3.4	0.4	8653853	3.2	0.4	8653853	3.2	0.4	8653853
pH	pH	8.14		8649989	8.13		8649999	7.84		8649989
Dissolved Sulphate (SO4)	mg/L	480	2.0	8668020	560	5.0	8650012	2100	10	8650012
Alkalinity (Total as CaCO3)	mg/L	450	1.0	8668192	440	1.0	8649995	360	1.0	8649987
Dissolved Chloride (Cl-)	mg/L	21	1.0	8668005	20	1.0	8650008	5.4	1.0	8650008
Nitrate (N)	mg/L	<0.10	0.10	8650005	<0.10	0.10	8650005	0.37	0.10	8650005

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

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

Bureau Veritas Job #: C3C8030
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VST240		VST241			VST242			VST243		
Sampling Date		2023/05/03		2023/05/03			2023/05/03			2023/05/03		
COC Number		N/A		N/A			N/A			N/A		
	UNITS	**OW82-5**	**RDL**	**OW83-5**	**RDL**	**QC Batch**	**OW84-6**	**RDL**	**QC Batch**	**GWDUP2**	**RDL**	**QC Batch**
Field Measurements												
Field Conductivity	uS/cm	4290	N/A	2510	N/A	ONSITE	4170	N/A	ONSITE	2510	N/A	ONSITE
Field Temperature	Celsius	10.2	N/A	10.3	N/A	ONSITE	13.3	N/A	ONSITE	10.3	N/A	ONSITE
Field Turbidity	NTU	8.90	N/A	5.35	N/A	ONSITE	12.1	N/A	ONSITE	5.35	N/A	ONSITE
Field Measured pH	pH	7.65		7.53		ONSITE	7.21		ONSITE	7.53		ONSITE
Inorganics												
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	0.15	8654031	<0.15	0.15	8654031	<0.15	0.15	8654031
Conductivity	umho/cm	4000	1.0	2300	1.0	8650000	4300	1.0	8650000	2300	1.0	8649988
Total Dissolved Solids	mg/L	3540	10	1410	10	8650294	3630	10	8650294	1430	10	8650294
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	0.7	8653894	<0.7	0.7	8653894	<0.7	0.7	8653894
Dissolved Organic Carbon	mg/L	3.8	0.4	31	0.4	8653853	26	0.4	8653853	39	0.4	8653853
pH	pH	8.04		8.13		8649999	7.77		8649999	8.01		8649989
Dissolved Sulphate (SO4)	mg/L	2400	10	570	5.0	8650012	2200	10	8650019	600	2.0	8650019
Alkalinity (Total as CaCO3)	mg/L	350	1.0	660	1.0	8649995	600	1.0	8649995	660	1.0	8649987
Dissolved Chloride (Cl-)	mg/L	8.0	1.0	59	1.0	8650008	59	1.0	8650014	58	1.0	8650014
Nitrate (N)	mg/L	<0.10	0.10	<0.10	0.10	8650005	0.45	0.10	8650005	<0.10	0.10	8650005

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

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Bureau Veritas Job #: C3C8030
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VST237		VST238		VST239		VST240		
Sampling Date		2023/05/03		2023/05/03		2023/05/03		2023/05/03		
COC Number		N/A		N/A		N/A		N/A		
	UNITS	**OW17-4**	**QC Batch**	**GWDUP3**	**RDL**	**OW56-4**	**RDL**	**OW82-5**	**RDL**	**QC Batch**
Metals										
Dissolved Barium (Ba)	mg/L	0.012	8664482	0.013	0.005	0.012	0.005	0.015	0.005	8650891
Dissolved Boron (B)	mg/L	0.25	8664482	0.19	0.02	0.42	0.02	0.53	0.02	8650891
Dissolved Cadmium (Cd)	mg/L	<0.0001	8664482	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	8650891
Dissolved Calcium (Ca)	mg/L	200	8664482	170	0.2	460	0.4	450	0.4	8650891
Dissolved Iron (Fe)	mg/L	0.2	8664482	0.1	0.1	0.9	0.1	<0.1	0.1	8650891
Dissolved Lead (Pb)	mg/L	<0.0005	8664482	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	8650891
Dissolved Magnesium (Mg)	mg/L	190	8664482	150	0.05	460	0.3	350	0.05	8650891
Dissolved Potassium (K)	mg/L	2.2	8664482	1.7	0.2	3.3	0.2	7.1	0.2	8650891
Dissolved Sodium (Na)	mg/L	82	8664482	72	0.1	100	0.1	150	0.1	8650891

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VST241		VST242		VST243		
Sampling Date		2023/05/03		2023/05/03		2023/05/03		
COC Number		N/A		N/A		N/A		
	UNITS	**OW83-5**	**RDL**	**OW84-6**	**RDL**	**GWDUP2**	**RDL**	**QC Batch**
Metals								
Dissolved Barium (Ba)	mg/L	0.021	0.005	0.021	0.005	0.024	0.005	8650891
Dissolved Boron (B)	mg/L	0.21	0.02	0.41	0.02	0.23	0.02	8650891
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	8650891
Dissolved Calcium (Ca)	mg/L	100	0.2	360	0.4	110	0.2	8650891
Dissolved Iron (Fe)	mg/L	1.3	0.1	0.5	0.1	0.4	0.1	8650891
Dissolved Lead (Pb)	mg/L	0.019	0.0005	0.010	0.0005	<0.0005	0.0005	8650891
Dissolved Magnesium (Mg)	mg/L	120	0.05	260	0.05	120	0.05	8650891
Dissolved Potassium (K)	mg/L	5.4	0.2	11	0.2	6.7	0.2	8650891
Dissolved Sodium (Na)	mg/L	270	0.1	520	0.1	350	0.1	8650891

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3C8030
Report Date: 2023/05/18

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VST237	VST238	VST239	VST240	VST241	VST242		
Sampling Date		2023/05/03	2023/05/03	2023/05/03	2023/05/03	2023/05/03	2023/05/03		
COC Number		N/A	N/A	N/A	N/A	N/A	N/A		
	UNITS	**OW17-4**	**GWDUP3**	**OW56-4**	**OW82-5**	**OW83-5**	**OW84-6**	**RDL**	**QC Batch**
Volatile Organics									
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8650295
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	8650295
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8650295
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	8650295
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8650295
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8650295
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8650295
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8650295
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8650295
Surrogate Recovery (%)									
4-Bromofluorobenzene	%	101	99	99	100	99	98		8650295
D4-1,2-Dichloroethane	%	102	102	103	103	103	103		8650295
D8-Toluene	%	96	96	96	96	96	95		8650295

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VST243		
Sampling Date		2023/05/03		
COC Number		N/A		
	UNITS	**GWDUP2**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8650295
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8650295
Ethylbenzene	ug/L	<0.20	0.20	8650295
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8650295
Toluene	ug/L	<0.20	0.20	8650295
Vinyl Chloride	ug/L	<0.20	0.20	8650295
p+m-Xylene	ug/L	<0.20	0.20	8650295
o-Xylene	ug/L	<0.20	0.20	8650295
Total Xylenes	ug/L	<0.20	0.20	8650295
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	99		8650295
D4-1,2-Dichloroethane	%	104		8650295
D8-Toluene	%	95		8650295

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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.

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

Bureau Veritas Job #: C3C8030
Report Date: 2023/05/18

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8650295	4-Bromofluorobenzene	2023/05/09	100 (3)	70 - 130	100	70 - 130	99	%				
8650295	D4-1,2-Dichloroethane	2023/05/09	100 (3)	70 - 130	98	70 - 130	100	%				
8650295	D8-Toluene	2023/05/09	99 (3)	70 - 130	100	70 - 130	98	%				
8649987	Alkalinity (Total as CaCO3)	2023/05/09			97	85 - 115	<1.0	mg/L	0.88 (1)	20		
8649988	Conductivity	2023/05/09			101	85 - 115	<1.0	umho/cm	0 (1)	25		
8649989	pH	2023/05/09			101	98 - 103			0.19 (1)	N/A		
8649995	Alkalinity (Total as CaCO3)	2023/05/09			97	85 - 115	<1.0	mg/L	0.61 (2)	20		
8649999	pH	2023/05/09			101	98 - 103			0.31 (2)	N/A		
8650000	Conductivity	2023/05/09			101	85 - 115	1.4, RDL=1.0	umho/cm	0.18 (2)	25		
8650005	Nitrate (N)	2023/05/08	97	80 - 120	96	80 - 120	<0.10	mg/L	NC (2)	20		
8650008	Dissolved Chloride (Cl-)	2023/05/08	NC	80 - 120	100	80 - 120	<1.0	mg/L	3.5 (2)	20		
8650012	Dissolved Sulphate (SO4)	2023/05/08	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.17 (2)	20		
8650014	Dissolved Chloride (Cl-)	2023/05/10	NC	80 - 120	104	80 - 120	<1.0	mg/L	0.29 (2)	20		
8650019	Dissolved Sulphate (SO4)	2023/05/10	NC	75 - 125	100	80 - 120	<1.0	mg/L	0.17 (2)	20		
8650294	Total Dissolved Solids	2023/05/10					<10	mg/L	13 (2)	20	98	90 - 110
8650295	1,4-Dichlorobenzene	2023/05/09	105 (3)	70 - 130	112	70 - 130	<0.40	ug/L	NC (4)	30		
8650295	Benzene	2023/05/09	87 (3)	70 - 130	91	70 - 130	<0.20	ug/L	NC (4)	30		
8650295	Ethylbenzene	2023/05/09	86 (3)	70 - 130	91	70 - 130	<0.20	ug/L	NC (4)	30		
8650295	Methylene Chloride(Dichloromethane)	2023/05/09	91 (3)	70 - 130	93	70 - 130	<2.0	ug/L	NC (4)	30		
8650295	o-Xylene	2023/05/09	85 (3)	70 - 130	91	70 - 130	<0.20	ug/L	NC (4)	30		
8650295	p+m-Xylene	2023/05/09	89 (3)	70 - 130	94	70 - 130	<0.20	ug/L	NC (4)	30		
8650295	Toluene	2023/05/09	87 (3)	70 - 130	91	70 - 130	<0.20	ug/L	NC (4)	30		
8650295	Total Xylenes	2023/05/09					<0.20	ug/L	NC (4)	30		
8650295	Vinyl Chloride	2023/05/09	96 (3)	70 - 130	101	70 - 130	<0.20	ug/L	NC (4)	30		
8650891	Dissolved Barium (Ba)	2023/05/09	99	80 - 120	98	80 - 120	<0.005	mg/L	0.81 (2)	20		
8650891	Dissolved Boron (B)	2023/05/09	95	80 - 120	90	80 - 120	<0.02	mg/L	2.0 (2)	20		
8650891	Dissolved Cadmium (Cd)	2023/05/09	103	80 - 120	99	80 - 120	<0.0001	mg/L				
8650891	Dissolved Calcium (Ca)	2023/05/09	NC	80 - 120	97	80 - 120	<0.2	mg/L	1.7 (2)	20		

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

Bureau Veritas Job #: C3C8030
Report Date: 2023/05/18

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8650891	Dissolved Iron (Fe)	2023/05/09	102	80 - 120	101	80 - 120	<0.1	mg/L	0.15 (2)	20		
8650891	Dissolved Lead (Pb)	2023/05/09	100	80 - 120	97	80 - 120	<0.0005	mg/L	NC (2)	20		
8650891	Dissolved Magnesium (Mg)	2023/05/09	NC	80 - 120	100	80 - 120	<0.05	mg/L	1.1 (2)	20		
8650891	Dissolved Potassium (K)	2023/05/09	100	80 - 120	100	80 - 120	<0.2	mg/L	1.1 (2)	20		
8650891	Dissolved Sodium (Na)	2023/05/09	92	80 - 120	97	80 - 120	<0.1	mg/L	0.41 (2)	20		
8653853	Dissolved Organic Carbon	2023/05/09	NC (5)	80 - 120	98	80 - 120	<0.4	mg/L	0.64 (6)	20		
8653894	Total Kjeldahl Nitrogen (TKN)	2023/05/10	108	80 - 120	102	80 - 120	<0.7	mg/L	5.7 (2)	20	103	80 - 120
8654031	Total Ammonia-N	2023/05/10	100 (7)	75 - 125	99	80 - 120	<0.15	mg/L	NC (8)	20		
8664482	Dissolved Barium (Ba)	2023/05/15	100	80 - 120	102	80 - 120	<0.005	mg/L	2.0 (2)	20		
8664482	Dissolved Boron (B)	2023/05/15	NC	80 - 120	98	80 - 120	<0.02	mg/L	0.71 (2)	20		
8664482	Dissolved Cadmium (Cd)	2023/05/15	101	80 - 120	101	80 - 120	<0.0001	mg/L	NC (2)	20		
8664482	Dissolved Calcium (Ca)	2023/05/15	NC	80 - 120	100	80 - 120	<0.2	mg/L	3.0 (2)	20		
8664482	Dissolved Iron (Fe)	2023/05/15	97	80 - 120	99	80 - 120	<0.1	mg/L	1.3 (2)	20		
8664482	Dissolved Lead (Pb)	2023/05/15	95	80 - 120	96	80 - 120	<0.0005	mg/L	NC (2)	20		
8664482	Dissolved Magnesium (Mg)	2023/05/15	NC	80 - 120	97	80 - 120	<0.05	mg/L	2.7 (2)	20		
8664482	Dissolved Potassium (K)	2023/05/15	99	80 - 120	101	80 - 120	<0.2	mg/L	1.2 (2)	20		
8664482	Dissolved Sodium (Na)	2023/05/15	NC	80 - 120	94	80 - 120	<0.1	mg/L	3.2 (2)	20		
8668005	Dissolved Chloride (Cl-)	2023/05/17	NC	80 - 120	103	80 - 120	<1.0	mg/L	0.68 (2)	20		
8668020	Dissolved Sulphate (SO4)	2023/05/17	NC	75 - 125	99	80 - 120	<1.0	mg/L	3.4 (2)	20		
8668192	Alkalinity (Total as CaCO3)	2023/05/17			99	85 - 115	<1.0	mg/L	NC (2)	20		

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Bureau Veritas Job #: C3C8030
Report Date: 2023/05/18

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8668238	Conductivity	2023/05/17			100	85 - 115	<1.0	umho/cm	NC (2)	25		

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 [VST239-01]

(2) Duplicate Parent ID

(3) Matrix Spike Parent ID [VST237-07]

(4) Duplicate Parent ID [VST237-07]

(5) Matrix Spike Parent ID [VST243-03]

(6) Duplicate Parent ID [VST243-03]

(7) Matrix Spike Parent ID [VST240-06]

(8) Duplicate Parent ID [VST240-06]

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Bureau Veritas Job #: C3C8030
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RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
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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.

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW17-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) [redacted]

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050323	7.63	177	12.5	7.912			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: Clear

Odor: None

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 16 N km/h

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

GWDUP3 collected

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0735

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: tCEC

Site No.:

Sample: OW 84-6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) [redacted]

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050323	7.21	mS 4.17	13.3	12.1			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: none

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 60°C

Direction/Speed: 30Kmh NW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0755

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: GW 83-5
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

	Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1st									
2nd									
3rd									
4th									
Input Range for 3 consec. readings or Permit/State requirements:			+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050323	7.53	mS 2.51	10.3	5.35			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 30km/h NW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

GWDUP2 collected

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0621

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 82-5 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C) mS	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 03 23	7.65	4.29	10.2	8.90			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: none

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 8°C

Direction/Speed: 29 Km/h NW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0620

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW S6-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (~~µmhos~~ mS/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050323	7.49	4.14	12.9	15.6			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 8°C

Direction/Speed: 16 km/h N

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0737

IMMEDIATE

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-MAY	TCEC-GWCM-MAY
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks	
				Sampled By:	EW	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA [ ] PWQO [ ] Reg. 558

Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3

Sewer Use: [ ] Sanitary [ ] Storm Region _____

[x] Other ODWS specify

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: 15-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD)							# of Cont.	COMMENTS / TAT COMMENTS
1	OW17-4	3-May-23	AM	GW	N	Y	X							8	GWDUP3 Collected
2	GWDUP3	3-May-23	AM	GW	N	Y	X							8	
3	OW56-4	3-May-23	AM	GW	N	Y	X							8	
4	OW82-5	3-May-23	PM	GW	N	Y	X							8	
5	OW83-5	3-May-23	PM	GW	N	Y	X							8	GWDUP2 Collected
6	OW84-6	3-May-23	PM	GW	N	Y	X							8	
7	GWDUP2	3-May-23	PM	GW	N	Y	X							8	
8															
9															
10															
11															Metals and Filtered DOC field filtered
12															See lab addendum for analysis.

05-May-23 09:20
Patricia Legette
C3C8030
AKO , ENV-925

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 4-May-23 - AM	[signature]	2023/05/05	09:20	Temperature (°C) on Receipt: See ACTR	Condition of Sample on Receipt: [ ] OK [ ] SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/12
Report #: R7626734
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8051
Received: 2023/05/05, 09:20

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2023/05/09	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	3	N/A	2023/05/10	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	3	N/A	2023/05/12		
Conductivity	3	N/A	2023/05/09	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2023/05/09	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/05/12	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	2	N/A	2023/05/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	3	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	3	N/A	2023/05/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	3	2023/05/05	2023/05/09	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	3	N/A	2023/05/12		Field pH Meter
Sulphate by Automated Turbidimetry	3	N/A	2023/05/10	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	3	2023/05/09	2023/05/10	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	3	N/A	2023/05/12		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/05/09	2023/05/10	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2023/05/09	2023/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	3	N/A	2023/05/12		

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

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/12
Report #: R7626734
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8051
Received: 2023/05/05, 09:20
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

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.

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Bureau Veritas Job #: C3C8051
Report Date: 2023/05/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VST310	VST311			VST312		
Sampling Date		2023/05/03	2023/05/03			2023/05/03		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	**OW82-28**	**OW83-29**	**RDL**	**QC Batch**	**OW84-31**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	1140	890	N/A	ONSITE	2340	N/A	ONSITE
Field Temperature	Celsius	10.7	10.9	N/A	ONSITE	9.5	N/A	ONSITE
Field Turbidity	NTU	97.3	19.0	N/A	ONSITE	39.3	N/A	ONSITE
Field Measured pH	pH	8.03	7.72		ONSITE	7.54		ONSITE
Inorganics								
Total Ammonia-N	mg/L	0.32	0.96	0.15	8654031	0.45	0.15	8654031
Conductivity	umho/cm	1100	810	1.0	8649988	2200	1.0	8649988
Total Dissolved Solids	mg/L	585	450	10	8650294	1550	10	8650294
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	1.1	0.7	8653894	1.2	0.7	8653894
Dissolved Organic Carbon	mg/L	2.4	4.0	0.4	8653853	5.0	0.4	8653853
pH	pH	8.30	8.18		8649989	8.00		8649989
Dissolved Sulphate (SO4)	mg/L	200	140	1.0	8650019	870	5.0	8650019
Alkalinity (Total as CaCO3)	mg/L	250	220	1.0	8649987	310	1.0	8649987
Dissolved Chloride (Cl-)	mg/L	38	25	1.0	8650014	34	1.0	8650014
Nitrate (N)	mg/L	<0.10	<0.10	0.10	8650005	6.22	0.10	8650007

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

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

Bureau Veritas Job #: C3C8051
Report Date: 2023/05/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VST310		VST311	VST312		
Sampling Date		2023/05/03		2023/05/03	2023/05/03		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW82-28**	**QC Batch**	**OW83-29**	**OW84-31**	**RDL**	**QC Batch**
Metals							
Dissolved Barium (Ba)	mg/L	0.023	8661636	0.077	0.016	0.005	8650891
Dissolved Boron (B)	mg/L	1.0	8661636	0.93	1.9	0.02	8650891
Dissolved Cadmium (Cd)	mg/L	<0.0001	8661636	<0.0001	<0.0001	0.0001	8650891
Dissolved Calcium (Ca)	mg/L	25	8661636	29	100	0.2	8650891
Dissolved Iron (Fe)	mg/L	<0.1	8661636	<0.1	<0.1	0.1	8650891
Dissolved Lead (Pb)	mg/L	<0.0005	8661636	<0.0005	<0.0005	0.0005	8650891
Dissolved Magnesium (Mg)	mg/L	8.6	8661636	19	51	0.05	8650891
Dissolved Potassium (K)	mg/L	6.3	8661636	6.5	16	0.2	8650891
Dissolved Sodium (Na)	mg/L	100	8661636	100	330	0.1	8650891

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

GENERAL COMMENTS

Sample VST310 [OW82-28] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.

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Bureau Veritas Job #: C3C8051
Report Date: 2023/05/12

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8649987	Alkalinity (Total as CaCO3)	2023/05/09			97	85 - 115	<1.0	mg/L	0.88 (1)	20		
8649988	Conductivity	2023/05/09			101	85 - 115	<1.0	umho/cm	0 (1)	25		
8649989	pH	2023/05/09			101	98 - 103			0.19 (1)	N/A		
8650005	Nitrate (N)	2023/05/08	97	80 - 120	96	80 - 120	<0.10	mg/L	NC (1)	20		
8650007	Nitrate (N)	2023/05/08	94	80 - 120	96	80 - 120	<0.10	mg/L	NC (1)	20		
8650014	Dissolved Chloride (Cl-)	2023/05/10	NC	80 - 120	104	80 - 120	<1.0	mg/L	0.29 (1)	20		
8650019	Dissolved Sulphate (SO4)	2023/05/10	NC	75 - 125	100	80 - 120	<1.0	mg/L	0.17 (1)	20		
8650294	Total Dissolved Solids	2023/05/10					<10	mg/L	13 (1)	20	98	90 - 110
8650891	Dissolved Barium (Ba)	2023/05/09	99	80 - 120	98	80 - 120	<0.005	mg/L	0.81 (1)	20		
8650891	Dissolved Boron (B)	2023/05/09	95	80 - 120	90	80 - 120	<0.02	mg/L	2.0 (1)	20		
8650891	Dissolved Cadmium (Cd)	2023/05/09	103	80 - 120	99	80 - 120	<0.0001	mg/L				
8650891	Dissolved Calcium (Ca)	2023/05/09	NC	80 - 120	97	80 - 120	<0.2	mg/L	1.7 (1)	20		
8650891	Dissolved Iron (Fe)	2023/05/09	102	80 - 120	101	80 - 120	<0.1	mg/L	0.15 (1)	20		
8650891	Dissolved Lead (Pb)	2023/05/09	100	80 - 120	97	80 - 120	<0.0005	mg/L	NC (1)	20		
8650891	Dissolved Magnesium (Mg)	2023/05/09	NC	80 - 120	100	80 - 120	<0.05	mg/L	1.1 (1)	20		
8650891	Dissolved Potassium (K)	2023/05/09	100	80 - 120	100	80 - 120	<0.2	mg/L	1.1 (1)	20		
8650891	Dissolved Sodium (Na)	2023/05/09	92	80 - 120	97	80 - 120	<0.1	mg/L	0.41 (1)	20		
8653853	Dissolved Organic Carbon	2023/05/09	NC	80 - 120	98	80 - 120	<0.4	mg/L	0.64 (1)	20		
8653894	Total Kjeldahl Nitrogen (TKN)	2023/05/10	108	80 - 120	102	80 - 120	<0.7	mg/L	5.7 (1)	20	103	80 - 120
8654031	Total Ammonia-N	2023/05/10	100	75 - 125	99	80 - 120	<0.15	mg/L	NC (1)	20		
8661636	Dissolved Barium (Ba)	2023/05/12	100 (2)	80 - 120	95	80 - 120	<0.005	mg/L	1.4 (3)	20		
8661636	Dissolved Boron (B)	2023/05/12	NC (2)	80 - 120	101	80 - 120	<0.02	mg/L	5.7 (3)	20		
8661636	Dissolved Cadmium (Cd)	2023/05/12	100 (2)	80 - 120	96	80 - 120	<0.0001	mg/L	NC (3)	20		
8661636	Dissolved Calcium (Ca)	2023/05/12	103 (2)	80 - 120	96	80 - 120	<0.2	mg/L	3.4 (3)	20		
8661636	Dissolved Iron (Fe)	2023/05/12	99 (2)	80 - 120	97	80 - 120	<0.1	mg/L	NC (3)	20		
8661636	Dissolved Lead (Pb)	2023/05/12	97 (2)	80 - 120	94	80 - 120	<0.0005	mg/L	NC (3)	20		
8661636	Dissolved Magnesium (Mg)	2023/05/12	98 (2)	80 - 120	96	80 - 120	<0.05	mg/L	0.68 (3)	20		
8661636	Dissolved Potassium (K)	2023/05/12	101 (2)	80 - 120	98	80 - 120	<0.2	mg/L	1.1 (3)	20		

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

Bureau Veritas Job #: C3C8051
Report Date: 2023/05/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8661636	Dissolved Sodium (Na)	2023/05/12	NC (2)	80 - 120	95	80 - 120	<0.1	mg/L	0.18 (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.

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 [VST310-04]

(3) Duplicate Parent ID [VST310-04]

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

Bureau Veritas Job #: C3C8051
Report Date: 2023/05/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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.

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FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: GW84-31 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 03 23	7.54	2.34	9.5	391.3			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 30 Kmh NW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E.W./Zom.	RWD1

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0739

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 83+29 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 03 23	7.72	0.89 mS	10.9	19.9			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: None

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 30 Kmh NW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWD 1

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0741

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OMW 8R+28 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 03 23	8.03	1.14	10.7	97.3			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 30 Km/h NW

Outlook: cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0742

IMMEDIATE

5740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	TCEC-GWCM-MAY
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Sampled By:	EW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

- [ ] MISA
- [ ] PWQO
- [ ] Reg. 558

Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3

Sewer Use: [ ] Sanitary [ ] Storm Region _____

[x] Other: ODWS (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: 15-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERFACE AQUIFER) No VOCs	# of Cont.	COMMENTS / TAT COMMENTS
1	OW82-28	3-May-23	PM	GW	N	Y	X	6	
2	OW83-29	3-May-23	PM	GW	N	Y	X	6	
3	OW84-31	3-May-23	PM	GW	N	Y	X	6	
4									
5									
6									
7									
8									
9									
10									
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

05-May-23 09:20
Patricia Legette
C3C8051
AK0 ENV-1682

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
BEG 4-May-23 - AM	[signature]	2023/05/05	09:20

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
See ACTK	[ ] OK [ ] SIF

* MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/17
Report #: R7633077
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8259
Received: 2023/05/05, 09:20

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/05/16	CAM SOP-00448	SM 23 2320 B m
Alkalinity	4	N/A	2023/05/09	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	4	N/A	2023/05/10	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2023/05/16	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	5	N/A	2023/05/15		
Conductivity	5	N/A	2023/05/09	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	5	N/A	2023/05/09	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/05/10	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2023/05/17	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	3	N/A	2023/05/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	5	N/A	2023/05/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2023/05/05	2023/05/09	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	5	N/A	2023/05/15		Field pH Meter
Sulphate by Automated Turbidimetry	4	N/A	2023/05/10	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	1	N/A	2023/05/16	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/05/15	2023/05/16	CAM SOP-00428	SM 23 2540C m
Total Dissolved Solids	4	2023/05/09	2023/05/10	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	5	N/A	2023/05/15		Field Thermometer
Total Kjeldahl Nitrogen in Water	4	2023/05/09	2023/05/10	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2023/05/09	2023/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	5	N/A	2023/05/15		
Volatile Organic Compounds in Water	1	N/A	2023/05/10	CAM SOP-00228	EPA 8260D
Volatile Organic Compounds in Water	2	N/A	2023/05/11	CAM SOP-00228	EPA 8260D
Volatile Organic Compounds in Water	2	N/A	2023/05/09	CAM SOP-00228	EPA 8260D

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.bvna.com

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/17
Report #: R7633077
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8259
Received: 2023/05/05, 09:20

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) 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

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.

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

Bureau Veritas Job #: C3C8259
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSU130			VSU131		VSU132		
Sampling Date		2023/05/03			2023/05/03		2023/05/03		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW46-7**	**RDL**	**QC Batch**	**OW47-6**	**QC Batch**	**OW82-14**	**RDL**	**QC Batch**
Field Measurements									
Field Conductivity	uS/cm	4590	N/A	ONSITE	4880	ONSITE	2890	N/A	ONSITE
Field Temperature	Celsius	12.3	N/A	ONSITE	12.3	ONSITE	9.8	N/A	ONSITE
Field Turbidity	NTU	6.42	N/A	ONSITE	40.5	ONSITE	82.4	N/A	ONSITE
Field Measured pH	pH	7.45		ONSITE	7.79	ONSITE	7.62		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.15	0.15	8654031	<0.15	8654031	0.42	0.15	8654031
Conductivity	umho/cm	4500	1.0	8650000	4700	8650000	2700	1.0	8650000
Total Dissolved Solids	mg/L	4090	10	8650294	4630	8664486	2070	10	8650294
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8652276	<0.7	8652276	0.8	0.7	8652276
Dissolved Organic Carbon	mg/L	2.9	0.4	8653853	2.1	8653853	4.4	0.4	8653853
pH	pH	8.19		8649999	8.03	8649999	7.90		8649999
Dissolved Sulphate (SO4)	mg/L	2800	20	8650019	3200	8665926	1400	10	8650019
Alkalinity (Total as CaCO3)	mg/L	340	1.0	8649995	380	8665876	100	1.0	8649995
Dissolved Chloride (Cl-)	mg/L	12	1.0	8650014	4.0	8665919	28	1.0	8650014
Nitrate (N)	mg/L	0.14	0.10	8650005	0.38	8650005	1.12	0.10	8650005

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

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

Bureau Veritas Job #: C3C8259
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSU133		VSU134		
Sampling Date		2023/05/03		2023/05/03		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW83-9**	**RDL**	**OW84-11**	**RDL**	**QC Batch**
Field Measurements						
Field Conductivity	uS/cm	1880	N/A	3050	N/A	ONSITE
Field Temperature	Celsius	9.6	N/A	10.1	N/A	ONSITE
Field Turbidity	NTU	93.1	N/A	46.6	N/A	ONSITE
Field Measured pH	pH	7.47		7.61		ONSITE
Inorganics						
Total Ammonia-N	mg/L	0.50	0.15	4.64	0.15	8654031
Conductivity	umho/cm	1800	1.0	2800	1.0	8650000
Total Dissolved Solids	mg/L	1260	10	2190	10	8650294
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	5.3	0.7	8652276
Dissolved Organic Carbon	mg/L	2.6	0.4	9.8	0.4	8653853
pH	pH	8.03		8.11		8649999
Dissolved Sulphate (SO4)	mg/L	490	2.0	1400	10	8650019
Alkalinity (Total as CaCO3)	mg/L	540	1.0	300	1.0	8649995
Dissolved Chloride (Cl-)	mg/L	15	1.0	22	1.0	8650014
Nitrate (N)	mg/L	<0.10	0.10	<0.10	0.10	8650005

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

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

Bureau Veritas Job #: C3C8259
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VSU130		VSU131			VSU132		
Sampling Date		2023/05/03		2023/05/03			2023/05/03		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY			TCEC-GWCM-MAY		
	UNITS	**OW46-7**	**QC Batch**	**OW47-6**	**RDL**	**QC Batch**	**OW82-14**	**RDL**	**QC Batch**
Metals									
Dissolved Barium (Ba)	mg/L	0.015	8650890	0.007	0.005	8666764	0.027	0.005	8650890
Dissolved Boron (B)	mg/L	0.56	8650890	1.0	0.02	8666764	1.2	0.02	8650890
Dissolved Cadmium (Cd)	mg/L	<0.0001	8650890	<0.0001	0.0001	8666764	<0.0001	0.0001	8650890
Dissolved Calcium (Ca)	mg/L	390	8650890	460	0.4	8666764	240	0.4	8650890
Dissolved Iron (Fe)	mg/L	<0.1	8650890	<0.1	0.1	8666764	<0.1	0.1	8650890
Dissolved Lead (Pb)	mg/L	<0.0005	8650890	<0.0005	0.0005	8666764	<0.0005	0.0005	8650890
Dissolved Magnesium (Mg)	mg/L	420	8650890	530	0.3	8666764	130	0.05	8650890
Dissolved Potassium (K)	mg/L	6.9	8650890	7.9	0.2	8666764	12	0.2	8650890
Dissolved Sodium (Na)	mg/L	230	8650890	230	0.1	8666764	240	0.1	8650890

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSU133		VSU134		
Sampling Date		2023/05/03		2023/05/03		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW83-9**	**RDL**	**OW84-11**	**RDL**	**QC Batch**
Metals						
Dissolved Barium (Ba)	mg/L	0.013	0.005	0.019	0.005	8650890
Dissolved Boron (B)	mg/L	0.41	0.02	0.94	0.02	8650890
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	8650890
Dissolved Calcium (Ca)	mg/L	120	0.2	180	0.4	8650890
Dissolved Iron (Fe)	mg/L	<0.1	0.1	1.5	0.1	8650890
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	8650890
Dissolved Magnesium (Mg)	mg/L	140	0.05	190	0.05	8650890
Dissolved Potassium (K)	mg/L	4.2	0.2	9.6	0.2	8650890
Dissolved Sodium (Na)	mg/L	79	0.1	220	0.1	8650890

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 #: C3C8259
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VSU130	VSU131	VSU132	VSU133		
Sampling Date		2023/05/03	2023/05/03	2023/05/03	2023/05/03		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW46-7**	**OW47-6**	**OW82-14**	**OW83-9**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650295
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8650295
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650295
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8650295
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650295
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650295
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650295
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650295
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650295
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	98	98	88	87		8650295
D4-1,2-Dichloroethane	%	102	104	111	112		8650295
D8-Toluene	%	96	95	96	96		8650295

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSU134		
Sampling Date		2023/05/03		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW84-11**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8650295
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8650295
Ethylbenzene	ug/L	<0.20	0.20	8650295
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8650295
Toluene	ug/L	<0.20	0.20	8650295
Vinyl Chloride	ug/L	<0.20	0.20	8650295
p+m-Xylene	ug/L	<0.20	0.20	8650295
o-Xylene	ug/L	<0.20	0.20	8650295
Total Xylenes	ug/L	<0.20	0.20	8650295
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	87		8650295
D4-1,2-Dichloroethane	%	114		8650295
D8-Toluene	%	96		8650295

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3C8259
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

GENERAL COMMENTS

Sample VSU133 [OW83-9] : 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.

Bureau Veritas Job #: C3C8259
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8650295	4-Bromofluorobenzene	2023/05/09	100	70 - 130	100	70 - 130	99	%				
8650295	D4-1,2-Dichloroethane	2023/05/09	100	70 - 130	98	70 - 130	100	%				
8650295	D8-Toluene	2023/05/09	99	70 - 130	100	70 - 130	98	%				
8649995	Alkalinity (Total as CaCO3)	2023/05/09			97	85 - 115	<1.0	mg/L	0.61 (1)	20		
8649999	pH	2023/05/09			101	98 - 103			0.31 (1)	N/A		
8650000	Conductivity	2023/05/09			101	85 - 115	1.4, RDL=1.0	umho/cm	0.18 (1)	25		
8650005	Nitrate (N)	2023/05/08	97	80 - 120	96	80 - 120	<0.10	mg/L	NC (1)	20		
8650014	Dissolved Chloride (Cl-)	2023/05/10	NC (2)	80 - 120	104	80 - 120	<1.0	mg/L	0.29 (3)	20		
8650019	Dissolved Sulphate (SO4)	2023/05/10	NC (2)	75 - 125	100	80 - 120	<1.0	mg/L	0.17 (3)	20		
8650294	Total Dissolved Solids	2023/05/10					<10	mg/L	13 (1)	20	98	90 - 110
8650295	1,4-Dichlorobenzene	2023/05/09	105	70 - 130	112	70 - 130	<0.40	ug/L	NC (1)	30		
8650295	Benzene	2023/05/09	87	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
8650295	Ethylbenzene	2023/05/09	86	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
8650295	Methylene Chloride(Dichloromethane)	2023/05/09	91	70 - 130	93	70 - 130	<2.0	ug/L	NC (1)	30		
8650295	o-Xylene	2023/05/09	85	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
8650295	p+m-Xylene	2023/05/09	89	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
8650295	Toluene	2023/05/09	87	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
8650295	Total Xylenes	2023/05/09					<0.20	ug/L	NC (1)	30		
8650295	Vinyl Chloride	2023/05/09	96	70 - 130	101	70 - 130	<0.20	ug/L	NC (1)	30		
8650890	Dissolved Barium (Ba)	2023/05/09	100	80 - 120	98	80 - 120	<0.005	mg/L	0.78 (1)	20		
8650890	Dissolved Boron (B)	2023/05/09	95	80 - 120	91	80 - 120	<0.02	mg/L	0.29 (1)	20		
8650890	Dissolved Cadmium (Cd)	2023/05/09	103	80 - 120	99	80 - 120	<0.0001	mg/L	NC (1)	20		
8650890	Dissolved Calcium (Ca)	2023/05/09	NC	80 - 120	96	80 - 120	<0.2	mg/L	0.031 (1)	20		
8650890	Dissolved Iron (Fe)	2023/05/09	104	80 - 120	99	80 - 120	<0.1	mg/L	NC (1)	20		
8650890	Dissolved Lead (Pb)	2023/05/09	99	80 - 120	99	80 - 120	<0.0005	mg/L	NC (1)	20		
8650890	Dissolved Magnesium (Mg)	2023/05/09	NC	80 - 120	98	80 - 120	<0.05	mg/L	0.41 (1)	20		
8650890	Dissolved Potassium (K)	2023/05/09	104	80 - 120	98	80 - 120	<0.2	mg/L	0.78 (1)	20		
8650890	Dissolved Sodium (Na)	2023/05/09	NC	80 - 120	96	80 - 120	<0.1	mg/L	0.64 (1)	20		
8652276	Total Kjeldahl Nitrogen (TKN)	2023/05/10	109	80 - 120	101	80 - 120	<0.7	mg/L	NC (1)	20	92	80 - 120

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

Bureau Veritas Job #: C3C8259
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8653853	Dissolved Organic Carbon	2023/05/09	NC	80 - 120	98	80 - 120	<0.4	mg/L	0.64 (1)	20		
8654031	Total Ammonia-N	2023/05/10	100	75 - 125	99	80 - 120	<0.15	mg/L	NC (1)	20		
8664486	Total Dissolved Solids	2023/05/16					<10	mg/L	2.8 (1)	20	102	90 - 110
8665876	Alkalinity (Total as CaCO3)	2023/05/16			101	85 - 115	<1.0	mg/L	0.45 (4)	20		
8665919	Dissolved Chloride (Cl-)	2023/05/16	NC	80 - 120	100	80 - 120	<1.0	mg/L	2.7 (1)	20		
8665926	Dissolved Sulphate (SO4)	2023/05/16	NC	75 - 125	102	80 - 120	<1.0	mg/L	12 (1)	20		
8666764	Dissolved Barium (Ba)	2023/05/17	99 (5)	80 - 120	98	80 - 120	<0.005	mg/L	0.36 (6)	20		
8666764	Dissolved Boron (B)	2023/05/17	NC (5)	80 - 120	98	80 - 120	<0.02	mg/L	3.1 (6)	20		
8666764	Dissolved Cadmium (Cd)	2023/05/17	99 (5)	80 - 120	97	80 - 120	<0.0001	mg/L	NC (6)	20		
8666764	Dissolved Calcium (Ca)	2023/05/17	NC (5)	80 - 120	101	80 - 120	<0.2	mg/L	0.83 (6)	20		
8666764	Dissolved Iron (Fe)	2023/05/17	107 (5)	80 - 120	102	80 - 120	<0.1	mg/L	NC (6)	20		
8666764	Dissolved Lead (Pb)	2023/05/17	96 (5)	80 - 120	97	80 - 120	<0.0005	mg/L	NC (6)	20		
8666764	Dissolved Magnesium (Mg)	2023/05/17	NC (5)	80 - 120	100	80 - 120	<0.05	mg/L	5.4 (6)	20		
8666764	Dissolved Potassium (K)	2023/05/17	109 (5)	80 - 120	102	80 - 120	<0.2	mg/L	0.45 (6)	20		

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

Bureau Veritas Job #: C3C8259
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8666764	Dissolved Sodium (Na)	2023/05/17	NC (5)	80 - 120	99	80 - 120	0.1, RDL=0.1	mg/L	1.8 (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) Matrix Spike Parent ID [VSU132-01]

(3) Duplicate Parent ID [VSU132-01]

(4) Duplicate Parent ID [VSU131-01]

(5) Matrix Spike Parent ID [VSU131-03]

(6) Duplicate Parent ID [VSU131-03]

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

Bureau Veritas Job #: C3C8259
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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

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

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW46+7 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (~~MM DD YY~~)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 μ or ____ μ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (μmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (~~μmhos~~ mS/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 03 23	7.45	4.59	12.3	6.42			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 5°C

Direction/Speed: 16KN

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0733

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW47-6
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) [redacted]

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 03 23	7.79	mS 4.88	12.3	40.5			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: yellow, clear

Odor: none

Color: yellow

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 30km/h NW

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson.	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0736

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW82-14 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or _____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: _____

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: _____

WELL DATA

Well Elevation (at TOC) _____ (ft/msl)

Depth to Water (DTW) (from TOC) _____ (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) _____ (ft msl)

Total Well Depth (from TOC) _____ (ft)

Stick Up (from ground elevation) _____ (ft)

Casing ID _____ (in)

Casing Material _____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: _____ Units _____
05 03 23	7.62	mS 2.89	9.8	82.4			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 30 Kmh NW

Outlook: Cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0743

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 83-9 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 03 23	7.47	11.88 mS	9.6	93.1			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 30 Kmh NW

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0740

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OM84-111 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050323	7.61	mS 1.05	10.1	46.6			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: none

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 60°C

Direction/Speed: 30Kmh NW

Outlook: cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Eric Wilkin	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0738

IMMEDIATE

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	TCEC-GWCM-MAY	TCEC-GWCM-MAY
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x:2618	Fax: 519-823-1316	Location:	Twin Creeks	
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Sampled By:	EW	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other ODWS (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERSTADIAL SILT & SAND)	# of Cont.	COMMENTS / TAT COMMENTS
1	OW46-7	3-May-23	AM	GW	N	Y	X	8	
2	OW47-6	3-May-23	AM	GW	N	Y	X	8	
3	OW82-14	3-May-23	PM	GW	N	Y	X	8	
4	OW83-9	3-May-23	PM	GW	N	Y	X	8	
5	OW84-11	3-May-23	PM	GW	N	Y	X	8	
6									
7									
8									
9									
10									
11									
12									

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 15-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

05-May-23 09:20
Patricia Legette
C3C8259
AK0 ENV-1682

See lab addendum for analysis.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 4-May-23 - AM	[signature]	023/05/05	09:20	Temperature (°C) on Receipt: see ACTR	Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MA

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/17
Report #: R7632389
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8759
Received: 2023/05/05, 15:48

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2023/05/10	CAM SOP-00448	SM 23 2320 B m
Alkalinity	1	N/A	2023/05/11	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	4	N/A	2023/05/09	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2023/05/10	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	5	N/A	2023/05/17		
Conductivity	4	N/A	2023/05/10	CAM SOP-00414	SM 23 2510 m
Conductivity	1	N/A	2023/05/11	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	5	N/A	2023/05/10	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	5	N/A	2023/05/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	5	N/A	2023/05/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	4	2023/05/07	2023/05/10	CAM SOP-00413	SM 4500H+ B m
pH	1	2023/05/07	2023/05/11	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	5	N/A	2023/05/17		Field pH Meter
Sulphate by Automated Turbidimetry	4	N/A	2023/05/09	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	1	N/A	2023/05/10	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	5	2023/05/10	2023/05/11	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	5	N/A	2023/05/17		Field Thermometer
Total Kjeldahl Nitrogen in Water	5	2023/05/08	2023/05/10	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	5	N/A	2023/05/17		
Volatile Organic Compounds in Water	5	N/A	2023/05/10	CAM SOP-00228	EPA 8260D

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 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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MA

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/17
Report #: R7632389
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8759
Received: 2023/05/05, 15:48

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

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.

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

Bureau Veritas Job #: C3C8759
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSW643		VSW644	VSW645		VSW646		
Sampling Date		2023/05/04		2023/05/04	2023/05/04		2023/05/04		
COC Number		TCEC-GWCM-MA		TCEC-GWCM-MA	TCEC-GWCM-MA		TCEC-GWCM-MA		
	UNITS	**OW80-6**	**RDL**	**OW81-7**	**OW40A-7**	**RDL**	**OW60-8**	**RDL**	**QC Batch**
Field Measurements									
Field Conductivity	uS/cm	1520	N/A	2590	3220	N/A	840	N/A	ONSITE
Field Temperature	Celsius	12.1	N/A	9.8	14.9	N/A	15.2	N/A	ONSITE
Field Turbidity	NTU	65.4	N/A	54.5	23.0	N/A	54.8	N/A	ONSITE
Field Measured pH	pH	7.38		6.84	7.45		7.84		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	<0.15	0.15	<0.15	0.15	8654411
Conductivity	umho/cm	1400	1.0	2500	3000	1.0	760	1.0	8650953
Total Dissolved Solids	mg/L	825	10	1760	2610	10	425	10	8654959
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	<0.7	0.7	<0.7	0.7	8651521
Dissolved Organic Carbon	mg/L	2.0	0.4	3.0	2.1	0.4	1.5	0.4	8653843
pH	pH	7.97		8.05	7.92		8.30		8650955
Dissolved Sulphate (SO4)	mg/L	59	1.0	800	1600	5.0	140	1.0	8650948
Alkalinity (Total as CaCO3)	mg/L	410	1.0	340	390	1.0	250	1.0	8650952
Dissolved Chloride (Cl-)	mg/L	160	1.0	200	5.2	1.0	6.6	1.0	8650947
Nitrate (N)	mg/L	<0.10	0.10	0.16	0.32	0.10	<0.10	0.10	8650959

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

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

Bureau Veritas Job #: C3C8759
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSW647		
Sampling Date		2023/05/04		
COC Number		TCEC-GWCM-MA		
	UNITS	**OW79-7**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	1770	N/A	ONSITE
Field Temperature	Celsius	18.3	N/A	ONSITE
Field Turbidity	NTU	28.7	N/A	ONSITE
Field Measured pH	pH	7.13		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8653597
Conductivity	umho/cm	1600	1.0	8650953
Total Dissolved Solids	mg/L	935	10	8654959
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8651521
Dissolved Organic Carbon	mg/L	3.4	0.4	8653843
pH	pH	7.92		8650955
Dissolved Sulphate (SO4)	mg/L	120	1.0	8651018
Alkalinity (Total as CaCO3)	mg/L	550	1.0	8650952
Dissolved Chloride (Cl-)	mg/L	140	1.0	8651017
Nitrate (N)	mg/L	<0.10	0.10	8650959

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QC Batch = Quality Control Batch
N/A = Not Applicable

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

Bureau Veritas Job #: C3C8759
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VSW643		VSW644	VSW645		VSW646		
Sampling Date		2023/05/04		2023/05/04	2023/05/04		2023/05/04		
COC Number		TCEC-GWCM-MA		TCEC-GWCM-MA	TCEC-GWCM-MA		TCEC-GWCM-MA		
	UNITS	**OW80-6**	**RDL**	**OW81-7**	**OW40A-7**	**RDL**	**OW60-8**	**RDL**	**QC Batch**
Metals									
Dissolved Barium (Ba)	mg/L	0.056	0.005	0.020	0.008	0.005	0.020	0.005	8650910
Dissolved Boron (B)	mg/L	0.19	0.02	0.55	0.61	0.02	0.80	0.02	8650910
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	8650910
Dissolved Calcium (Ca)	mg/L	130	0.2	230	330	0.4	41	0.2	8650910
Dissolved Iron (Fe)	mg/L	<0.1	0.1	1.4	1.2	0.1	<0.1	0.1	8650910
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0005	8650910
Dissolved Magnesium (Mg)	mg/L	80	0.05	170	280	0.05	27	0.05	8650910
Dissolved Potassium (K)	mg/L	3.7	0.2	5.3	6.1	0.2	2.0	0.2	8650910
Dissolved Sodium (Na)	mg/L	57	0.1	120	130	0.1	85	0.1	8650910

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSW647		
Sampling Date		2023/05/04		
COC Number		TCEC-GWCM-MA		
	UNITS	**OW79-7**	**RDL**	**QC Batch**
Metals				
Dissolved Barium (Ba)	mg/L	0.026	0.005	8650910
Dissolved Boron (B)	mg/L	0.20	0.02	8650910
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	8650910
Dissolved Calcium (Ca)	mg/L	140	0.2	8650910
Dissolved Iron (Fe)	mg/L	<0.1	0.1	8650910
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	8650910
Dissolved Magnesium (Mg)	mg/L	110	0.05	8650910
Dissolved Potassium (K)	mg/L	3.8	0.2	8650910
Dissolved Sodium (Na)	mg/L	65	0.1	8650910

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3C8759
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VSW643	VSW644	VSW645	VSW646		
Sampling Date		2023/05/04	2023/05/04	2023/05/04	2023/05/04		
COC Number		TCEC-GWCM-MA	TCEC-GWCM-MA	TCEC-GWCM-MA	TCEC-GWCM-MA		
	UNITS	**OW80-6**	**OW81-7**	**OW40A-7**	**OW60-8**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650742
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8650742
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650742
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8650742
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650742
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650742
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650742
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650742
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8650742
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	94	94	94	93		8650742
D4-1,2-Dichloroethane	%	106	105	106	104		8650742
D8-Toluene	%	94	95	94	95		8650742

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSW647		
Sampling Date		2023/05/04		
COC Number		TCEC-GWCM-MA		
	UNITS	**OW79-7**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8650742
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8650742
Ethylbenzene	ug/L	<0.20	0.20	8650742
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8650742
Toluene	ug/L	<0.20	0.20	8650742
Vinyl Chloride	ug/L	<0.20	0.20	8650742
p+m-Xylene	ug/L	<0.20	0.20	8650742
o-Xylene	ug/L	<0.20	0.20	8650742
Total Xylenes	ug/L	<0.20	0.20	8650742
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	93		8650742
D4-1,2-Dichloroethane	%	105		8650742
D8-Toluene	%	94		8650742

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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.

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

Bureau Veritas Job #: C3C8759
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8650742	4-Bromofluorobenzene	2023/05/09	98	70 - 130	100	70 - 130	99	%				
8650742	D4-1,2-Dichloroethane	2023/05/09	102	70 - 130	100	70 - 130	101	%				
8650742	D8-Toluene	2023/05/09	99	70 - 130	99	70 - 130	96	%				
8650742	1,4-Dichlorobenzene	2023/05/09	100	70 - 130	101	70 - 130	<0.40	ug/L	NC (1)	30		
8650742	Benzene	2023/05/09	89	70 - 130	88	70 - 130	<0.20	ug/L	0.50 (1)	30		
8650742	Ethylbenzene	2023/05/09	84	70 - 130	84	70 - 130	<0.20	ug/L	NC (1)	30		
8650742	Methylene Chloride(Dichloromethane)	2023/05/09	95	70 - 130	92	70 - 130	<2.0	ug/L	NC (1)	30		
8650742	o-Xylene	2023/05/09	83	70 - 130	85	70 - 130	<0.20	ug/L	0.83 (1)	30		
8650742	p+m-Xylene	2023/05/09	85	70 - 130	86	70 - 130	<0.20	ug/L	2.6 (1)	30		
8650742	Toluene	2023/05/09	86	70 - 130	86	70 - 130	<0.20	ug/L	0.64 (1)	30		
8650742	Total Xylenes	2023/05/09					<0.20	ug/L	1.3 (1)	30		
8650742	Vinyl Chloride	2023/05/09	97	70 - 130	96	70 - 130	<0.20	ug/L	NC (1)	30		
8650910	Dissolved Barium (Ba)	2023/05/11	103	80 - 120	100	80 - 120	<0.005	mg/L	7.4 (1)	20		
8650910	Dissolved Boron (B)	2023/05/11	NC	80 - 120	94	80 - 120	<0.02	mg/L	1.7 (1)	20		
8650910	Dissolved Cadmium (Cd)	2023/05/11	102	80 - 120	99	80 - 120	<0.0001	mg/L	NC (1)	20		
8650910	Dissolved Calcium (Ca)	2023/05/11	NC	80 - 120	101	80 - 120	<0.2	mg/L	0.68 (1)	20		
8650910	Dissolved Iron (Fe)	2023/05/11	101	80 - 120	98	80 - 120	<0.1	mg/L	NC (1)	20		
8650910	Dissolved Lead (Pb)	2023/05/11	97	80 - 120	97	80 - 120	<0.0005	mg/L	NC (1)	20		
8650910	Dissolved Magnesium (Mg)	2023/05/11	103	80 - 120	100	80 - 120	<0.05	mg/L	0.44 (1)	20		
8650910	Dissolved Potassium (K)	2023/05/11	105	80 - 120	101	80 - 120	<0.2	mg/L	0.45 (1)	20		
8650910	Dissolved Sodium (Na)	2023/05/11	NC	80 - 120	100	80 - 120	<0.1	mg/L	0.67 (1)	20		
8650947	Dissolved Chloride (Cl-)	2023/05/09	NC	80 - 120	98	80 - 120	<1.0	mg/L	0.12 (1)	20		
8650948	Dissolved Sulphate (SO4)	2023/05/09	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.87 (1)	20		
8650952	Alkalinity (Total as CaCO3)	2023/05/10			98	85 - 115	<1.0	mg/L	0.49 (2)	20		
8650953	Conductivity	2023/05/10			100	85 - 115	<1.0	umho/cm	0.26 (2)	25		
8650955	pH	2023/05/10			102	98 - 103			0.28 (2)	N/A		
8650959	Nitrate (N)	2023/05/08	92	80 - 120	95	80 - 120	<0.10	mg/L	0.37 (1)	20		
8651017	Dissolved Chloride (Cl-)	2023/05/10	83	80 - 120	102	80 - 120	<1.0	mg/L	1.8 (1)	20		
8651018	Dissolved Sulphate (SO4)	2023/05/10	NC	75 - 125	102	80 - 120	<1.0	mg/L	4.3 (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.bvna.com

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

Bureau Veritas Job #: C3C8759
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8651521	Total Kjeldahl Nitrogen (TKN)	2023/05/10	95	80 - 120	101	80 - 120	<0.7	mg/L	NC (1)	20	102	80 - 120
8653597	Total Ammonia-N	2023/05/10	100 (3)	75 - 125	100	80 - 120	<0.15	mg/L	NC (4)	20		
8653843	Dissolved Organic Carbon	2023/05/10	91 (5)	80 - 120	95	80 - 120	<0.4	mg/L	9.5 (6)	20		
8654411	Total Ammonia-N	2023/05/10	101	75 - 125	100	80 - 120	<0.15	mg/L	NC (1)	20		
8654959	Total Dissolved Solids	2023/05/11					<10	mg/L	0.50 (1)	20	98	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.

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 [VSW646-01]

(3) Matrix Spike Parent ID [VSW647-05]

(4) Duplicate Parent ID [VSW647-05]

(5) Matrix Spike Parent ID [VSW647-06]

(6) Duplicate Parent ID [VSW647-06]

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 #: C3C8759
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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.

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCER

Site No.:

Sample: OW81-7
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (mS/µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050423	6.84	2.59	9.8	84.5			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Yellow / Odor: N/O Color: Yellow Other:

Weather Conditions (required daily, or as conditions change): 8°C Direction/Speed: N 7 mph Outlook: A Few Clouds Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0759

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW5OF6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050423	7.38	1,52	12.1	65.4			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Brown

Odor: N/A

Color: Brown

Other:

Weather Conditions (required daily, or as conditions change): 9°c

Direction/Speed: 15kmh N

Outlook: Clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Eric Wilson	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0764

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 40A-7 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	~~ELAPSED HRS~~ (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: 4 — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (~~Site Datum, from~~ TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
0 5 0 4 2 3	7.45	MS 3.22	14.9	230			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: yellow, clear

Odor: none

Color: yellow

Other:

Weather Conditions (required daily, or as conditions change): 14°C

Direction/Speed: 14 Knots N

Outlook: clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
25/04/23	Eric Wilson	Eric Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0770

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: MW 60-8 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:mins)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) ____ (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: ____ Units ____
050423	7.84	mS 0.84	15.2	54.8			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: none

Color: clear

Other: ____

Weather Conditions (required daily, or as conditions change): 49°C

Direction/Speed: 4 Knots N

Outlook: clear

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): ____

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Eric Wilson	E. Wilson	RMDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0756

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 0W79-2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050423	7.13	1.77 mS	18.3	28.7			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: translucent

Odor: N/O

Color: N/C

Other:

Weather Conditions (required daily, or as conditions change): 11 °C

Direction/Speed: N 16 km/h

Outlook: Partly Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
050423	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0766

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	TCEC-GWCM-MAY
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com, JCL@rwdi.co	Sampled By:	EW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other ODWS (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 15-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERSTADIAL SILT & SAND)	# of Cont.	COMMENTS / TAT COMMENTS
1	OW80-6	4-May-23	AM	GW	N	Y	X	8	
2	OW81-7	4-May-23	AM	GW	N	Y	X	8	
3	OW40A-7	4-May-23	PM	GW	N	Y	X	8	
4	OW60-8	4-May-23	PM	GW	N	Y	X	8	
5	OW79-7	4-May-23	PM	GW	N	Y	X	8	
6									
7									
8									
9									
10									
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

05-May-23 15:48
Patricia Legette
C3C8759
RJM ENV-1251

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
BEG 5-May-23 - AM	[illegible]	[illegible]	1548

Laboratory Use Only

Temperature (°C) on Receipt: [illegible]

Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/24
Report #: R7641232
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8768
Received: 2023/05/05, 15:48

Sample Matrix: Ground Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	6	N/A	2023/05/10	CAM SOP-00448	SM 23 2320 B m
Alkalinity	1	N/A	2023/05/19	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	6	N/A	2023/05/11	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2023/05/19	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	6	N/A	2023/05/17		
Conductance in Water - On-site	1	N/A	2023/05/18		
Conductivity	7	N/A	2023/05/10	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	7	N/A	2023/05/11	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	5	N/A	2023/05/11	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2023/05/12	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2023/05/19	CAM SOP-00447	EPA 6020B m
Ammonia-N	7	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	7	N/A	2023/05/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	7	2023/05/09	2023/05/10	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	6	N/A	2023/05/17		Field pH Meter
Field Measured pH (3)	1	N/A	2023/05/18		Field pH Meter
Sulphate by Automated Turbidimetry	6	N/A	2023/05/11	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	1	N/A	2023/05/19	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	7	2023/05/10	2023/05/11	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	6	N/A	2023/05/17		Field Thermometer
Field Temperature (3)	1	N/A	2023/05/18		Field Thermometer
Total Kjeldahl Nitrogen in Water	7	2023/05/10	2023/05/11	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	6	N/A	2023/05/17		
Turbidity - On-site	1	N/A	2023/05/18		
Volatile Organic Compounds in Water	7	N/A	2023/05/11	CAM SOP-00228	EPA 8260D

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, MELCCFP, 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.bvna.com

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/24
Report #: R7641232
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8768
Received: 2023/05/05, 15:48

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) 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

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 #: C3C8768
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		VSW694		VSW695	VSW696	VSW697		
Sampling Date		2023/05/04		2023/05/04	2023/05/04	2023/05/04		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW81-5**	**RDL**	**OW80-3**	**FIELD BLANK**	**GWDUP4**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	2880	N/A	780	780	780	N/A	ONSITE
Field Temperature	Celsius	9.5	N/A	12.7	12.7	12.7	N/A	ONSITE
Field Turbidity	NTU	8.49	N/A	421	421	421	N/A	ONSITE
Field Measured pH	pH	7.01		7.22	7.22	7.22		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.15	0.15	0.50	<0.15	0.37	0.15	8656365
Conductivity	umho/cm	2800	1.0	650	1.3	650	1.0	8655176
Total Dissolved Solids	mg/L	2110	10	320	<10	340	10	8655843
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	0.9	<0.7	0.7	0.7	8656176
Dissolved Organic Carbon	mg/L	1.8	0.4	6.9	<0.4	6.9	0.4	8656202
pH	pH	7.77		7.94	5.73	7.92		8655180
Dissolved Sulphate (SO4)	mg/L	1300	10	28	<1.0	24	1.0	8654988
Alkalinity (Total as CaCO3)	mg/L	400	1.0	230	<1.0	240	1.0	8655171
Dissolved Chloride (Cl-)	mg/L	19	1.0	46	<1.0	46	1.0	8654980
Nitrate (N)	mg/L	<0.10	0.10	0.25	<0.10	0.29	0.10	8654960

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 #: C3C8768
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		VSW698			VSW699		VSW700		
Sampling Date		2023/05/04			2023/05/04		2023/05/04		
COC Number		TCEC-GWCM-MAY			TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW60-4**	**RDL**	**QC Batch**	**OW40D-4**	**RDL**	**OW79-5**	**RDL**	**QC Batch**
Field Measurements									
Field Conductivity	uS/cm	1050	N/A	ONSITE	2160	N/A	1350	N/A	ONSITE
Field Temperature	Celsius	17.5	N/A	ONSITE	14.4	N/A	18.3	N/A	ONSITE
Field Turbidity	NTU	.999	N/A	ONSITE	570	N/A	29.6	N/A	ONSITE
Field Measured pH	pH	7.46		ONSITE	7.46		7.45		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.15	0.15	8656365	<0.15	0.15	<0.15	0.15	8656365
Conductivity	umho/cm	980	1.0	8655176	2100	1.0	1200	1.0	8655176
Total Dissolved Solids	mg/L	635	10	8655843	1520	10	695	10	8655843
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8656176	<0.7	0.7	<0.7	0.7	8656176
Dissolved Organic Carbon	mg/L	6.9	0.4	8656202	3.5	0.4	2.8	0.4	8656202
pH	pH	7.90		8655180	7.84		7.90		8655180
Dissolved Sulphate (SO4)	mg/L	260	1.0	8674551	860	5.0	230	1.0	8654988
Alkalinity (Total as CaCO3)	mg/L	270	1.0	8674772	390	1.0	450	1.0	8655171
Dissolved Chloride (Cl-)	mg/L	4.9	1.0	8674550	5.2	1.0	24	1.0	8654980
Nitrate (N)	mg/L	<0.10	0.10	8654960	0.13	0.10	0.11	0.10	8654960

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 #: C3C8768
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (GROUND WATER)

Bureau Veritas ID		VSW694		VSW695	VSW696	VSW697		
Sampling Date		2023/05/04		2023/05/04	2023/05/04	2023/05/04		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW81-5**	**RDL**	**OW80-3**	**FIELD BLANK**	**GWDUP4**	**RDL**	**QC Batch**
Metals								
Dissolved Barium (Ba)	mg/L	0.022	0.005	0.035	<0.005	0.028	0.005	8654806
Dissolved Boron (B)	mg/L	0.54	0.02	<0.02	<0.02	<0.02	0.02	8654806
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	8654806
Dissolved Calcium (Ca)	mg/L	260	0.4	70	<0.2	63	0.2	8654806
Dissolved Iron (Fe)	mg/L	<0.1	0.1	2.9	<0.1	0.5	0.1	8654806
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	0.0005	8654806
Dissolved Magnesium (Mg)	mg/L	180	0.05	17	<0.05	14	0.05	8654806
Dissolved Potassium (K)	mg/L	5.2	0.2	4.3	<0.2	4.7	0.2	8654806
Dissolved Sodium (Na)	mg/L	160	0.1	56	<0.1	49	0.1	8654806

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSW698		VSW699	VSW700		
Sampling Date		2023/05/04		2023/05/04	2023/05/04		
COC Number		TCEC-GWCM-MAY		TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW60-4**	**QC Batch**	**OW40D-4**	**OW79-5**	**RDL**	**QC Batch**
Metals							
Dissolved Barium (Ba)	mg/L	0.14	8674798	0.015	0.022	0.005	8654806
Dissolved Boron (B)	mg/L	0.04	8674798	0.22	0.07	0.02	8654806
Dissolved Cadmium (Cd)	mg/L	0.0002	8674798	<0.0001	<0.0001	0.0001	8654806
Dissolved Calcium (Ca)	mg/L	210	8674798	150	95	0.2	8654806
Dissolved Iron (Fe)	mg/L	8.7	8674798	1.0	<0.1	0.1	8654806
Dissolved Lead (Pb)	mg/L	0.47	8674798	0.0006	<0.0005	0.0005	8654806
Dissolved Magnesium (Mg)	mg/L	51	8674798	140	85	0.05	8654806
Dissolved Potassium (K)	mg/L	2.7	8674798	3.6	2.3	0.2	8654806
Dissolved Sodium (Na)	mg/L	15	8674798	88	83	0.1	8654806

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 #: C3C8768
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (GROUND WATER)

Bureau Veritas ID		VSW694	VSW695	VSW696	VSW697		
Sampling Date		2023/05/04	2023/05/04	2023/05/04	2023/05/04		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW81-5**	**OW80-3**	**FIELD BLANK**	**GWDUP4**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8656158
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8656158
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8656158
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8656158
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8656158
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8656158
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8656158
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8656158
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8656158
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	96	97	97	97		8656158
D4-1,2-Dichloroethane	%	110	107	108	111		8656158
D8-Toluene	%	99	96	93	89		8656158

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VSW698	VSW699	VSW700		
Sampling Date		2023/05/04	2023/05/04	2023/05/04		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW60-4**	**OW40D-4**	**OW79-5**	**RDL**	**QC Batch**
Volatile Organics						
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	8656158
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	0.40	8656158
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	8656158
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	8656158
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	8656158
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	8656158
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	8656158
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	8656158
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	8656158
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	99	97	97		8656158
D4-1,2-Dichloroethane	%	105	112	108		8656158
D8-Toluene	%	95	96	97		8656158

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 #: C3C8768
Report Date: 2023/05/24

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8656158	4-Bromofluorobenzene	2023/05/11	96 (6)	70 - 130	97	70 - 130	97	%				
8656158	D4-1,2-Dichloroethane	2023/05/11	110 (6)	70 - 130	97	70 - 130	107	%				
8656158	D8-Toluene	2023/05/11	98 (6)	70 - 130	99	70 - 130	97	%				
8654806	Dissolved Barium (Ba)	2023/05/11	96 (1)	80 - 120	96	80 - 120	<0.005	mg/L	NC (3)	20		
8654806	Dissolved Boron (B)	2023/05/11	NC (1)	80 - 120	93	80 - 120	<0.02	mg/L	NC (3)	20		
8654806	Dissolved Cadmium (Cd)	2023/05/11	102 (1)	80 - 120	98	80 - 120	<0.0001	mg/L	NC (3)	20		
8654806	Dissolved Calcium (Ca)	2023/05/11	NC (1)	80 - 120	95	80 - 120	<0.2	mg/L	NC (3)	20		
8654806	Dissolved Iron (Fe)	2023/05/11	103 (1)	80 - 120	100	80 - 120	<0.1	mg/L	NC (3)	20		
8654806	Dissolved Lead (Pb)	2023/05/11	97 (1)	80 - 120	97	80 - 120	<0.0005	mg/L	NC (3)	20		
8654806	Dissolved Magnesium (Mg)	2023/05/11	NC (1)	80 - 120	97	80 - 120	<0.05	mg/L	NC (3)	20		
8654806	Dissolved Potassium (K)	2023/05/11	99 (1)	80 - 120	98	80 - 120	<0.2	mg/L	NC (3)	20		
8654806	Dissolved Sodium (Na)	2023/05/11	NC (1)	80 - 120	100	80 - 120	<0.1	mg/L	NC (3)	20		
8654960	Nitrate (N)	2023/05/10	110	80 - 120	105	80 - 120	<0.10	mg/L	8.5 (4)	20		
8654980	Dissolved Chloride (Cl-)	2023/05/11	88	80 - 120	93	80 - 120	<1.0	mg/L	1.3 (4)	20		
8654988	Dissolved Sulphate (SO4)	2023/05/11	88	75 - 125	93	80 - 120	<1.0	mg/L	NC (4)	20		
8655171	Alkalinity (Total as CaCO3)	2023/05/10			96	85 - 115	<1.0	mg/L	NC (4)	20		
8655176	Conductivity	2023/05/10			99	85 - 115	<1.0	umho/cm	NC (4)	25		
8655180	pH	2023/05/10			102	98 - 103			1.2 (4)	N/A		
8655843	Total Dissolved Solids	2023/05/11					<10	mg/L	3.5 (5)	20	95	90 - 110
8656158	1,4-Dichlorobenzene	2023/05/11	99 (6)	70 - 130	105	70 - 130	<0.40	ug/L	NC (7)	30		
8656158	Benzene	2023/05/11	89 (6)	70 - 130	83	70 - 130	<0.20	ug/L	NC (7)	30		
8656158	Ethylbenzene	2023/05/11	84 (6)	70 - 130	89	70 - 130	<0.20	ug/L	NC (7)	30		
8656158	Methylene Chloride(Dichloromethane)	2023/05/11	82 (6)	70 - 130	82	70 - 130	<2.0	ug/L	NC (7)	30		
8656158	o-Xylene	2023/05/11	85 (6)	70 - 130	89	70 - 130	<0.20	ug/L	NC (7)	30		
8656158	p+m-Xylene	2023/05/11	87 (6)	70 - 130	92	70 - 130	<0.20	ug/L	NC (7)	30		
8656158	Toluene	2023/05/11	85 (6)	70 - 130	88	70 - 130	<0.20	ug/L	NC (7)	30		
8656158	Total Xylenes	2023/05/11					<0.20	ug/L	NC (7)	30		
8656158	Vinyl Chloride	2023/05/11	92 (6)	70 - 130	95	70 - 130	<0.20	ug/L	NC (7)	30		
8656176	Total Kjeldahl Nitrogen (TKN)	2023/05/11	104 (8)	80 - 120	104	80 - 120	<0.7	mg/L	NC (9)	20	104	80 - 120

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

Bureau Veritas Job #: C3C8768
Report Date: 2023/05/24

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8656202	Dissolved Organic Carbon	2023/05/11	94 (10)	80 - 120	94	80 - 120	<0.4	mg/L	1.4 (11)	20		
8656365	Total Ammonia-N	2023/05/10	101	75 - 125	99	80 - 120	<0.15	mg/L	NC (4)	20		
8674550	Dissolved Chloride (Cl-)	2023/05/19	NC	80 - 120	96	80 - 120	<1.0	mg/L	5.0 (4)	20		
8674551	Dissolved Sulphate (SO4)	2023/05/19	NC	75 - 125	99	80 - 120	<1.0	mg/L	0 (4)	20		
8674772	Alkalinity (Total as CaCO3)	2023/05/19			97	85 - 115	<1.0	mg/L	0.60 (12)	20		
8674798	Dissolved Barium (Ba)	2023/05/19	99 (13)	80 - 120	100	80 - 120	<0.005	mg/L	2.5 (14)	20		
8674798	Dissolved Boron (B)	2023/05/19	93 (13)	80 - 120	98	80 - 120	<0.02	mg/L	4.2 (14)	20		
8674798	Dissolved Cadmium (Cd)	2023/05/19	101 (13)	80 - 120	101	80 - 120	<0.0001	mg/L	18 (14)	20		
8674798	Dissolved Calcium (Ca)	2023/05/19	NC (13)	80 - 120	104	80 - 120	<0.2	mg/L	2.3 (14)	20		
8674798	Dissolved Iron (Fe)	2023/05/19	102 (13)	80 - 120	100	80 - 120	<0.1	mg/L	1.5 (14)	20		
8674798	Dissolved Lead (Pb)	2023/05/19	98 (13)	80 - 120	103	80 - 120	<0.0005	mg/L	0.21 (14)	20		
8674798	Dissolved Magnesium (Mg)	2023/05/19	NC (13)	80 - 120	96	80 - 120	<0.05	mg/L	1.9 (14)	20		
8674798	Dissolved Potassium (K)	2023/05/19	100 (13)	80 - 120	98	80 - 120	<0.2	mg/L	1.4 (14)	20		

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

Bureau Veritas Job #: C3C8768
Report Date: 2023/05/24

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8674798	Dissolved Sodium (Na)	2023/05/19	95 (13)	80 - 120	97	80 - 120	<0.1	mg/L	0.43 (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 [VSW694-03]

(2) Duplicate Parent ID [VSW694-03]

(3) Duplicate Parent ID [VSW696-03]

(4) Duplicate Parent ID

(5) Duplicate Parent ID [VSW700-02]

(6) Matrix Spike Parent ID [VSW694-07]

(7) Duplicate Parent ID [VSW694-07]

(8) Matrix Spike Parent ID [VSW700-04]

(9) Duplicate Parent ID [VSW700-04]

(10) Matrix Spike Parent ID [VSW700-06]

(11) Duplicate Parent ID [VSW700-06]

(12) Duplicate Parent ID [VSW698-01]

(13) Matrix Spike Parent ID [VSW698-03]

(14) Duplicate Parent ID [VSW698-03]

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

Bureau Veritas Job #: C3C8768
Report Date: 2023/05/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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

Zunaira Allem, Project Manager Assistant

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

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TrC

Site No.:

Sample: OW81-5
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050423	7.01	mS 2.88	9.5	8.49			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: No

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 80s

Direction/Speed: N 12 Kn/h

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Brady Cruss	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0761

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: ~~OW60-4~~ TCEC

Site No.:

Sample ID: OW60-4

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) (ft/msl) | Depth to Water (DTW) (from TOC) (ft) | Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft) | Stick Up (from ground elevation) (ft) | Casing ID (in) | Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit		pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st		1st					
		2nd		2nd					
		3rd		3rd					
		4th		4th					
Input Range for 3 consec. readings or Permit/State requirements:			+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: ____ Units ____
05 04 23	7.46	mS 1.05	17.5	>999			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: brown, cloudy — Odor: none — Color: brown — Other: ____

Weather Conditions (required daily, or as conditions change): 14°C — Direction/Speed: 14 km/h N — Outlook: clear — Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required): ____

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Eric Wilson	E Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0769

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: GW40D-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

	Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1st									
2nd									
3rd									
4th									
Input Range for 3 consec. readings or Permit/State requirements:			+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050423	7.46	mS 2.16	14.4	570			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: yellow, cloudy

Odor: none

Color: yellow

Other:

Weather Conditions (required daily, or as conditions change): 14°C

Direction/Speed: 14 Kmh N

Outlook: clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0757

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.: Sample: 01-79-5 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) (ft/msl) | Depth to Water (DTW) (from TOC) (ft) | Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft) | Stick Up (from ground elevation) (ft) | Casing ID (in) | Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SCEC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 04 23	7.45	mS 1.35	18.3	29.6			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear — Odor: NO — Color: Clear — Other: ____

Weather Conditions (required daily, or as conditions change): 10°C — Direction/Speed: 16 Km/h N — Outlook: Cloudy — Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required): ____

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Eric Wilson	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0765

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW80-B (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 04 23	7.22	0.78	12.7	~~47.7~~ 47.1			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: grey, particles

Odor: none

Color: grey

Other:

Weather Conditions (required daily, or as conditions change): 9°C

Direction/Speed: 15 km/h N

Outlook: clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

GWDUP4 collected

Field blank submitted

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Eric Witsman	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0762

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-MAY	TCEC-GWCM-MAY
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com, JCL@rwdi.co	Location:	Twin Creeks	
				Sampled By:	EW	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Sanitary ☐ Storm Region _____ ☒ Other ODWS specify

☐ PWQO ☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 15-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD)							# of Cont.	COMMENTS / TAT COMMENTS
1	OW81-5	4-May-23	AM	GW	N	Y	X							8	
2	OW80-3	4-May-23	AM	GW	N	Y	X							8	GWDUP4 Collected, FIELD BLANK Submitted
3	FIELD BLANK	4-May-23	AM	W	N	N	X							8	
4	GWDUP4	4-May-23	AM	GW	N	Y	X							8	
5	OW60-4	4-May-23	PM	GW	N	Y	X							8	
6	OW40D-4	4-May-23	PM	GW	N	Y	X							8	
7	OW79-5	4-May-23	PM	GW	N	Y	X							8	
8															
9															
10															
11															Metals and Filtered DOC field filtered
12															See lab addendum for analysis.

05-May-23 15:48
Patricia Legette
C3C8768
RJM ENV-1251

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 5-May-23 - AM	[signature]	05/05/23	1548	Temperature (°C) on Receipt	Condition of Sample on Receipt
				[signature]	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/17
Report #: R7632488
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8774
Received: 2023/05/05, 15:48

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2023/05/10	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/05/10	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	3	N/A	2023/05/09	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	4	N/A	2023/05/17		
Conductivity	4	N/A	2023/05/10	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	4	N/A	2023/05/10	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	4	N/A	2023/05/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	4	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	4	N/A	2023/05/08	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	4	2023/05/07	2023/05/10	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	4	N/A	2023/05/17		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/05/10	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	3	N/A	2023/05/09	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	4	2023/05/10	2023/05/11	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	4	N/A	2023/05/17		Field Thermometer
Total Kjeldahl Nitrogen in Water	4	2023/05/08	2023/05/10	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	4	N/A	2023/05/17		

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

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/17
Report #: R7632488
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C8774
Received: 2023/05/05, 15:48
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

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.

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

Bureau Veritas Job #: C3C8774
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSW765	VSW766		VSW767		
Sampling Date		2023/05/04	2023/05/04		2023/05/04		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY		TCEC-GWCM-MAY		
	UNITS	**OW80-27**	**OW81-27**	**QC Batch**	**OW39A-26**	**RDL**	**QC Batch**
Field Measurements							
Field Conductivity	uS/cm	820	1610	ONSITE	940	N/A	ONSITE
Field Temperature	Celsius	13.6	11.5	ONSITE	19.1	N/A	ONSITE
Field Turbidity	NTU	7.75	37.5	ONSITE	95.6	N/A	ONSITE
Field Measured pH	pH	7.88	6.75	ONSITE	7.82		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	<0.15	8654411	0.33	0.15	8654411
Conductivity	umho/cm	740	1400	8650953	820	1.0	8650953
Total Dissolved Solids	mg/L	415	1000	8654959	485	10	8654959
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	<0.7	8651521	<0.7	0.7	8651521
Dissolved Organic Carbon	mg/L	1.5	4.0	8653843	10	0.4	8653843
pH	pH	8.31	7.94	8650955	8.24		8650955
Dissolved Sulphate (SO4)	mg/L	22	260	8650948	47	1.0	8651018
Alkalinity (Total as CaCO3)	mg/L	290	300	8650952	300	1.0	8650952
Dissolved Chloride (Cl-)	mg/L	45	16	8650947	38	1.0	8651017
Nitrate (N)	mg/L	<0.10	<0.10	8650959	<0.10	0.10	8650959

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

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

Bureau Veritas Job #: C3C8774
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VSW768		
Sampling Date		2023/05/04		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW79-26**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	990	N/A	ONSITE
Field Temperature	Celsius	15.3	N/A	ONSITE
Field Turbidity	NTU	59.3	N/A	ONSITE
Field Measured pH	pH	7.08		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8654411
Conductivity	umho/cm	830	1.0	8650953
Total Dissolved Solids	mg/L	465	10	8654959
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8651521
Dissolved Organic Carbon	mg/L	1.6	0.4	8653843
pH	pH	8.07		8650955
Dissolved Sulphate (SO4)	mg/L	93	1.0	8650948
Alkalinity (Total as CaCO3)	mg/L	270	1.0	8650952
Dissolved Chloride (Cl-)	mg/L	20	1.0	8650947
Nitrate (N)	mg/L	<0.10	0.10	8650959

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

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

Bureau Veritas Job #: C3C8774
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VSW765	VSW766	VSW767	VSW768		
Sampling Date		2023/05/04	2023/05/04	2023/05/04	2023/05/04		
COC Number		TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY	TCEC-GWCM-MAY		
	UNITS	**OW80-27**	**OW81-27**	**OW39A-26**	**OW79-26**	**RDL**	**QC Batch**
Metals							
Dissolved Barium (Ba)	mg/L	0.047	0.048	0.074	0.023	0.005	8650910
Dissolved Boron (B)	mg/L	1.7	1.3	1.7	1.5	0.02	8650910
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	8650910
Dissolved Calcium (Ca)	mg/L	15	89	26	31	0.2	8650910
Dissolved Iron (Fe)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	8650910
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	8650910
Dissolved Magnesium (Mg)	mg/L	7.6	56	17	16	0.05	8650910
Dissolved Potassium (K)	mg/L	2.3	2.3	3.2	5.8	0.2	8650910
Dissolved Sodium (Na)	mg/L	150	140	160	140	0.1	8650910

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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 #: C3C8774
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8650910	Dissolved Barium (Ba)	2023/05/11	103 (1)	80 - 120	100	80 - 120	<0.005	mg/L	7.4 (2)	20		
8650910	Dissolved Boron (B)	2023/05/11	NC (1)	80 - 120	94	80 - 120	<0.02	mg/L	1.7 (2)	20		
8650910	Dissolved Cadmium (Cd)	2023/05/11	102 (1)	80 - 120	99	80 - 120	<0.0001	mg/L	NC (2)	20		
8650910	Dissolved Calcium (Ca)	2023/05/11	NC (1)	80 - 120	101	80 - 120	<0.2	mg/L	0.68 (2)	20		
8650910	Dissolved Iron (Fe)	2023/05/11	101 (1)	80 - 120	98	80 - 120	<0.1	mg/L	NC (2)	20		
8650910	Dissolved Lead (Pb)	2023/05/11	97 (1)	80 - 120	97	80 - 120	<0.0005	mg/L	NC (2)	20		
8650910	Dissolved Magnesium (Mg)	2023/05/11	103 (1)	80 - 120	100	80 - 120	<0.05	mg/L	0.44 (2)	20		
8650910	Dissolved Potassium (K)	2023/05/11	105 (1)	80 - 120	101	80 - 120	<0.2	mg/L	0.45 (2)	20		
8650910	Dissolved Sodium (Na)	2023/05/11	NC (1)	80 - 120	100	80 - 120	<0.1	mg/L	0.67 (2)	20		
8650947	Dissolved Chloride (Cl-)	2023/05/09	NC	80 - 120	98	80 - 120	<1.0	mg/L	0.12 (3)	20		
8650948	Dissolved Sulphate (SO4)	2023/05/09	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.87 (3)	20		
8650952	Alkalinity (Total as CaCO3)	2023/05/10			98	85 - 115	<1.0	mg/L	0.49 (3)	20		
8650953	Conductivity	2023/05/10			100	85 - 115	<1.0	umho/cm	0.26 (3)	25		
8650955	pH	2023/05/10			102	98 - 103			0.28 (3)	N/A		
8650959	Nitrate (N)	2023/05/08	92	80 - 120	95	80 - 120	<0.10	mg/L	0.37 (3)	20		
8651017	Dissolved Chloride (Cl-)	2023/05/10	83	80 - 120	102	80 - 120	<1.0	mg/L	1.8 (3)	20		
8651018	Dissolved Sulphate (SO4)	2023/05/10	NC	75 - 125	102	80 - 120	<1.0	mg/L	4.3 (3)	20		
8651521	Total Kjeldahl Nitrogen (TKN)	2023/05/10	95 (4)	80 - 120	101	80 - 120	<0.7	mg/L	NC (5)	20	102	80 - 120
8653843	Dissolved Organic Carbon	2023/05/10	91	80 - 120	95	80 - 120	<0.4	mg/L	9.5 (3)	20		
8654411	Total Ammonia-N	2023/05/10	101	75 - 125	100	80 - 120	<0.15	mg/L	NC (3)	20		

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

Bureau Veritas Job #: C3C8774
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
8654959	Total Dissolved Solids	2023/05/11					<10	mg/L	0.50 (6)	20	98	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) Matrix Spike Parent ID [VSW768-03]

(2) Duplicate Parent ID [VSW768-03]

(3) Duplicate Parent ID

(4) Matrix Spike Parent ID [VSW768-04]

(5) Duplicate Parent ID [VSW768-04]

(6) Duplicate Parent ID [VSW766-02]

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 #: C3C8774
Report Date: 2023/05/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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.

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW80-27 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) ____ (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: ____ Units ____
050423	7.88	0.87	13.6	7.75			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear, particles. Odor: None Color: Clear Other: ____

Weather Conditions (required daily, or as conditions change): 9°C Direction/Speed: 15 Knots N Outlook: Clear Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): ____

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05 04 23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0763

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 0 1 8 1 - 2 7 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (N) or N (0.45) µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

X-Other: ____

Sample Tube Type: ____ — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) ____ (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: ____ Units ____
0 5 0 4 2 3	6.75	1.61	11.5	37.5			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear, Particles

Odor: Sulfur

Color: Clear

Other: ____

Weather Conditions (required daily, or as conditions change): 8°C

Direction/Speed: 12Km/h N

Outlook: Cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required): ____

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0760

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW39A-26 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C) mS	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
05 04 23	7.82	0.94	19.1	95.6			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear, particles

Odor: Sulfur

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 12°C

Direction/Speed: 11 Km/h N

Outlook: Clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/04/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0768

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 0579+26 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050423	7.08	0.99 mS	15.3	59.3			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear, black Particles

Odor: Musty/Fuel

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 11°c

Direction/Speed: NW 17km/h

Outlook: Partly Cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05 04 23	Eric Wilson	E Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0767

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	TCEC-GWCM-MAY
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com, JCL@rwdi.co	Sampled By:	EW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other ODWS (specify)

Report Criteria on C of A ? n

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 15-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

ANALYSIS REQUESTED (Please be specific):

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERFACE AQUIFER) No VOCs	# of Cont.	COMMENTS / TAT COMMENTS
1	OW80-27	4-May-23	AM	GW	N	Y	X	6	
2	OW81-27	4-May-23	AM	GW	N	Y	X	6	
3	OW39A-26	4-May-23	PM	GW	N	Y	X	6	
4	OW79-26	4-May-23	PM	GW	N	Y	X	6	
5									
6									
7									
8									
9									
10									
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

05-May-23 15:48
Patricia Legette
C3C8774
RJM ENV-1763

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 5-May-23 - AM	[signature]	05/05/05	1548	Temperature (°C) on Receipt	Condition of Sample on Receipt
				[signature]	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/26
Report #: R7645767
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3E8751
Received: 2023/05/25, 08:50

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/05/26	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/05/26	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2023/05/25		
Conductivity	1	N/A	2023/05/26	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/05/26	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/05/26	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/05/26	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2023/05/26	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/05/25	2023/05/26	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	1	N/A	2023/05/25		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/05/26	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/05/25	2023/05/26	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	1	N/A	2023/05/25		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/05/26	2023/05/26	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	1	N/A	2023/05/25		

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, MELCCFP, 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.

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

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/26
Report #: R7645767
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3E8751
Received: 2023/05/25, 08:50

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

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 #: C3E8751
Report Date: 2023/05/26

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VXF200		
Sampling Date		2023/05/23		
COC Number		n/a		
	UNITS	**OW84-31**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	2360	N/A	ONSITE
Field Temperature	Celsius	17.5	N/A	ONSITE
Field Turbidity	NTU	7.31	N/A	ONSITE
Field Measured pH	pH	6.8		ONSITE
Inorganics				
Total Ammonia-N	mg/L	0.35	0.15	8686297
Conductivity	umho/cm	2200	1.0	8685258
Total Dissolved Solids	mg/L	1710	10	8683672
Total Kjeldahl Nitrogen (TKN)	mg/L	0.7	0.7	8686309
Dissolved Organic Carbon	mg/L	17	0.4	8686379
pH	pH	7.59		8685259
Dissolved Sulphate (SO4)	mg/L	760	5.0	8685464
Alkalinity (Total as CaCO3)	mg/L	400	1.0	8685256
Dissolved Chloride (Cl-)	mg/L	21	1.0	8685430
Nitrate (N)	mg/L	6.45	0.10	8685318

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

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Bureau Veritas Job #: C3E8751
Report Date: 2023/05/26

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VXF200		
Sampling Date		2023/05/23		
COC Number		n/a		
	UNITS	**OW84-31**	**RDL**	**QC Batch**
Metals				
Dissolved Barium (Ba)	mg/L	0.053	0.005	8686144
Dissolved Boron (B)	mg/L	0.52	0.02	8686144
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	8686144
Dissolved Calcium (Ca)	mg/L	280	0.2	8686144
Dissolved Iron (Fe)	mg/L	<0.1	0.1	8686144
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	8686144
Dissolved Magnesium (Mg)	mg/L	79	0.05	8686144
Dissolved Potassium (K)	mg/L	6.5	0.2	8686144
Dissolved Sodium (Na)	mg/L	140	0.1	8686144

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Job #: C3E8751
Report Date: 2023/05/26

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

			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
8683672	Total Dissolved Solids	2023/05/26			97	90 - 110	<10	mg/L	0 (1)	20		
8685256	Alkalinity (Total as CaCO3)	2023/05/26			98	85 - 115	<1.0	mg/L	1.7 (2)	20		
8685258	Conductivity	2023/05/26			101	85 - 115	<1.0	umho/cm	0.46 (2)	25		
8685259	pH	2023/05/26			102	98 - 103			0.68 (2)	N/A		
8685318	Nitrate (N)	2023/05/26	99 (3)	80 - 120	101	80 - 120	<0.10	mg/L	0.38 (2)	20		
8685430	Dissolved Chloride (Cl-)	2023/05/26	NC (3)	80 - 120	102	80 - 120	<1.0	mg/L	0.38 (2)	20		
8685464	Dissolved Sulphate (SO4)	2023/05/26	NC (3)	75 - 125	96	80 - 120	<1.0	mg/L	0.094 (2)	20		
8686144	Dissolved Barium (Ba)	2023/05/26	100 (4)	80 - 120	97	80 - 120	<0.005	mg/L	2.7 (5)	20		
8686144	Dissolved Boron (B)	2023/05/26	NC (4)	80 - 120	98	80 - 120	<0.02	mg/L	4.8 (5)	20		
8686144	Dissolved Cadmium (Cd)	2023/05/26	101 (4)	80 - 120	98	80 - 120	<0.0001	mg/L	NC (5)	20		
8686144	Dissolved Calcium (Ca)	2023/05/26	NC (4)	80 - 120	97	80 - 120	<0.2	mg/L	2.8 (5)	20		
8686144	Dissolved Iron (Fe)	2023/05/26	101 (4)	80 - 120	98	80 - 120	<0.1	mg/L	NC (5)	20		
8686144	Dissolved Lead (Pb)	2023/05/26	99 (4)	80 - 120	97	80 - 120	<0.0005	mg/L	NC (5)	20		
8686144	Dissolved Magnesium (Mg)	2023/05/26	NC (4)	80 - 120	98	80 - 120	<0.05	mg/L	1.1 (5)	20		
8686144	Dissolved Potassium (K)	2023/05/26	104 (4)	80 - 120	98	80 - 120	<0.2	mg/L	0.97 (5)	20		
8686144	Dissolved Sodium (Na)	2023/05/26	NC (4)	80 - 120	98	80 - 120	<0.1	mg/L	1.3 (5)	20		
8686297	Total Ammonia-N	2023/05/26	102 (6)	75 - 125	103	80 - 120	<0.15	mg/L	4.2 (7)	20		
8686309	Total Kjeldahl Nitrogen (TKN)	2023/05/26	101 (8)	80 - 120	101	80 - 120	<0.7	mg/L	NC (9)	20	106	80 - 120

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Bureau Veritas Job #: C3E8751
Report Date: 2023/05/26

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

			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
8686379	Dissolved Organic Carbon	2023/05/26	95 (10)	80 - 120	98	80 - 120	<0.4	mg/L	2.5 (11)	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 [VXF200-01]

(3) Matrix Spike Parent ID [VXF200-01]

(4) Matrix Spike Parent ID [VXF200-03]

(5) Duplicate Parent ID [VXF200-03]

(6) Matrix Spike Parent ID [VXF200-05]

(7) Duplicate Parent ID [VXF200-05]

(8) Matrix Spike Parent ID [VXF200-04]

(9) Duplicate Parent ID [VXF200-04]

(10) Matrix Spike Parent ID [VXF200-06]

(11) Duplicate Parent ID [VXF200-06]

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Bureau Veritas Job #: C3E8751
Report Date: 2023/05/26

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

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

Patricia Legette, Project Manager

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FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW84-31 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device:

A-Submersible Pump
B-Peristaltic Pump
C-QED Bladder Pump
D-Bailer
E-Piston Pump
F-Dipper/Bottle

Sampling Device: C

Filter Type: A

A-In-line Disposable
B-Pressure
C-Vacuum
X-Other:

A-Teflon
B-Stainless Steel
C-PVC
D-Polypropylene
X-Other:

X-Other:

Sample Tube Type:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (~~µmhos~~ mS/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
052323	6.8	2.36	17.5	7.31			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: clear, transparent Odor: n/o Color: n/c Other:

Weather Conditions (required daily, or as conditions change): 21°C Direction/Speed: 7km/h SE Outlook: Sunny Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/23/23	Brady Grubb	Brady Grubb	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0758

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY #:
				Project Name:	TCEC-GWCM-MAY	TCEC-GWCM-MAY
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x:2618	Fax: 519-823-1316	Location:	Twin Creeks	
Email: lmertick@wm.com		Email: Brent.Langille@RWDI.com		Sampled By:	BEG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA [ ] PWQO [ ] Reg. 558

Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3

Sewer Use: [ ] Sanitary [ ] Storm Region _____

[x] Other ODWS specify

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: 2-Jun-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERFACE AQUIFER) No VOCs	# of Cont.	COMMENTS / TAT COMMENTS
1	OW84-31	23-May-23	PM	GW	N	Y	X	6	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

25-May-23 08:50
Patricia Legette
C3E8751
JDK ENV-866

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 24-May-23 - AM	Ashlie Sullivan Ashlie Sullivan	2023/05/25	08:50	Temperature (°C) on Receipt 5/5/2	Condition of Sample on Receipt [ ] OK [ ] SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/29
Report #: R7648588
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3F0162
Received: 2023/05/26, 09:01

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/05/29	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/05/29	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2023/05/26		
Conductivity	1	N/A	2023/05/29	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/05/26	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/05/29	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/05/29	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2023/05/29	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/05/27	2023/05/29	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	1	N/A	2023/05/26		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/05/29	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/05/27	2023/05/29	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	1	N/A	2023/05/26		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/05/29	2023/05/29	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	1	N/A	2023/05/26		
Volatile Organic Compounds in Water	1	N/A	2023/05/29	CAM SOP-00228	EPA 8260D

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, MELCCFP, 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.

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/29
Report #: R7648588
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3F0162
Received: 2023/05/26, 09:01

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

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
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Bureau Veritas Job #: C3F0162
Report Date: 2023/05/29

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VXN453		
Sampling Date		2023/05/25		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW67-4**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	780	N/A	ONSITE
Field Temperature	Celsius	12.7	N/A	ONSITE
Field Turbidity	NTU	>1000	N/A	ONSITE
Field Measured pH	pH	6.8		ONSITE
Inorganics				
Total Ammonia-N	mg/L	1.48	0.15	8690174
Conductivity	umho/cm	640	1.0	8688665
Total Dissolved Solids	mg/L	1070	10	8686063
Total Kjeldahl Nitrogen (TKN)	mg/L	13	10	8690240
Dissolved Organic Carbon	mg/L	13	0.4	8686379
pH	pH	7.67		8688667
Dissolved Sulphate (SO4)	mg/L	74	1.0	8687328
Alkalinity (Total as CaCO3)	mg/L	220	1.0	8688658
Dissolved Chloride (Cl-)	mg/L	18	1.0	8687336
Nitrate (N)	mg/L	0.10	0.10	8687543

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

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

Bureau Veritas Job #: C3F0162
Report Date: 2023/05/29

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VXN453		
Sampling Date		2023/05/25		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW67-4**	**RDL**	**QC Batch**
Metals				
Dissolved Barium (Ba)	mg/L	0.049	0.005	8689866
Dissolved Boron (B)	mg/L	0.09	0.02	8689866
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	8689866
Dissolved Calcium (Ca)	mg/L	56	0.2	8689866
Dissolved Iron (Fe)	mg/L	1.2	0.1	8689866
Dissolved Lead (Pb)	mg/L	0.0008	0.0005	8689866
Dissolved Magnesium (Mg)	mg/L	15	0.05	8689866
Dissolved Potassium (K)	mg/L	2.9	0.2	8689866
Dissolved Sodium (Na)	mg/L	56	0.1	8689866

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 #: C3F0162
Report Date: 2023/05/29

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VXN453		
Sampling Date		2023/05/25		
COC Number		TCEC-GWCM-MAY		
	UNITS	**OW67-4**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8686920
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8686920
Ethylbenzene	ug/L	<0.20	0.20	8686920
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8686920
Toluene	ug/L	<0.20	0.20	8686920
Vinyl Chloride	ug/L	<0.20	0.20	8686920
p+m-Xylene	ug/L	<0.20	0.20	8686920
o-Xylene	ug/L	<0.20	0.20	8686920
Total Xylenes	ug/L	<0.20	0.20	8686920
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	99		8686920
D4-1,2-Dichloroethane	%	102		8686920
D8-Toluene	%	95		8686920

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C3F0162
Report Date: 2023/05/29

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

			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
8686920	4-Bromofluorobenzene	2023/05/27	101	70 - 130	102	70 - 130	101	%				
8686920	D4-1,2-Dichloroethane	2023/05/27	103	70 - 130	98	70 - 130	110	%				
8686920	D8-Toluene	2023/05/27	106	70 - 130	107	70 - 130	87	%				
8686063	Total Dissolved Solids	2023/05/29			100	90 - 110	<10	mg/L	2.9 (1)	20		
8686379	Dissolved Organic Carbon	2023/05/26	95	80 - 120	98	80 - 120	<0.4	mg/L	2.5 (1)	20		
8686920	1,4-Dichlorobenzene	2023/05/27	104	70 - 130	107	70 - 130	<0.40	ug/L	NC (1)	30		
8686920	Benzene	2023/05/27	90	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
8686920	Ethylbenzene	2023/05/27	88	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
8686920	Methylene Chloride(Dichloromethane)	2023/05/27	115	70 - 130	113	70 - 130	<2.0	ug/L	NC (1)	30		
8686920	o-Xylene	2023/05/27	87	70 - 130	97	70 - 130	<0.20	ug/L	NC (1)	30		
8686920	p+m-Xylene	2023/05/27	92	70 - 130	98	70 - 130	<0.20	ug/L	NC (1)	30		
8686920	Toluene	2023/05/27	97	70 - 130	100	70 - 130	<0.20	ug/L	NC (1)	30		
8686920	Total Xylenes	2023/05/27					<0.20	ug/L	NC (1)	30		
8686920	Vinyl Chloride	2023/05/27	96	70 - 130	99	70 - 130	<0.20	ug/L	NC (1)	30		
8687328	Dissolved Sulphate (SO4)	2023/05/29	81	75 - 125	97	80 - 120	<1.0	mg/L	2.9 (1)	20		
8687336	Dissolved Chloride (Cl-)	2023/05/29	NC	80 - 120	98	80 - 120	<1.0	mg/L	13 (1)	20		
8687543	Nitrate (N)	2023/05/29	97 (2)	80 - 120	99	80 - 120	<0.10	mg/L	14 (3)	20		
8688658	Alkalinity (Total as CaCO3)	2023/05/29			95	85 - 115	<1.0	mg/L	0.74 (1)	20		
8688665	Conductivity	2023/05/29			99	85 - 115	<1.0	umho/cm	0.68 (1)	25		
8688667	pH	2023/05/29			102	98 - 103			0.53 (1)	N/A		
8689866	Dissolved Barium (Ba)	2023/05/29	101	80 - 120	100	80 - 120	<0.005	mg/L	0.55 (1)	20		
8689866	Dissolved Boron (B)	2023/05/29	99	80 - 120	100	80 - 120	<0.02	mg/L				
8689866	Dissolved Cadmium (Cd)	2023/05/29	101	80 - 120	101	80 - 120	<0.0001	mg/L	NC (1)	20		
8689866	Dissolved Calcium (Ca)	2023/05/29	NC	80 - 120	105	80 - 120	<0.2	mg/L	2.3 (1)	20		
8689866	Dissolved Iron (Fe)	2023/05/29	99	80 - 120	105	80 - 120	<0.1	mg/L				
8689866	Dissolved Lead (Pb)	2023/05/29	96	80 - 120	100	80 - 120	<0.0005	mg/L	NC (1)	20		
8689866	Dissolved Magnesium (Mg)	2023/05/29	NC	80 - 120	103	80 - 120	<0.05	mg/L	6.5 (1)	20		
8689866	Dissolved Potassium (K)	2023/05/29	102	80 - 120	103	80 - 120	<0.2	mg/L	2.7 (1)	20		
8689866	Dissolved Sodium (Na)	2023/05/29	98	80 - 120	100	80 - 120	<0.1	mg/L	2.3 (1)	20		

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

Bureau Veritas Job #: C3F0162
Report Date: 2023/05/29

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

			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
8690174	Total Ammonia-N	2023/05/29	99	75 - 125	101	80 - 120	<0.15	mg/L	NC (1)	20		
8690240	Total Kjeldahl Nitrogen (TKN)	2023/05/29	NC	80 - 120	102	80 - 120	<0.7	mg/L	2.7 (1)	20	106	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 [VXN453-01]

(3) Duplicate Parent ID [VXN453-01]

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

Bureau Veritas Job #: C3F0162
Report Date: 2023/05/29

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

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BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 0 W 6 7 - 4
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
0 5 2 5 2 3	6.8	mS 0.78	12.7	1000			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: Opaque

Odor: NO

Color: brown

Other:

Weather Conditions (required daily, or as conditions change): 14°F

Direction/Speed: N 23 mph

Outlook: Clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/25/23	Brady Crubb	Brady Crubb	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0623

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	TCEC-GWCM-MAY
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Sampled By:	BEG

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA [ ] PWQO [ ] Reg. 558

Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3

Sewer Use: [ ] Sanitary [ ] Storm Region _____

[x] Other ODWS specify

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: 5-Jun-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD)	# of Cont.	COMMENTS / TAT COMMENTS
1	OW67-4	25-May-23	PM	GW	N	Y	X	8	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

26-May-23 09:01
Patricia Legette
C3F0162
SPJ ENV-1589

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG 25-May-23 - PM	[signature]	10/31/5726	0901	Temperature (°C) on Receipt 5/5/8	Condition of Sample on Receipt [ ] OK [ ] SIF

* MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

T-74

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912531
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5003
Received: 2023/11/03, 09:29

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2023/11/04	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	2	N/A	2023/11/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	2	N/A	2023/11/08		
Conductivity	2	N/A	2023/11/04	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	2	N/A	2023/11/07	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	2	N/A	2023/11/06	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2023/11/06	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	2	N/A	2023/11/15	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2023/11/03	2023/11/04	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	2	N/A	2023/11/08		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/11/06	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	2	2023/11/07	2023/11/08	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	2	N/A	2023/11/08		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/11/06	2023/11/07	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	2	N/A	2023/11/08		

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, MELCCFP, 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.

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

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912531
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5003
Received: 2023/11/03, 09:29

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

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.

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

Bureau Veritas Job #: C3Y5003
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMP531		XMP532		
Sampling Date		2023/11/01		2023/11/01		
COC Number		TCEC-GWCM-NOV		TCEC-GWCM-NOV		
	UNITS	**OW67-11**	**RDL**	**OW54-10**	**RDL**	**QC Batch**
Field Measurements						
Field Conductivity	uS/cm	1650	N/A	2630	N/A	ONSITE
Field Temperature	Celsius	9.0	N/A	7.9	N/A	ONSITE
Field Measured Field Turbidity	NTU	65.5	N/A	17.4	N/A	ONSITE
Field Measured pH	pH	7.1		7.5		ONSITE
Inorganics						
Total Ammonia-N	mg/L	5.43 (1)	0.15	<0.15	0.15	9028493
Conductivity	umho/cm	1400	1.0	2400	1.0	9028739
Total Dissolved Solids	mg/L	950	10	1940	10	9034014
Total Kjeldahl Nitrogen (TKN)	mg/L	5.2 (1)	0.7	<0.7	0.7	9030517
Dissolved Organic Carbon	mg/L	4.1	0.4	2.4	0.4	9027742
pH	pH	7.76		7.80		9028263
Dissolved Sulphate (SO4)	mg/L	360	2.0	1000	5.0	9028232
Alkalinity (Total as CaCO3)	mg/L	380	1.0	330	1.0	9028738
Dissolved Chloride (Cl-)	mg/L	27	1.0	7.4	1.0	9028223
Nitrate (N)	mg/L	0.31	0.10	0.41	0.10	9028220

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) TKN < NH4: Both values fall within acceptable RPD limits for duplicates and are likely equivalent.

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 #: C3Y5003
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XMP531		XMP532		
Sampling Date		2023/11/01		2023/11/01		
COC Number		TCEC-GWCM-NOV		TCEC-GWCM-NOV		
	UNITS	**OW67-11**	**RDL**	**OW54-10**	**RDL**	**QC Batch**
Metals						
Dissolved Barium (Ba)	mg/L	0.020	0.005	0.011	0.005	9030495
Dissolved Boron (B)	mg/L	0.44	0.02	0.97	0.02	9030495
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	9030495
Dissolved Calcium (Ca)	mg/L	130	0.2	170	0.4	9030495
Dissolved Iron (Fe)	mg/L	0.8	0.1	1.3	0.1	9030495
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	9030495
Dissolved Magnesium (Mg)	mg/L	94	0.05	180	0.05	9030495
Dissolved Potassium (K)	mg/L	5.3	0.2	4.6	0.2	9030495
Dissolved Sodium (Na)	mg/L	48	0.1	160	0.1	9030495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3Y5003
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.7°C

Nitrate & Nitrite: Analysis was performed past sample holding time. This may increase the variability associated with these results.

Results relate only to the items tested.

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

Bureau Veritas Job #: C3Y5003
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9027742	Dissolved Organic Carbon	2023/11/07	94	80 - 120	97	80 - 120	<0.4	mg/L	0.30 (1)	20		
9028220	Nitrate (N)	2023/11/15	96	80 - 120	95	80 - 120	<0.10	mg/L	NC (1)	20		
9028223	Dissolved Chloride (Cl-)	2023/11/06	97	80 - 120	99	80 - 120	<1.0	mg/L	NC (1)	20		
9028232	Dissolved Sulphate (SO4)	2023/11/06	90	75 - 125	101	80 - 120	<1.0	mg/L	NC (1)	20		
9028263	pH	2023/11/04			102	98 - 103			1.4 (1)	N/A		
9028493	Total Ammonia-N	2023/11/07	NC	75 - 125	100	80 - 120	<0.15	mg/L	1.6 (1)	20		
9028738	Alkalinity (Total as CaCO3)	2023/11/04			95	85 - 115	<1.0	mg/L	0.55 (1)	20		
9028739	Conductivity	2023/11/04			100	85 - 115	<1.0	umho/cm	0.74 (1)	10		
9030495	Dissolved Barium (Ba)	2023/11/06	97	80 - 120	93	80 - 120	<0.005	mg/L	3.5 (1)	20		
9030495	Dissolved Boron (B)	2023/11/06	NC	80 - 120	90	80 - 120	<0.02	mg/L	2.5 (1)	20		
9030495	Dissolved Cadmium (Cd)	2023/11/06	100	80 - 120	95	80 - 120	<0.0001	mg/L	NC (1)	20		
9030495	Dissolved Calcium (Ca)	2023/11/06	NC	80 - 120	97	80 - 120	<0.2	mg/L	3.0 (1)	20		
9030495	Dissolved Iron (Fe)	2023/11/06	101	80 - 120	98	80 - 120	<0.1	mg/L	NC (1)	20		
9030495	Dissolved Lead (Pb)	2023/11/06	97	80 - 120	97	80 - 120	<0.0005	mg/L	NC (1)	20		
9030495	Dissolved Magnesium (Mg)	2023/11/06	NC	80 - 120	97	80 - 120	<0.05	mg/L	2.7 (1)	20		
9030495	Dissolved Potassium (K)	2023/11/06	105	80 - 120	97	80 - 120	<0.2	mg/L	2.1 (1)	20		
9030495	Dissolved Sodium (Na)	2023/11/06	NC	80 - 120	98	80 - 120	<0.1	mg/L	2.6 (1)	20		
9030517	Total Kjeldahl Nitrogen (TKN)	2023/11/07	NC	80 - 120	105	80 - 120	<0.7	mg/L	1.3 (1)	20	98	80 - 120

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

Bureau Veritas Job #: C3Y5003
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9034014	Total Dissolved Solids	2023/11/08			100	90 - 110	<10	mg/L	1.6 (2)	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 [XMP531-02]

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

Bureau Veritas Job #: C3Y5003
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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

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 Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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

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BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW67+11 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
11/01/23					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) 4.91 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11/01/23	~~7.08~~ 7.1	1.65	9.0	65.5			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: black/grey, translucent Odor: NA Color: Grey Other:

Weather Conditions (required daily, or as conditions change): 6°C Direction/Speed: 15KmhE Outlook: cloudy Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/01/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0892

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OWSH+1D (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) 4.89 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 01 23	7.5	2.63	7.9	17.4			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear, yellow tint Odor: NA Color: yellow Other:

Weather Conditions (required daily, or as conditions change): 6°C Direction/Speed: 15 KmhE Outlook: cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/01/23	Eric Wilson	Eric Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0894

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	TCEC-GWCM-NOV	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x:2618	Fax: 519-823-1316	Location:	Twin Creeks	TCEC-GWCM-NOV
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Sampled By:	EW	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other ODWS (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 13-Nov-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERSTADIAL SILT & SAND) no VOCs	# of Cont.	COMMENTS / TAT COMMENTS
1	OW67-11	1-Nov-23	PM	GW	N	Y	X	6	
2	OW54-10	1-Nov-23	PM	GW	N	Y	X	6	
3									
4									
5									
6									
7									
8									
9									
10									
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

03-Nov-23 09:29
Patricia Legette
C3Y5003
AIH ENV-251

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
EW 2-Nov-23 - AM	Ramnit RAINEET KAUR BAR	2023/11/03	09:29.	Temperature (°C) on Receipt: 7/5/5	Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NO

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/14
Report #: R7911667
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5157
Received: 2023/11/03, 08:57

Sample Matrix: Ground Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	7	N/A	2023/11/04	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	7	N/A	2023/11/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	7	N/A	2023/11/08		
Conductivity	6	N/A	2023/11/04	CAM SOP-00414	SM 23 2510 m
Conductivity	1	N/A	2023/11/06	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	7	N/A	2023/11/07	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	7	N/A	2023/11/06	CAM SOP-00447	EPA 6020B m
Ammonia-N	7	N/A	2023/11/07	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	7	N/A	2023/11/13	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	6	2023/11/03	2023/11/04	CAM SOP-00413	SM 4500H+ B m
pH	1	2023/11/04	2023/11/04	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	7	N/A	2023/11/08		Field pH Meter
Sulphate by Automated Turbidimetry	7	N/A	2023/11/06	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	7	2023/11/08	2023/11/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	7	N/A	2023/11/08		Field Thermometer
Total Kjeldahl Nitrogen in Water	7	2023/11/06	2023/11/07	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	7	N/A	2023/11/08		
Volatile Organic Compounds in Water	2	N/A	2023/11/13	CAM SOP-00228	EPA 8260D
Volatile Organic Compounds in Water	1	N/A	2023/11/07	CAM SOP-00228	EPA 8260D

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, MELCCFP, 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.

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NO

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/14
Report #: R7911667
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5157
Received: 2023/11/03, 08:57

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

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
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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 #: C3Y5157
Report Date: 2023/11/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		XMQ480			XMQ481		XMQ482		
Sampling Date		2023/11/02			2023/11/02		2023/11/02		
COC Number		TCEC-GWCM-NO			TCEC-GWCM-NO		TCEC-GWCM-NO		
	UNITS	**OW71A-5**	**RDL**	**QC Batch**	**OW58-6**	**RDL**	**OW73-6**	**RDL**	**QC Batch**
Field Measurements									
Field Conductivity	uS/cm	1530	N/A	ONSITE	3910	N/A	4660	N/A	ONSITE
Field Temperature	Celsius	9.4	N/A	ONSITE	11.3	N/A	11.6	N/A	ONSITE
Field Measured Field Turbidity	NTU	16.4	N/A	ONSITE	7.65	N/A	92.2	N/A	ONSITE
Field Measured pH	pH	6.97		ONSITE	7.1		7.0		ONSITE
Inorganics									
Total Ammonia-N	mg/L	0.27	0.15	9032227	<0.15	0.15	<0.15	0.15	9032227
Conductivity	umho/cm	1400	1.0	9028739	3600	1.0	4400	1.0	9028739
Total Dissolved Solids	mg/L	875	10	9034030	3330	10	4310	10	9034030
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	9032318	<0.7	0.7	<0.7	0.7	9030517
Dissolved Organic Carbon	mg/L	6.5	0.4	9027742	5.0	0.4	3.3	0.4	9027742
pH	pH	7.78		9028263	7.52		7.57		9028263
Dissolved Sulphate (SO4)	mg/L	300	1.0	9029629	2000	5.0	2500	10	9029629
Alkalinity (Total as CaCO3)	mg/L	440	1.0	9028738	360	1.0	480	1.0	9028738
Dissolved Chloride (Cl-)	mg/L	25	1.0	9029619	2.2	1.0	5.1	1.0	9029619
Nitrate (N)	mg/L	0.27	0.10	9028730	<0.10	0.10	<0.10	0.10	9028730

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

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Client Project #: 2303459.01
Site Location: ON07
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Sampler Initials: EW

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		XMQ483			XMQ484	XMQ485		
Sampling Date		2023/11/02			2023/11/02	2023/11/02		
COC Number		TCEC-GWCM-NO			TCEC-GWCM-NO	TCEC-GWCM-NO		
	UNITS	**OW72-6**	**RDL**	**QC Batch**	**OW16-6**	**OW68-5**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	3070	N/A	ONSITE	2020	1340	N/A	ONSITE
Field Temperature	Celsius	10.8	N/A	ONSITE	8.0	10.3	N/A	ONSITE
Field Measured Field Turbidity	NTU	6.95	N/A	ONSITE	13.1	5.61	N/A	ONSITE
Field Measured pH	pH	7.0		ONSITE	6.9	6.9		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.15	0.15	9032227	<0.15	<0.15	0.15	9032227
Conductivity	umho/cm	2800	1.0	9028739	1800	1200	1.0	9028739
Total Dissolved Solids	mg/L	2270	10	9034030	1070	630	10	9034030
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	9032318	<0.7	<0.7	0.7	9030517
Dissolved Organic Carbon	mg/L	8.1	0.4	9027742	3.3	2.5	0.4	9027742
pH	pH	7.66		9028263	7.72	7.70		9028263
Dissolved Sulphate (SO4)	mg/L	1200	5.0	9029629	380	170	1.0	9029629
Alkalinity (Total as CaCO3)	mg/L	540	1.0	9028738	590	470	1.0	9028738
Dissolved Chloride (Cl-)	mg/L	3.1	1.0	9029619	39	6.1	1.0	9029619
Nitrate (N)	mg/L	<0.10	0.10	9028730	0.23	<0.10	0.10	9028730

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

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Sampler Initials: EW

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		XMQ487		
Sampling Date		2023/11/02		
COC Number		TCEC-GWCM-NO		
	UNITS	**GWDUP1**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	2020	N/A	ONSITE
Field Temperature	Celsius	8.0	N/A	ONSITE
Field Measured Field Turbidity	NTU	13.1	N/A	ONSITE
Field Measured pH	pH	6.9		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	9032227
Conductivity	umho/cm	1800	1.0	9029262
Total Dissolved Solids	mg/L	1100	10	9034030
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	9030517
Dissolved Organic Carbon	mg/L	3.2	0.4	9027742
pH	pH	7.80		9029263
Dissolved Sulphate (SO4)	mg/L	380	1.0	9029629
Alkalinity (Total as CaCO3)	mg/L	590	1.0	9029261
Dissolved Chloride (Cl-)	mg/L	39	1.0	9029619
Nitrate (N)	mg/L	0.24	0.10	9028730

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

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Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (GROUND WATER)

Bureau Veritas ID		XMQ480		XMQ481	XMQ482		XMQ483		
Sampling Date		2023/11/02		2023/11/02	2023/11/02		2023/11/02		
COC Number		TCEC-GWCM-NO		TCEC-GWCM-NO	TCEC-GWCM-NO		TCEC-GWCM-NO		
	UNITS	**OW71A-5**	**RDL**	**OW58-6**	**OW73-6**	**RDL**	**OW72-6**	**RDL**	**QC Batch**
Metals									
Dissolved Barium (Ba)	mg/L	0.063	0.005	0.008	0.009	0.005	0.007	0.005	9030495
Dissolved Boron (B)	mg/L	0.14	0.02	0.69	0.84	0.02	0.77	0.02	9030495
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	9030495
Dissolved Calcium (Ca)	mg/L	130	0.2	410	480	0.4	200	0.2	9030495
Dissolved Iron (Fe)	mg/L	0.6	0.1	1.2	0.5	0.1	<0.1	0.1	9030495
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	<0.0005	0.0005	<0.0005	0.0005	9030495
Dissolved Magnesium (Mg)	mg/L	97	0.05	280	360	0.05	290	0.05	9030495
Dissolved Potassium (K)	mg/L	3.1	0.2	6.5	7.5	0.2	5.1	0.2	9030495
Dissolved Sodium (Na)	mg/L	41	0.1	200	260	0.1	120	0.1	9030495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		XMQ484	XMQ485	XMQ487		
Sampling Date		2023/11/02	2023/11/02	2023/11/02		
COC Number		TCEC-GWCM-NO	TCEC-GWCM-NO	TCEC-GWCM-NO		
	UNITS	**OW16-6**	**OW68-5**	**GWDUP1**	**RDL**	**QC Batch**
Metals						
Dissolved Barium (Ba)	mg/L	0.012	0.033	0.012	0.005	9030495
Dissolved Boron (B)	mg/L	0.18	0.10	0.17	0.02	9030495
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	0.0001	9030495
Dissolved Calcium (Ca)	mg/L	120	110	110	0.2	9030495
Dissolved Iron (Fe)	mg/L	0.1	<0.1	0.1	0.1	9030495
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	<0.0005	0.0005	9030495
Dissolved Magnesium (Mg)	mg/L	100	82	100	0.05	9030495
Dissolved Potassium (K)	mg/L	5.1	2.6	5.1	0.2	9030495
Dissolved Sodium (Na)	mg/L	170	37	170	0.1	9030495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3Y5157
Report Date: 2023/11/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (GROUND WATER)

Bureau Veritas ID		XMQ484		XMQ486		XMQ487		
Sampling Date		2023/11/02		2023/11/02		2023/11/02		
COC Number		TCEC-GWCM-NO		TCEC-GWCM-NO		TCEC-GWCM-NO		
	UNITS	**OW16-6**	**QC Batch**	**TRIP BLANK**	**QC Batch**	**GWDUP1**	**RDL**	**QC Batch**
Volatile Organics								
Benzene	ug/L	<0.20	9041523	<0.20	9030036	<0.20	0.20	9041523
1,4-Dichlorobenzene	ug/L	<0.40	9041523	<0.40	9030036	<0.40	0.40	9041523
Ethylbenzene	ug/L	<0.20	9041523	<0.20	9030036	<0.20	0.20	9041523
Methylene Chloride(Dichloromethane)	ug/L	<2.0	9041523	<2.0	9030036	<2.0	2.0	9041523
Toluene	ug/L	<0.20	9041523	<0.20	9030036	<0.20	0.20	9041523
Vinyl Chloride	ug/L	<0.20	9041523	<0.20	9030036	<0.20	0.20	9041523
p+m-Xylene	ug/L	<0.20	9041523	<0.20	9030036	<0.20	0.20	9041523
o-Xylene	ug/L	<0.20	9041523	<0.20	9030036	<0.20	0.20	9041523
Total Xylenes	ug/L	<0.20	9041523	<0.20	9030036	<0.20	0.20	9041523
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	100	9041523	101	9030036	99		9041523
D4-1,2-Dichloroethane	%	106	9041523	101	9030036	105		9041523
D8-Toluene	%	95	9041523	96	9030036	95		9041523

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RWDI Inc.
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Site Location: ON07
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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
Package 2	6.7°C
Package 3	9.0°C
Package 4	7.3°C
Package 5	6.3°C
Package 6	5.0°C

Nitrate & Nitrite: Analysis was performed past sample holding time. This may increase the variability associated with these results.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9030036	4-Bromofluorobenzene	2023/11/07	103	70 - 130	101	70 - 130	102	%				
9030036	D4-1,2-Dichloroethane	2023/11/07	102	70 - 130	98	70 - 130	101	%				
9030036	D8-Toluene	2023/11/07	101	70 - 130	102	70 - 130	96	%				
9041523	4-Bromofluorobenzene	2023/11/13	100 (5)	70 - 130	98	70 - 130	98	%				
9041523	D4-1,2-Dichloroethane	2023/11/13	107 (5)	70 - 130	104	70 - 130	105	%				
9041523	D8-Toluene	2023/11/13	98 (5)	70 - 130	103	70 - 130	98	%				
9027742	Dissolved Organic Carbon	2023/11/07	94	80 - 120	97	80 - 120	<0.4	mg/L	0.30 (1)	20		
9028263	pH	2023/11/04			102	98 - 103			1.4 (1)	N/A		
9028730	Nitrate (N)	2023/11/13	90	80 - 120	101	80 - 120	<0.10	mg/L	NC (1)	20		
9028738	Alkalinity (Total as CaCO3)	2023/11/04			95	85 - 115	<1.0	mg/L	0.55 (1)	20		
9028739	Conductivity	2023/11/04			100	85 - 115	<1.0	umho/cm	0.74 (1)	10		
9029261	Alkalinity (Total as CaCO3)	2023/11/04			96	85 - 115	<1.0	mg/L	0.34 (2)	20		
9029262	Conductivity	2023/11/06			103	85 - 115	<1.0	umho/cm	0.40 (2)	10		
9029263	pH	2023/11/04			102	98 - 103			0.16 (2)	N/A		
9029619	Dissolved Chloride (Cl-)	2023/11/06	NC	80 - 120	95	80 - 120	<1.0	mg/L	1.7 (1)	20		
9029629	Dissolved Sulphate (SO4)	2023/11/06	NC	75 - 125	94	80 - 120	<1.0	mg/L	0.64 (1)	20		
9030036	1,4-Dichlorobenzene	2023/11/07	106	70 - 130	108	70 - 130	<0.40	ug/L	NC (1)	30		
9030036	Benzene	2023/11/07	92	70 - 130	90	70 - 130	<0.20	ug/L	NC (1)	30		
9030036	Ethylbenzene	2023/11/07	93	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
9030036	Methylene Chloride(Dichloromethane)	2023/11/07	98	70 - 130	95	70 - 130	<2.0	ug/L	NC (1)	30		
9030036	o-Xylene	2023/11/07	84	70 - 130	84	70 - 130	<0.20	ug/L				
9030036	p+m-Xylene	2023/11/07	98	70 - 130	97	70 - 130	<0.20	ug/L				
9030036	Toluene	2023/11/07	93	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
9030036	Total Xylenes	2023/11/07					<0.20	ug/L	NC (1)	30		
9030036	Vinyl Chloride	2023/11/07	95	70 - 130	93	70 - 130	<0.20	ug/L				
9030495	Dissolved Barium (Ba)	2023/11/06	97	80 - 120	93	80 - 120	<0.005	mg/L	3.5 (1)	20		
9030495	Dissolved Boron (B)	2023/11/06	NC	80 - 120	90	80 - 120	<0.02	mg/L	2.5 (1)	20		
9030495	Dissolved Cadmium (Cd)	2023/11/06	100	80 - 120	95	80 - 120	<0.0001	mg/L	NC (1)	20		

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QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9030495	Dissolved Calcium (Ca)	2023/11/06	NC	80 - 120	97	80 - 120	<0.2	mg/L	3.0 (1)	20		
9030495	Dissolved Iron (Fe)	2023/11/06	101	80 - 120	98	80 - 120	<0.1	mg/L	NC (1)	20		
9030495	Dissolved Lead (Pb)	2023/11/06	97	80 - 120	97	80 - 120	<0.0005	mg/L	NC (1)	20		
9030495	Dissolved Magnesium (Mg)	2023/11/06	NC	80 - 120	97	80 - 120	<0.05	mg/L	2.7 (1)	20		
9030495	Dissolved Potassium (K)	2023/11/06	105	80 - 120	97	80 - 120	<0.2	mg/L	2.1 (1)	20		
9030495	Dissolved Sodium (Na)	2023/11/06	NC	80 - 120	98	80 - 120	<0.1	mg/L	2.6 (1)	20		
9030517	Total Kjeldahl Nitrogen (TKN)	2023/11/07	NC	80 - 120	105	80 - 120	<0.7	mg/L	1.3 (1)	20	98	80 - 120
9032227	Total Ammonia-N	2023/11/07	101	75 - 125	102	80 - 120	<0.15	mg/L	NC (1)	20		
9032318	Total Kjeldahl Nitrogen (TKN)	2023/11/07	110 (3)	80 - 120	107	80 - 120	<0.7	mg/L	NC (4)	20	98	80 - 120
9034030	Total Dissolved Solids	2023/11/09			100	90 - 110	<10	mg/L	2.9 (1)	20		
9041523	1,4-Dichlorobenzene	2023/11/13	112 (5)	70 - 130	108	70 - 130	<0.40	ug/L	NC (6)	30		
9041523	Benzene	2023/11/13	95 (5)	70 - 130	93	70 - 130	<0.20	ug/L	NC (6)	30		
9041523	Ethylbenzene	2023/11/13	99 (5)	70 - 130	99	70 - 130	<0.20	ug/L	NC (6)	30		
9041523	Methylene Chloride(Dichloromethane)	2023/11/13	101 (5)	70 - 130	98	70 - 130	<2.0	ug/L	NC (6)	30		
9041523	o-Xylene	2023/11/13	92 (5)	70 - 130	91	70 - 130	<0.20	ug/L	NC (6)	30		
9041523	p+m-Xylene	2023/11/13	106 (5)	70 - 130	106	70 - 130	<0.20	ug/L	NC (6)	30		
9041523	Toluene	2023/11/13	95 (5)	70 - 130	98	70 - 130	<0.20	ug/L	NC (6)	30		
9041523	Total Xylenes	2023/11/13					<0.20	ug/L	NC (6)	30		

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QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9041523	Vinyl Chloride	2023/11/13	94 (5)	70 - 130	96	70 - 130	<0.20	ug/L	NC (6)	30		

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 [XMQ487-01]

(3) Matrix Spike Parent ID [XMQ480-04]

(4) Duplicate Parent ID [XMQ480-04]

(5) Matrix Spike Parent ID [XMQ484-07]

(6) Duplicate Parent ID [XMQ484-07]

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 #: C3Y5157
Report Date: 2023/11/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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 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.

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW16-6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C

Sampling Device: C

A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 3.83 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	6.9	2.02	8.0	13.1			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear, particulates

Odor: NA

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 5°C

Direction/Speed: 26 Km/h SW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

GWDUP1 Collected

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Eric Wilson	E. Wilson	RWD1

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0857

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: MW-7246 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) 2.99 m

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C) mS	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	7.0	3.07	19.8	6.95			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear Odor: NA Color: Clear Other:

Weather Conditions (required daily, or as conditions change): 5°C Direction/Speed: 38 Kmh SW Outlook: Cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Eric Wilson	Ewilson	RWPT

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0860

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW73-6
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) 3.15 (ft) m

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C) mS	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	7.0	4.66	11.6	92.2			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: NA

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 5°C

Direction/Speed: 38 Km/hr SW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11 02 23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0861

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 0W5B+6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) 1.31 (ft) m

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	7.1	m S 3.91	11.3	7.65			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear — Odor: NA — Color: Clear — Other:

Weather Conditions (required daily, or as conditions change): 6°C — Direction/Speed: 25 Kmh SW — Outlook: Cloudy — Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0864

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC OW71A-5

Site No.:

Sample: ~~OW71A-11~~ Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
110123					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) 1.97 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	6.97	mS 1.53	9.4	16.4			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear, particulates Odor: Sulphur Color: clear Other:

Weather Conditions (required daily, or as conditions change): 6°C Direction/Speed: 25 Km/h SW Outlook: Cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/01/23	Eric Wilson	E.W/	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0804

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 68-5 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) 2.35 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (mS µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	6.9	1.34	10.3	5.61			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: NA

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 5°C

Direction/Speed: 35 Km/h SW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0858

Maxxam Analytics Inc

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

03-Nov-23 08:57
Patricia Legette
C3Y5157
AJH V-1723

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMA	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-NOV
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks
				Sampled By:	EW

CHAIN OF CUSTODY #: TCEC-GWCM-NOV

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary ODWS
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 13-Nov-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD) no VOCs	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD) TRIP BLANK						# of Cont.	COMMENTS / TAT COMMENTS
1	OW71A-5	2-Nov-23	AM	GW	N	Y	X							6	
2	OW58-6	2-Nov-23	PM	GW	N	Y	X							6	
3	OW73-6	2-Nov-23	PM	GW	N	Y	X							6	
4	OW72-6	2-Nov-23	PM	GW	N	Y	X							6	
5	OW16-6	2-Nov-23	PM	GW	N	Y	X							8	GWDUP1 collected
6	OW68-5	2-Nov-23	PM	GW	N	Y	X							6	
7	Trip Blank	2-Nov-23	PM	W	N	N		X						2	
8	GWDUP1	2-Nov-23	PM	GW	N	Y	X							8	
9															
10															
11															Metals and Filtered DOC field filtered
12															See lab addendum for analysis.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
EW 2-Nov-23 - PM	Kamnet RANJEET KAUR BRAR	2023/11/03	08:57	Temperature (°C) on Receipt: Refer to ACTR	Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NO

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912718
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5282
Received: 2023/11/03, 08:57

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	6	N/A	2023/11/08	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	6	N/A	2023/11/09	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	6	N/A	2023/11/08		
Conductivity	6	N/A	2023/11/08	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	6	N/A	2023/11/08	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	6	N/A	2023/11/07	CAM SOP-00447	EPA 6020B m
Ammonia-N	6	N/A	2023/11/07	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	2	N/A	2023/11/13	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate & Nitrite as Nitrogen in Water (2)	4	N/A	2023/11/14	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	6	2023/11/07	2023/11/08	CAM SOP-00413	SM 24th - 4500H+ B
Field Measured pH (3)	6	N/A	2023/11/08		Field pH Meter
Sulphate by Automated Turbidimetry	6	N/A	2023/11/09	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	6	2023/11/07	2023/11/08	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	6	N/A	2023/11/08		Field Thermometer
Total Kjeldahl Nitrogen in Water	6	2023/11/06	2023/11/07	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	6	N/A	2023/11/08		
Volatile Organic Compounds in Water	3	N/A	2023/11/08	CAM SOP-00228	EPA 8260D

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, MELCCFP, 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

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NO

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912718
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5282
Received: 2023/11/03, 08:57
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

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.

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Bureau Veritas Job #: C3Y5282
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMR450		XMR451			XMR452		
Sampling Date		2023/11/02		2023/11/02			2023/11/02		
COC Number		TCEC-GWCM-NO		TCEC-GWCM-NO			TCEC-GWCM-NO		
	UNITS	**OW58-17**	**QC Batch**	**OW73-9**	**RDL**	**QC Batch**	**OW72-10**	**RDL**	**QC Batch**
Field Measurements									
Field Conductivity	uS/cm	4100	ONSITE	4250	N/A	ONSITE	2990	N/A	ONSITE
Field Temperature	Celsius	11.0	ONSITE	11.6	N/A	ONSITE	9.8	N/A	ONSITE
Field Measured Field Turbidity	NTU	6.27	ONSITE	19.6	N/A	ONSITE	102	N/A	ONSITE
Field Measured pH	pH	7.4	ONSITE	7.4		ONSITE	7.1		ONSITE
Inorganics									
Total Ammonia-N	mg/L	0.35	9032227	0.23	0.15	9032227	0.29	0.15	9032227
Conductivity	umho/cm	3800	9033182	4000	1.0	9033182	2700	1.0	9033182
Total Dissolved Solids	mg/L	3670	9034047	3790	10	9034047	2230	10	9034047
Total Kjeldahl Nitrogen (TKN)	mg/L	0.8	9032318	<0.7	0.7	9032318	<0.7	0.7	9032318
Dissolved Organic Carbon	mg/L	5.7	9032317	2.7	0.4	9032317	7.5	0.4	9032317
pH	pH	7.72	9033181	7.95		9033181	7.99		9033181
Dissolved Sulphate (SO4)	mg/L	2300	9031888	2400	10	9033075	1300	5.0	9031888
Alkalinity (Total as CaCO3)	mg/L	66	9033177	260	1.0	9033177	330	1.0	9033177
Dissolved Chloride (Cl-)	mg/L	6.1	9031885	7.1	1.0	9033073	3.4	1.0	9031885
Nitrate (N)	mg/L	0.36	9033055	0.72	0.10	9033055	0.40	0.10	9033171

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

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Bureau Veritas Job #: C3Y5282
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMR453		XMR454		XMR455		
Sampling Date		2023/11/02		2023/11/02		2023/11/02		
COC Number		TCEC-GWCM-NO		TCEC-GWCM-NO		TCEC-GWCM-NO		
	UNITS	**OW16-7**	**QC Batch**	**FIELD BLANK**	**QC Batch**	**GWDUP2**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	1510	ONSITE	1510	ONSITE	1510	N/A	ONSITE
Field Temperature	Celsius	8.6	ONSITE	8.6	ONSITE	8.6	N/A	ONSITE
Field Measured Field Turbidity	NTU	27.3	ONSITE	27.3	ONSITE	27.3	N/A	ONSITE
Field Measured pH	pH	7.1	ONSITE	7.1	ONSITE	7.1		ONSITE
Inorganics								
Total Ammonia-N	mg/L	0.22	9032227	<0.15	9032227	0.26	0.15	9032227
Conductivity	umho/cm	1300	9033182	1.5	9033182	1300	1.0	9033182
Total Dissolved Solids	mg/L	715	9034047	<10	9034047	735	10	9034047
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	9032318	<0.7	9032318	<0.7	0.7	9032318
Dissolved Organic Carbon	mg/L	3.2	9032317	<0.4	9032317	2.0	0.4	9032317
pH	pH	8.10	9033181	5.92	9033181	8.01		9033181
Dissolved Sulphate (SO4)	mg/L	250	9031888	<1.0	9033075	240	1.0	9031888
Alkalinity (Total as CaCO3)	mg/L	470	9033177	<1.0	9033177	460	1.0	9033177
Dissolved Chloride (Cl-)	mg/L	3.8	9031885	<1.0	9033073	3.7	1.0	9031885
Nitrate (N)	mg/L	0.18	9033171	<0.10	9033055	0.25	0.10	9033055

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

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Bureau Veritas Job #: C3Y5282
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XMR450	XMR451		XMR452		XMR453		
Sampling Date		2023/11/02	2023/11/02		2023/11/02		2023/11/02		
COC Number		TCEC-GWCM-NO	TCEC-GWCM-NO		TCEC-GWCM-NO		TCEC-GWCM-NO		
	UNITS	**OW58-17**	**OW73-9**	**RDL**	**OW72-10**	**RDL**	**OW16-7**	**RDL**	**QC Batch**
Metals									
Dissolved Barium (Ba)	mg/L	0.014	0.006	0.005	0.009	0.005	0.016	0.005	9033015
Dissolved Boron (B)	mg/L	1.3	1.1	0.02	1.1	0.02	0.28	0.02	9033015
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.0001	9033015
Dissolved Calcium (Ca)	mg/L	450	390	1	220	0.4	110	0.2	9033015
Dissolved Iron (Fe)	mg/L	0.2	1.3	0.1	0.8	0.1	3.6	0.1	9033015
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	9033015
Dissolved Magnesium (Mg)	mg/L	250	320	0.05	230	0.05	81	0.05	9033015
Dissolved Potassium (K)	mg/L	4.1	5.9	0.2	5.0	0.2	3.8	0.2	9033015
Dissolved Sodium (Na)	mg/L	180	210	0.1	140	0.1	62	0.1	9033015

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		XMR454	XMR455		
Sampling Date		2023/11/02	2023/11/02		
COC Number		TCEC-GWCM-NO	TCEC-GWCM-NO		
	UNITS	**FIELD BLANK**	**GWDUP2**	**RDL**	**QC Batch**
Metals					
Dissolved Barium (Ba)	mg/L	<0.005	0.017	0.005	9033015
Dissolved Boron (B)	mg/L	<0.02	0.28	0.02	9033015
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	9033015
Dissolved Calcium (Ca)	mg/L	<0.2	110	0.2	9033015
Dissolved Iron (Fe)	mg/L	<0.1	4.2	0.1	9033015
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	0.0005	9033015
Dissolved Magnesium (Mg)	mg/L	<0.05	80	0.05	9033015
Dissolved Potassium (K)	mg/L	<0.2	3.7	0.2	9033015
Dissolved Sodium (Na)	mg/L	<0.1	60	0.1	9033015

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3Y5282
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		XMR453	XMR454	XMR455		
Sampling Date		2023/11/02	2023/11/02	2023/11/02		
COC Number		TCEC-GWCM-NO	TCEC-GWCM-NO	TCEC-GWCM-NO		
	UNITS	**OW16-7**	**FIELD BLANK**	**GWDUP2**	**RDL**	**QC Batch**
Volatile Organics						
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	9033194
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	0.40	9033194
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	9033194
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	9033194
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	9033194
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	9033194
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	9033194
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	9033194
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	9033194
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	102	102	102		9033194
D4-1,2-Dichloroethane	%	102	101	103		9033194
D8-Toluene	%	95	96	96		9033194

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3Y5282
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
Package 2	6.7°C
Package 3	9.0°C
Package 4	7.3°C
Package 5	6.3°C
Package 6	5.0°C

Nitrate & Nitrite: Analysis was performed past sample holding time. This may increase the variability associated with these results.

Sample XMR451 [OW73-9] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample XMR452 [OW72-10] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample XMR453 [OW16-7] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample XMR455 [GWDUP2] : TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.

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Bureau Veritas Job #: C3Y5282
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9033194	4-Bromofluorobenzene	2023/11/08	102 (4)	70 - 130	101	70 - 130	103	%				
9033194	D4-1,2-Dichloroethane	2023/11/08	101 (4)	70 - 130	99	70 - 130	100	%				
9033194	D8-Toluene	2023/11/08	102 (4)	70 - 130	101	70 - 130	96	%				
9031885	Dissolved Chloride (Cl-)	2023/11/09	NC	80 - 120	95	80 - 120	<1.0	mg/L	0.32 (1)	20		
9031888	Dissolved Sulphate (SO4)	2023/11/09	NC	75 - 125	97	80 - 120	<1.0	mg/L	0.46 (1)	20		
9032227	Total Ammonia-N	2023/11/07	101	75 - 125	102	80 - 120	<0.15	mg/L	NC (1)	20		
9032317	Dissolved Organic Carbon	2023/11/08	98	80 - 120	99	80 - 120	<0.4	mg/L	5.6 (1)	20		
9032318	Total Kjeldahl Nitrogen (TKN)	2023/11/07	110	80 - 120	107	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
9033015	Dissolved Barium (Ba)	2023/11/07	94 (2)	80 - 120	95	80 - 120	<0.005	mg/L	2.8 (3)	20		
9033015	Dissolved Boron (B)	2023/11/07	NC (2)	80 - 120	94	80 - 120	<0.02	mg/L	1.8 (3)	20		
9033015	Dissolved Cadmium (Cd)	2023/11/07	97 (2)	80 - 120	97	80 - 120	<0.0001	mg/L	NC (3)	20		
9033015	Dissolved Calcium (Ca)	2023/11/07	NC (2)	80 - 120	98	80 - 120	<0.2	mg/L	1.6 (3)	20		
9033015	Dissolved Iron (Fe)	2023/11/07	98 (2)	80 - 120	98	80 - 120	<0.1	mg/L	0.073 (3)	20		
9033015	Dissolved Lead (Pb)	2023/11/07	93 (2)	80 - 120	95	80 - 120	<0.0005	mg/L	NC (3)	20		
9033015	Dissolved Magnesium (Mg)	2023/11/07	NC (2)	80 - 120	97	80 - 120	<0.05	mg/L	0.63 (3)	20		
9033015	Dissolved Potassium (K)	2023/11/07	97 (2)	80 - 120	98	80 - 120	<0.2	mg/L	1.2 (3)	20		
9033015	Dissolved Sodium (Na)	2023/11/07	NC (2)	80 - 120	96	80 - 120	<0.1	mg/L	0.80 (3)	20		
9033055	Nitrate (N)	2023/11/14	91	80 - 120	101	80 - 120	<0.10	mg/L	NC (1)	20		
9033073	Dissolved Chloride (Cl-)	2023/11/09	97	80 - 120	94	80 - 120	<1.0	mg/L	11 (1)	20		
9033075	Dissolved Sulphate (SO4)	2023/11/09	NC	75 - 125	91	80 - 120	<1.0	mg/L	0.25 (1)	20		
9033171	Nitrate (N)	2023/11/13	98	80 - 120	101	80 - 120	<0.10	mg/L	NC (1)	20		
9033177	Alkalinity (Total as CaCO3)	2023/11/08			97	85 - 115	<1.0	mg/L	0.27 (1)	20		
9033181	pH	2023/11/08			102	98 - 103			0.81 (1)	N/A		
9033182	Conductivity	2023/11/08			101	85 - 115	1.0, RDL=1.0	umho/cm	0.42 (1)	10		
9033194	1,4-Dichlorobenzene	2023/11/08	106 (4)	70 - 130	108	70 - 130	<0.40	ug/L	NC (5)	30		
9033194	Benzene	2023/11/08	91 (4)	70 - 130	91	70 - 130	<0.20	ug/L	NC (5)	30		
9033194	Ethylbenzene	2023/11/08	93 (4)	70 - 130	94	70 - 130	<0.20	ug/L	NC (5)	30		
9033194	Methylene Chloride(Dichloromethane)	2023/11/08	97 (4)	70 - 130	96	70 - 130	<2.0	ug/L	NC (5)	30		
9033194	o-Xylene	2023/11/08	84 (4)	70 - 130	87	70 - 130	<0.20	ug/L	NC (5)	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.

Bureau Veritas Job #: C3Y5282
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9033194	p+m-Xylene	2023/11/08	98 (4)	70 - 130	100	70 - 130	<0.20	ug/L	NC (5)	30		
9033194	Toluene	2023/11/08	93 (4)	70 - 130	94	70 - 130	<0.20	ug/L	NC (5)	30		
9033194	Total Xylenes	2023/11/08					<0.20	ug/L	NC (5)	30		
9033194	Vinyl Chloride	2023/11/08	87 (4)	70 - 130	90	70 - 130	<0.20	ug/L	NC (5)	30		
9034047	Total Dissolved Solids	2023/11/08			97	90 - 110	<10	mg/L	2.4 (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 [XMR450-03]

(3) Duplicate Parent ID [XMR450-03]

(4) Matrix Spike Parent ID [XMR453-07]

(5) Duplicate Parent ID [XMR453-07]

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

Bureau Veritas Job #: C3Y5282
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

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

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 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.

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

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW73-9 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: (Y) or N (0.45) µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 3.57 m

Groundwater Elevation (GWE) (or Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C) mS	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	7.4	4.25	11.6	19.6			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: NA

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 5°C

Direction/Speed: 38 Km/hr SW

Outlook: Cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0862

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 9WS8-17 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 4.67 ft

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	7.4	4.10 mS	11.0	6.27			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: NA

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 25 Km/h SW

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11 02 23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0863

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.: Sample: OW72+10 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or _____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) _____ (ft/msl)

Depth to Water (DTW) (from TOC) 4.03 (ft) m

Groundwater Elevation (GWE) (Site Datum, from TOC) _____ (ft msl)

Total Well Depth (from TOC) _____ (ft)

Stick Up (from ground elevation) _____ (ft)

Casing ID _____ (in)

Casing Material _____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C) mS	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	7.1	2.79	9.8	102			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear Odor: NA Color: Clear Other:

Weather Conditions (required daily, or as conditions change): 5°C Direction/Speed: 38 Kmh SW Outlook: cloudy Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Eric Wilson	Eric Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0859

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: GW 16-7 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC): 3.33 m

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (~~µmhos~~ mS/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 02 23	7.1	1.51	8.6	27.3			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear, particulates

Odor: NA

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 5°C

Direction/Speed: 38 Km/h SW

Outlook: cloudy

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

GWDUP2 collected
Field Blank taken

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
23/11/02	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v.3.1 06/20

0895

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

03-Nov-23 08:57
Patricia Legette
C3Y5282
JH ENV-1322

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMAT	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-NOV
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks
				Sampled By:	EW

CHAIN OF CUSTODY # : TCEC-GWCM-NOV

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other ODWS (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERSTADIAL SILT & SAND) no VOCs	# of Cont.	COMMENTS / TAT COMMENTS
1	OW58-17	2-Nov-23	PM	GW	N	Y	X	6	
2	OW73-9	2-Nov-23	PM	GW	N	Y	X	6	
3	OW72-10	2-Nov-23	PM	GW	N	Y	X	6	
4	OW16-7	2-Nov-23	PM	GW	N	Y	X	8	GWDUP2 collected, FIELD BLANK taken
5	FIELD BLANK	2-Nov-23	PM	W	N	N	X	8	
6	GWDUP2	2-Nov-23	PM	GW	N	Y	X	8	
7									
8									
9									
10									
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 13-Nov-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
EW 2-Nov-23 - PM	Samet MANEET KAUR BRAR	2023/11/03	08:57

Laboratory Use Only: Temperature (°C) on Receipt: Refer to ALTR. Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NO

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/13
Report #: R7909236
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C3Y5327
Received: 2023/11/03, 09:29

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2023/11/04	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	2	N/A	2023/11/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	2	N/A	2023/11/10		
Conductivity	2	N/A	2023/11/06	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/11/07	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/11/08	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	2	N/A	2023/11/06	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2023/11/06	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	2	N/A	2023/11/06	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2023/11/04	2023/11/04	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	2	N/A	2023/11/10		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/11/06	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/11/08	2023/11/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	2	N/A	2023/11/10		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/11/06	2023/11/07	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	2	N/A	2023/11/10		

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, MELCCFP, 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.

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NO

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/13
Report #: R7909236
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C3Y5327
Received: 2023/11/03, 09:29

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

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.

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

Bureau Veritas Job #: C3Y5327
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMR750			XMR751		
Sampling Date		2023/11/01			2023/11/01		
COC Number		TCEC-GWCM-NO			TCEC-GWCM-NO		
	UNITS	**OW54A-4**	**RDL**	**QC Batch**	**OW67-4**	**RDL**	**QC Batch**
Field Measurements							
Field Conductivity	uS/cm	2470	N/A	ONSITE	890	N/A	ONSITE
Field Temperature	Celsius	8.2	N/A	ONSITE	9.3	N/A	ONSITE
Field Measured Field Turbidity	NTU	98.7	N/A	ONSITE	>1000	N/A	ONSITE
Field Measured pH	pH	7.3		ONSITE	7.2		ONSITE
Inorganics							
Total Ammonia-N	mg/L	3.09	0.15	9028493	<0.15	0.15	9028493
Conductivity	umho/cm	2300	1.0	9029262	790	1.0	9029262
Total Dissolved Solids	mg/L	1690	10	9034008			
Total Kjeldahl Nitrogen (TKN)	mg/L	3.5	0.7	9030517	<0.7	0.7	9030517
Dissolved Organic Carbon	mg/L	5.5	0.4	9027742	9.4	0.4	9033619
pH	pH	7.89		9029263	7.98		9029263
Dissolved Sulphate (SO4)	mg/L	710	5.0	9029629	97 (1)	50	9029629
Alkalinity (Total as CaCO3)	mg/L	630	1.0	9029261	260	1.0	9029261
Dissolved Chloride (Cl-)	mg/L	21	1.0	9029619	<50 (1)	50	9029619
Nitrate (N)	mg/L	0.30	0.10	9029285	<1.0	1.0	9029285

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

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

Bureau Veritas Job #: C3Y5327
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XMR750	XMR751		
Sampling Date		2023/11/01	2023/11/01		
COC Number		TCEC-GWCM-NO	TCEC-GWCM-NO		
	UNITS	**OW54A-4**	**OW67-4**	**RDL**	**QC Batch**
Metals					
Dissolved Barium (Ba)	mg/L	0.016	0.036	0.005	9030495
Dissolved Boron (B)	mg/L	0.22	0.14	0.02	9030495
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	9030495
Dissolved Calcium (Ca)	mg/L	130	51	0.2	9030495
Dissolved Iron (Fe)	mg/L	<0.1	0.6	0.1	9030495
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	0.0005	9030495
Dissolved Magnesium (Mg)	mg/L	200	13	0.05	9030495
Dissolved Potassium (K)	mg/L	4.2	2.0	0.2	9030495
Dissolved Sodium (Na)	mg/L	130	51	0.1	9030495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3Y5327
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.7°C

Split Report (2023/11/13): Requested by Jeff Cleland.

TDS analysis was canceled from sample OW67-4 due to the nature of the sample.

Sample XMR751 [OW67-4] : Nitrite/Nitrate: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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

Bureau Veritas Job #: C3Y5327
Report Date: 2023/11/13

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9027742	Dissolved Organic Carbon	2023/11/07	94	80 - 120	97	80 - 120	<0.4	mg/L	0.30 (1)	20		
9028493	Total Ammonia-N	2023/11/07	NC	75 - 125	100	80 - 120	<0.15	mg/L	1.6 (1)	20		
9029261	Alkalinity (Total as CaCO3)	2023/11/04			96	85 - 115	<1.0	mg/L	0.34 (1)	20		
9029262	Conductivity	2023/11/06			103	85 - 115	<1.0	umho/cm	0.40 (1)	10		
9029263	pH	2023/11/04			102	98 - 103			0.16 (1)	N/A		
9029285	Nitrate (N)	2023/11/06	NC	80 - 120	100	80 - 120	<0.10	mg/L	0.71 (1)	20		
9029619	Dissolved Chloride (Cl-)	2023/11/06	NC (2)	80 - 120	95	80 - 120	<1.0	mg/L	1.7 (3)	20		
9029629	Dissolved Sulphate (SO4)	2023/11/06	NC (2)	75 - 125	94	80 - 120	<1.0	mg/L	0.64 (3)	20		
9030495	Dissolved Barium (Ba)	2023/11/06	97	80 - 120	93	80 - 120	<0.005	mg/L	3.5 (1)	20		
9030495	Dissolved Boron (B)	2023/11/06	NC	80 - 120	90	80 - 120	<0.02	mg/L	2.5 (1)	20		
9030495	Dissolved Cadmium (Cd)	2023/11/06	100	80 - 120	95	80 - 120	<0.0001	mg/L	NC (1)	20		
9030495	Dissolved Calcium (Ca)	2023/11/06	NC	80 - 120	97	80 - 120	<0.2	mg/L	3.0 (1)	20		
9030495	Dissolved Iron (Fe)	2023/11/06	101	80 - 120	98	80 - 120	<0.1	mg/L	NC (1)	20		
9030495	Dissolved Lead (Pb)	2023/11/06	97	80 - 120	97	80 - 120	<0.0005	mg/L	NC (1)	20		
9030495	Dissolved Magnesium (Mg)	2023/11/06	NC	80 - 120	97	80 - 120	<0.05	mg/L	2.7 (1)	20		
9030495	Dissolved Potassium (K)	2023/11/06	105	80 - 120	97	80 - 120	<0.2	mg/L	2.1 (1)	20		
9030495	Dissolved Sodium (Na)	2023/11/06	NC	80 - 120	98	80 - 120	<0.1	mg/L	2.6 (1)	20		
9030517	Total Kjeldahl Nitrogen (TKN)	2023/11/07	NC	80 - 120	105	80 - 120	<0.7	mg/L	1.3 (1)	20	98	80 - 120
9033619	Dissolved Organic Carbon	2023/11/08	96	80 - 120	98	80 - 120	<0.4	mg/L	1.9 (1)	20		

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Bureau Veritas Job #: C3Y5327
Report Date: 2023/11/13

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9034008	Total Dissolved Solids	2023/11/09			97	90 - 110	<10	mg/L	5.0 (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.

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 [XMR752-01]

(3) Duplicate Parent ID [XMR752-01]

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Bureau Veritas Job #: C3Y5327
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

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

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 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.

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

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW71A-5 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
11/01/23					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) 1.07 m

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 01 23	6.94	2.35 mS	8.4	11.3			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: NA

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 15Kmph E

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/01/23	Eric Wilson	E.Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v.3.1 06/20

0803

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 67-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 1.01 m (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110123	7.2 ~~7.19~~	mS 0.89	9.3	>1000			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: black, opaque — Odor: NA — Color: black — Other:

Weather Conditions (required daily, or as conditions change): 6°c — Direction/Speed: 15 km/h E — Outlook: Cloudy — Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/01/23	Eric Wilson	E. Wilson	KWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0891

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: GW 708-5 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
110123					

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC): 1.32 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110123	7.2	2.41	7.1	4.38			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: NA

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: SKmh E

Outlook: Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/01/23	Eric Williams	Eric Williams	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0802

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 54A-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC): 98.7 m

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110123	7.3 ~~7.27~~	2.47	8.2	98.7			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear, particulates

Odor: Sulphur

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 6°c

Direction/Speed: 15 Km/h E

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/01/23	Eric Wilson	E.W/[illegible]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0893

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-NOV
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks
				Sampled By:	EW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-NOV

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: ODWS (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD) no VOCs	# of Cont.	COMMENTS / TAT COMMENTS
1	OW54A-4	1-Nov-23	PM	GW	N	Y	X	6	
2	OW67-4	1-Nov-23	PM	GW	N	Y	X	6	
3	OW70B-5	1-Nov-23	AM	GW	N	Y	X	6	
4	OW71A-5	1-Nov-23	AM	GW	N	Y	X	6	
5									
6									
7									
8									
9									
10									
11									
12									Metals and Filtered DOC field filtered
									See lab addendum for analysis.

03-Nov-23 09:29
Patricia Legette
C3Y5327
AJH ENV-1322

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 13-Nov-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
EW 2-Nov-23 - AM	Ravneet RAVNEET KAUR BRAR	2023/11/03	09:29

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
7/5/5	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/22
Report #: R7922941
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y6019
Received: 2023/11/03, 14:42

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/11/15	CAM SOP-00448	SM 23 2320 B m
Alkalinity	5	N/A	2023/11/08	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/11/10	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2023/11/16	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	4	N/A	2023/11/08	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	6	N/A	2023/11/10		
Conductivity	6	N/A	2023/11/08	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	6	N/A	2023/11/08	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/11/17	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	2	N/A	2023/11/07	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	3	N/A	2023/11/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	6	N/A	2023/11/07	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	6	N/A	2023/11/14	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2023/11/07	2023/11/08	CAM SOP-00413	SM 4500H+ B m
pH	1	2023/11/07	2023/11/08	CAM SOP-00413	SM 24th - 4500H+ B
Field Measured pH (3)	6	N/A	2023/11/10		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/11/10	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	1	N/A	2023/11/15	CAM SOP-00464	SM 23 4500-SO42- E m
Sulphate by Automated Turbidimetry	4	N/A	2023/11/08	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	6	2023/11/10	2023/11/13	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	6	N/A	2023/11/10		Field Thermometer
Total Kjeldahl Nitrogen in Water	6	2023/11/06	2023/11/07	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	6	N/A	2023/11/10		

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, MELCCFP, 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

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/22
Report #: R7922941
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y6019
Received: 2023/11/03, 14:42

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

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 #: C3Y6019
Report Date: 2023/11/22

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMU860			XMU861	XMU862		
Sampling Date		2023/11/03			2023/11/03	2023/11/03		
COC Number		TCEC-GWCM-NOV			TCEC-GWCM-NOV	TCEC-GWCM-NOV		
	UNITS	**OW17-4**	**RDL**	**QC Batch**	**OW69-5**	**OW57-4**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	3220	N/A	ONSITE	5920	3780	N/A	ONSITE
Field Temperature	Celsius	11.9	N/A	ONSITE	11.3	10.0	N/A	ONSITE
Field Measured Field Turbidity	NTU	63.2	N/A	ONSITE	12.9	6.98	N/A	ONSITE
Field Measured pH	pH	7.2		ONSITE	6.7	7.1		ONSITE
Inorganics								
Total Ammonia-N	mg/L	1.65	0.15	9032227	<0.15	<0.15	0.15	9032227
Conductivity	umho/cm	3000	1.0	9032955	5700	3600	1.0	9032955
Total Dissolved Solids	mg/L	2920	10	9040043	5990	3220	10	9040043
Total Kjeldahl Nitrogen (TKN)	mg/L	2.1	0.7	9032318	<0.7	<0.7	0.7	9032318
Dissolved Organic Carbon	mg/L	6.7	0.4	9032317	3.2	3.4	0.4	9032317
pH	pH	7.83		9032953	7.64	7.77		9032953
Dissolved Sulphate (SO4)	mg/L	1500	5.0	9049501	3500	1700	10	9032948
Alkalinity (Total as CaCO3)	mg/L	420	1.0	9050711	690	550	1.0	9032950
Dissolved Chloride (Cl-)	mg/L	24	1.0	9049496	6.9	2.8	1.0	9032940
Nitrate (N)	mg/L	0.10	0.10	9032937	0.12	0.45	0.10	9032937

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 #: C3Y6019
Report Date: 2023/11/22

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMU863		XMU864		XMU865		
Sampling Date		2023/11/03		2023/11/03		2023/11/03		
COC Number		TCEC-GWCM-NOV		TCEC-GWCM-NOV		TCEC-GWCM-NOV		
	UNITS	**GWDUP3**	**QC Batch**	**OW56-4**	**QC Batch**	**OW59-6**	**RDL**	**QC Batch**
Field Measurements								
Field Conductivity	uS/cm	3780	ONSITE	4990	ONSITE	5090	N/A	ONSITE
Field Temperature	Celsius	10.0	ONSITE	11.5	ONSITE	9.8	N/A	ONSITE
Field Measured Field Turbidity	NTU	6.98	ONSITE	26.5	ONSITE	3.99	N/A	ONSITE
Field Measured pH	pH	7.1	ONSITE	7.2	ONSITE	7.3		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.15	9032227	<0.15	9032227	<0.15	0.15	9032227
Conductivity	umho/cm	3600	9032955	4800	9033182	4900	1.0	9032955
Total Dissolved Solids	mg/L	3330	9040043	4880	9040043	4960	10	9040043
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	9032318	<0.7	9032318	<0.7	0.7	9032318
Dissolved Organic Carbon	mg/L	4.3	9032317	3.7	9032317	3.0	0.4	9032317
pH	pH	7.71	9032953	7.94	9033181	7.75		9032953
Dissolved Sulphate (SO4)	mg/L	1700	9032948	3100	9033637	3000	10	9032948
Alkalinity (Total as CaCO3)	mg/L	560	9032950	400	9033177	420	1.0	9032950
Dissolved Chloride (Cl-)	mg/L	2.8	9032940	5.1	9033640	3.5	1.0	9032940
Nitrate (N)	mg/L	0.26	9032937	0.36	9033055	<0.10	0.10	9032937

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

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

Bureau Veritas Job #: C3Y6019
Report Date: 2023/11/22

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XMU860			XMU861		XMU862		
Sampling Date		2023/11/03			2023/11/03		2023/11/03		
COC Number		TCEC-GWCM-NOV			TCEC-GWCM-NOV		TCEC-GWCM-NOV		
	UNITS	**OW17-4**	**RDL**	**QC Batch**	**OW69-5**	**RDL**	**OW57-4**	**RDL**	**QC Batch**
Metals									
Dissolved Barium (Ba)	mg/L	0.018	0.005	9053899	0.009	0.005	0.005	0.005	9033015
Dissolved Boron (B)	mg/L	0.20	0.02	9053899	0.99	0.02	0.34	0.02	9033015
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	9053899	<0.0001	0.0001	<0.0001	0.0001	9033015
Dissolved Calcium (Ca)	mg/L	170	0.2	9053899	470	0.4	260	0.2	9033015
Dissolved Iron (Fe)	mg/L	<0.1	0.1	9053899	3.3	0.1	0.2	0.1	9033015
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	9053899	<0.0005	0.0005	<0.0005	0.0005	9033015
Dissolved Magnesium (Mg)	mg/L	140	0.05	9053899	630	0.3	290	0.05	9033015
Dissolved Potassium (K)	mg/L	2.7	0.2	9053899	6.3	0.2	4.4	0.2	9033015
Dissolved Sodium (Na)	mg/L	66	0.1	9053899	290	0.1	110	0.1	9033015

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		XMU863		XMU864		XMU865		
Sampling Date		2023/11/03		2023/11/03		2023/11/03		
COC Number		TCEC-GWCM-NOV		TCEC-GWCM-NOV		TCEC-GWCM-NOV		
	UNITS	**GWDUP3**	**RDL**	**OW56-4**	**RDL**	**OW59-6**	**RDL**	**QC Batch**
Metals								
Dissolved Barium (Ba)	mg/L	0.006	0.005	0.008	0.005	<0.03	0.03	9033015
Dissolved Boron (B)	mg/L	0.37	0.02	0.99	0.02	0.8	0.1	9033015
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	<0.0001	0.0001	<0.0005	0.0005	9033015
Dissolved Calcium (Ca)	mg/L	300	0.2	440	0.4	430	1	9033015
Dissolved Iron (Fe)	mg/L	0.2	0.1	0.5	0.1	<0.5	0.5	9033015
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	<0.0005	0.0005	<0.003	0.003	9033015
Dissolved Magnesium (Mg)	mg/L	330	0.05	450	0.3	440	0.3	9033015
Dissolved Potassium (K)	mg/L	4.4	0.2	7.1	0.2	6	1	9033015
Dissolved Sodium (Na)	mg/L	120	0.1	220	0.1	260	0.5	9033015

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 #: C3Y6019
Report Date: 2023/11/22

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

GENERAL COMMENTS

Nitrate & Nitrite: Analysis was performed past sample holding time. This may increase the variability associated with these results.

Sample XMU865 [OW59-6] : Metal Analysis: Due to 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.

Bureau Veritas Job #: C3Y6019
Report Date: 2023/11/22

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9032227	Total Ammonia-N	2023/11/07	101	75 - 125	102	80 - 120	<0.15	mg/L	NC (1)	20		
9032317	Dissolved Organic Carbon	2023/11/08	98	80 - 120	99	80 - 120	<0.4	mg/L	5.6 (1)	20		
9032318	Total Kjeldahl Nitrogen (TKN)	2023/11/07	110	80 - 120	107	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
9032937	Nitrate (N)	2023/11/14	101 (2)	80 - 120	100	80 - 120	<0.10	mg/L	2.2 (3)	20		
9032940	Dissolved Chloride (Cl-)	2023/11/08	85 (4)	80 - 120	98	80 - 120	<1.0	mg/L	4.6 (5)	20		
9032948	Dissolved Sulphate (SO4)	2023/11/08	NC (4)	75 - 125	99	80 - 120	<1.0	mg/L	1.1 (5)	20		
9032950	Alkalinity (Total as CaCO3)	2023/11/08			96	85 - 115	<1.0	mg/L	1.8 (3)	20		
9032953	pH	2023/11/08			102	98 - 103			0.0039 (3)	N/A		
9032955	Conductivity	2023/11/08			100	85 - 115	<1.0	umho/cm	0.87 (3)	10		
9033015	Dissolved Barium (Ba)	2023/11/07	94	80 - 120	95	80 - 120	<0.005	mg/L	2.8 (1)	20		
9033015	Dissolved Boron (B)	2023/11/07	NC	80 - 120	94	80 - 120	<0.02	mg/L	1.8 (1)	20		
9033015	Dissolved Cadmium (Cd)	2023/11/07	97	80 - 120	97	80 - 120	<0.0001	mg/L	NC (1)	20		
9033015	Dissolved Calcium (Ca)	2023/11/07	NC	80 - 120	98	80 - 120	<0.2	mg/L	1.6 (1)	20		
9033015	Dissolved Iron (Fe)	2023/11/07	98	80 - 120	98	80 - 120	<0.1	mg/L	0.073 (1)	20		
9033015	Dissolved Lead (Pb)	2023/11/07	93	80 - 120	95	80 - 120	<0.0005	mg/L	NC (1)	20		
9033015	Dissolved Magnesium (Mg)	2023/11/07	NC	80 - 120	97	80 - 120	<0.05	mg/L	0.63 (1)	20		
9033015	Dissolved Potassium (K)	2023/11/07	97	80 - 120	98	80 - 120	<0.2	mg/L	1.2 (1)	20		
9033015	Dissolved Sodium (Na)	2023/11/07	NC	80 - 120	96	80 - 120	<0.1	mg/L	0.80 (1)	20		
9033055	Nitrate (N)	2023/11/14	91	80 - 120	101	80 - 120	<0.10	mg/L	NC (1)	20		
9033177	Alkalinity (Total as CaCO3)	2023/11/08			97	85 - 115	<1.0	mg/L	0.27 (1)	20		
9033181	pH	2023/11/08			102	98 - 103			0.81 (1)	N/A		
9033182	Conductivity	2023/11/08			101	85 - 115	1.0, RDL=1.0	umho/cm	0.42 (1)	10		
9033637	Dissolved Sulphate (SO4)	2023/11/10	NC (6)	75 - 125	101	80 - 120	<1.0	mg/L	2.1 (7)	20		
9033640	Dissolved Chloride (Cl-)	2023/11/10	93 (6)	80 - 120	97	80 - 120	<1.0	mg/L	0.34 (7)	20		
9040043	Total Dissolved Solids	2023/11/13			95	90 - 110	<10	mg/L	0.57 (1)	20		
9049496	Dissolved Chloride (Cl-)	2023/11/15	NC	80 - 120	104	80 - 120	<1.0	mg/L	5.9 (1)	20		
9049501	Dissolved Sulphate (SO4)	2023/11/15	NC	75 - 125	94	80 - 120	<1.0	mg/L	0.29 (1)	20		
9050711	Alkalinity (Total as CaCO3)	2023/11/15			96	85 - 115	<1.0	mg/L	4.2 (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.

Bureau Veritas Job #: C3Y6019
Report Date: 2023/11/22

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9053899	Dissolved Barium (Ba)	2023/11/17	104 (8)	80 - 120	103	80 - 120	<0.005	mg/L	0.49 (9)	20		
9053899	Dissolved Boron (B)	2023/11/17	96 (8)	80 - 120	94	80 - 120	<0.02	mg/L	0.27 (9)	20		
9053899	Dissolved Cadmium (Cd)	2023/11/17	100 (8)	80 - 120	100	80 - 120	<0.0001	mg/L	NC (9)	20		
9053899	Dissolved Calcium (Ca)	2023/11/17	NC (8)	80 - 120	104	80 - 120	<0.2	mg/L	2.2 (9)	20		
9053899	Dissolved Iron (Fe)	2023/11/17	103 (8)	80 - 120	99	80 - 120	<0.1	mg/L	NC (9)	20		
9053899	Dissolved Lead (Pb)	2023/11/17	97 (8)	80 - 120	94	80 - 120	<0.0005	mg/L	NC (9)	20		
9053899	Dissolved Magnesium (Mg)	2023/11/17	NC (8)	80 - 120	99	80 - 120	<0.05	mg/L	1.2 (9)	20		
9053899	Dissolved Potassium (K)	2023/11/17	105 (8)	80 - 120	102	80 - 120	<0.2	mg/L	1.3 (9)	20		
9053899	Dissolved Sodium (Na)	2023/11/17	NC (8)	80 - 120	99	80 - 120	<0.1	mg/L	3.0 (9)	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 [XMU862-01]

(3) Duplicate Parent ID [XMU862-01]

(4) Matrix Spike Parent ID [XMU865-01]

(5) Duplicate Parent ID [XMU865-01]

(6) Matrix Spike Parent ID [XMU864-01]

(7) Duplicate Parent ID [XMU864-01]

(8) Matrix Spike Parent ID [XMU860-03]

(9) Duplicate Parent ID [XMU860-03]

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 #: C3Y6019
Report Date: 2023/11/22

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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 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

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: GW17-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) 1.28 ft (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 03 23	7.2	mS 3.22	11.9	63.2			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: translucent, grey

Odor: sulfur

Color: grey

Other:

Weather Conditions (required daily, or as conditions change): 7°C

Direction/Speed: 25 Km/hr SW

Outlook: clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/03/23	Eric Wilson	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0869

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: GWS7-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: 4 — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC): 2.64 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110323	7.1	3.78	10.0	6.98			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear Odor: NA Color: Clear Other:

Weather Conditions (required daily, or as conditions change): 6°C Direction/Speed: 22 Km/hr SW Outlook: Clear Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

GWDUP3

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
110323	Eric Wilson	Eric Wilson	RMD1

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0866

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OWS6-4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 2.69 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 03 23	7.2	mS 4.99	11.5	26.5			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: yellow, translucent Odor: NA Color: yellow Other:

Weather Conditions (required daily, or as conditions change): 8°C Direction/Speed: 20 Kph SW Outlook: clear Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/03/23	Eric Wilson	E. Wilson	

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0872

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: DW 6975 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 2.59 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110323	6.7	5.92 mS	11.3	12.9			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear, particulates Odor: NA Color: Clear Other:

Weather Conditions (required daily, or as conditions change): 7°C Direction/Speed: 22 Km/h SW Outlook: Clear Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0868

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: MW59-6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 3.01 m (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 03 23	7.3	mS 5.09	9.8	3.99			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: NA

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 5°C

Direction/Speed: 22 Kmh SW

Outlook: Clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/03/23	Eric Wilson	[signature]	RWDI
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0865

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

REC'D IN LONDON

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	TCEC-GWCM-NOV
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Sampled By:	EW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-NOV

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other ODWS (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD) no VOCs							# of Cont.	COMMENTS / TAT COMMENTS
1	OW17-4	3-Nov-23	AM	GW	N	Y	X							6	
2	OW69-5	3-Nov-23	AM	GW	N	Y	X							6	
3	OW57-4	3-Nov-23	AM	GW	N	Y	X							6	GWDUP3 collected
4	GWDUP3	3-Nov-23	AM	GW	N	Y	X							6	
5	OW56-4	3-Nov-23	AM	GW	N	Y	X							7	
6	OW59-6	3-Nov-23	AM	GW	N	Y	X							6	
7															
8															
9															
10															ON ICE
11															Metals and Filtered DOC field filtered
12															See lab addendum for analysis.

03-Nov-23 14:42
Patricia Legette
C3Y6019
IH ENV-1780

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 14-Nov-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
EW 3-Nov-23 - PM	Sunil SOWMYA RAGAMONI	2023/11/03	14:42
	Amey ARSHDEEP KAUR	2023/11/03	18:30

Laboratory Use Only

Temperature (°C) on Receipt: 9 | 7 | 5

Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

626472 8/6/4

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/13
Report #: R7910296
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y6038
Received: 2023/11/03, 14:44

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/11/04	CAM SOP-00448	SM 23 2320 B m
Alkalinity	2	N/A	2023/11/06	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	3	N/A	2023/11/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	3	N/A	2023/11/10		
Conductivity	2	N/A	2023/11/05	CAM SOP-00414	SM 23 2510 m
Conductivity	1	N/A	2023/11/06	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2023/11/08	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/11/06	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	2	N/A	2023/11/07	CAM SOP-00447	EPA 6020B m
Ammonia-N	3	N/A	2023/11/06	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	3	N/A	2023/11/06	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/11/04	2023/11/04	CAM SOP-00413	SM 4500H+ B m
pH	2	2023/11/04	2023/11/05	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	3	N/A	2023/11/10		Field pH Meter
Sulphate by Automated Turbidimetry	3	N/A	2023/11/06	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	3	2023/11/10	2023/11/13	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	3	N/A	2023/11/10		Field Thermometer
Total Kjeldahl Nitrogen in Water	3	2023/11/06	2023/11/07	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	3	N/A	2023/11/10		

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, MELCCFP, 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.

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/13
Report #: R7910296
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y6038
Received: 2023/11/03, 14:44

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

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.

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

Bureau Veritas Job #: C3Y6038
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMU937		XMU938			XMU939		
Sampling Date		2023/11/03		2023/11/03			2023/11/03		
COC Number		TCEC-GWCM-NOV		TCEC-GWCM-NOV			TCEC-GWCM-NOV		
	UNITS	**OW46-7**	**QC Batch**	**OW47-6**	**RDL**	**QC Batch**	**OW57-15**	**RDL**	**QC Batch**
Field Measurements									
Field Conductivity	uS/cm	4750	ONSITE	4350	N/A	ONSITE	3250	N/A	ONSITE
Field Temperature	Celsius	11.2	ONSITE	12.3	N/A	ONSITE	10.3	N/A	ONSITE
Field Measured Field Turbidity	NTU	8.16	ONSITE	50.2	N/A	ONSITE	6.46	N/A	ONSITE
Field Measured pH	pH	7.6	ONSITE	7.1		ONSITE	7.3		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.15	9028493	<0.15	0.15	9028493	0.50	0.15	9028493
Conductivity	umho/cm	4400	9029649	4400	1.0	9029262	2900	1.0	9029649
Total Dissolved Solids	mg/L	4450	9040043	4390	10	9040043	2660	10	9040043
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	9032318	<0.7	0.7	9032318	1.4	0.7	9032318
Dissolved Organic Carbon	mg/L	3.7	9037044	3.6	0.4	9037044	3.0	0.4	9037044
pH	pH	7.95	9029650	7.66		9029263	7.76		9029650
Dissolved Sulphate (SO4)	mg/L	2700	9029629	2700	10	9029629	1600	5.0	9029629
Alkalinity (Total as CaCO3)	mg/L	330	9029648	390	1.0	9029261	150	1.0	9029648
Dissolved Chloride (Cl-)	mg/L	9.5	9029619	4.1	1.0	9029619	5.5	1.0	9029619
Nitrate (N)	mg/L	0.17	9029285	<0.10	0.10	9029285	0.79	0.10	9029285

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

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

Bureau Veritas Job #: C3Y6038
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XMU937	XMU938		XMU939		
Sampling Date		2023/11/03	2023/11/03		2023/11/03		
COC Number		TCEC-GWCM-NOV	TCEC-GWCM-NOV		TCEC-GWCM-NOV		
	UNITS	**OW46-7**	**OW47-6**	**RDL**	**OW57-15**	**RDL**	**QC Batch**
Metals							
Dissolved Barium (Ba)	mg/L	0.027	0.010	0.005	0.009	0.005	9030495
Dissolved Boron (B)	mg/L	0.59	0.44	0.02	1.4	0.02	9030495
Dissolved Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	<0.0001	0.0001	9030495
Dissolved Calcium (Ca)	mg/L	390	470	0.4	280	0.4	9030495
Dissolved Iron (Fe)	mg/L	<0.1	0.2	0.1	1.7	0.1	9030495
Dissolved Lead (Pb)	mg/L	<0.0005	<0.0005	0.0005	<0.0005	0.0005	9030495
Dissolved Magnesium (Mg)	mg/L	460	440	0.3	210	0.05	9030495
Dissolved Potassium (K)	mg/L	7.0	3.1	0.2	5.0	0.2	9030495
Dissolved Sodium (Na)	mg/L	230	100	0.1	180	0.1	9030495

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 #: C3Y6038
Report Date: 2023/11/13

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9028493	Total Ammonia-N	2023/11/07	NC	75 - 125	100	80 - 120	<0.15	mg/L	1.6 (1)	20		
9029261	Alkalinity (Total as CaCO3)	2023/11/04			96	85 - 115	<1.0	mg/L	0.34 (1)	20		
9029262	Conductivity	2023/11/06			103	85 - 115	<1.0	umho/cm	0.40 (1)	10		
9029263	pH	2023/11/04			102	98 - 103			0.16 (1)	N/A		
9029285	Nitrate (N)	2023/11/06	NC	80 - 120	100	80 - 120	<0.10	mg/L	0.71 (1)	20		
9029619	Dissolved Chloride (Cl-)	2023/11/06	NC	80 - 120	95	80 - 120	<1.0	mg/L	1.7 (1)	20		
9029629	Dissolved Sulphate (SO4)	2023/11/06	NC	75 - 125	94	80 - 120	<1.0	mg/L	0.64 (1)	20		
9029648	Alkalinity (Total as CaCO3)	2023/11/06			98	85 - 115	<1.0	mg/L	1.3 (2)	20		
9029649	Conductivity	2023/11/05			100	85 - 115	<1.0	umho/cm	0.94 (2)	10		
9029650	pH	2023/11/05			101	98 - 103			0.36 (2)	N/A		
9030495	Dissolved Barium (Ba)	2023/11/06	97	80 - 120	93	80 - 120	<0.005	mg/L	3.5 (1)	20		
9030495	Dissolved Boron (B)	2023/11/06	NC	80 - 120	90	80 - 120	<0.02	mg/L	2.5 (1)	20		
9030495	Dissolved Cadmium (Cd)	2023/11/06	100	80 - 120	95	80 - 120	<0.0001	mg/L	NC (1)	20		
9030495	Dissolved Calcium (Ca)	2023/11/06	NC	80 - 120	97	80 - 120	<0.2	mg/L	3.0 (1)	20		
9030495	Dissolved Iron (Fe)	2023/11/06	101	80 - 120	98	80 - 120	<0.1	mg/L	NC (1)	20		
9030495	Dissolved Lead (Pb)	2023/11/06	97	80 - 120	97	80 - 120	<0.0005	mg/L	NC (1)	20		
9030495	Dissolved Magnesium (Mg)	2023/11/06	NC	80 - 120	97	80 - 120	<0.05	mg/L	2.7 (1)	20		
9030495	Dissolved Potassium (K)	2023/11/06	105	80 - 120	97	80 - 120	<0.2	mg/L	2.1 (1)	20		
9030495	Dissolved Sodium (Na)	2023/11/06	NC	80 - 120	98	80 - 120	<0.1	mg/L	2.6 (1)	20		
9032318	Total Kjeldahl Nitrogen (TKN)	2023/11/07	110	80 - 120	107	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
9037044	Dissolved Organic Carbon	2023/11/08	97	80 - 120	100	80 - 120	<0.4	mg/L	1.5 (1)	20		

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

Bureau Veritas Job #: C3Y6038
Report Date: 2023/11/13

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9040043	Total Dissolved Solids	2023/11/13			95	90 - 110	<10	mg/L	0.57 (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.

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 [XMU937-01]

(3) Duplicate Parent ID [XMU939-02]

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

Bureau Veritas Job #: C3Y6038
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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 Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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

FIELD INFORMATION FORM

Site Name: TCEC

Site No.:

Sample: 2W46 + T7 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 1.57 m

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110323	7.6	4.75 mS	11.2	8.16			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: NA

Color: clear

Other:

Weather Conditions (required daily, or as conditions change): 7°C

Direction/Speed: 25 Knots SW

Outlook: clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0870

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW 47-6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 2.67 m (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110323	7.1	mS 4.35	12.3	50.2			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: translucent Odor: NA Color: yellow Other:

Weather Conditions (required daily, or as conditions change): 8°C Direction/Speed: 20 km/hr Outlook: clear Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0871

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OW57+15 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Filter Device: (Y) or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: A C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: A C

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC): 2.43 in

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (~~µmhos~~ mS/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 9 23	7.3	3.25	10.3	6.46			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear

Odor: NA

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 22 Km/h SW

Outlook: Clear

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/03/23	Eric Wilson	Eric Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0867

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

REC'D IN LONDON

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-NOV
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks
				Sampled By:	EW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-NOV

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA Reg. 153 Sewer Use [x] Other
[ ] Table 1 [ ] Sanitary ODWS
[ ] PWQO [ ] Table 2 [ ] Storm specify
[ ] Table 3 Region
[ ] Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
[ ] 1 day [ ] 2 days [ ] 3 days
DATE Required: 14-Nov-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERSTADIAL SILT & SAND) no VOCs	# of Cont.	COMMENTS / TAT COMMENTS
1	OW46-7	3-Nov-23	AM	GW	N	Y	X	6	
2	OW47-6	3-Nov-23	AM	GW	N	Y	X	7	
3	OW57-15	3-Nov-23	AM	GW	N	Y	X	6	
4									
5									
6									
7									
8									
9									
10									ON ICE
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

03-Nov-23 14:44
Patricia Legette
C3Y6038
AJH ENV-1682

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
EW 3-Nov-23 - PM	Soumya Ragamont	2023/11/03	14:44
	Akshdeep Kaur	2023/11/03	18:30

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
9/7/5	[ ] OK [ ] SIF

* MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

626472 8/6/4 4/6/3 ice

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MA

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/13
Report #: R7910294
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y6046
Received: 2023/11/03, 14:43

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/11/04	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/11/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2023/11/10		
Conductivity	1	N/A	2023/11/06	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/11/08	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/11/06	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/11/06	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2023/11/06	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/11/04	2023/11/04	CAM SOP-00413	SM 4500H+ B m
Field Measured pH (3)	1	N/A	2023/11/10		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/11/06	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/11/10	2023/11/13	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	1	N/A	2023/11/10		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/11/06	2023/11/07	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	1	N/A	2023/11/10		

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, MELCCFP, 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.

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

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: TCEC-GWCM-MA

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/13
Report #: R7910294
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y6046
Received: 2023/11/03, 14:43

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

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 #: C3Y6046
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMU958		
Sampling Date		2023/11/03		
COC Number		TCEC-GWCM-MA		
	UNITS	**OW84-31**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	2460	N/A	ONSITE
Field Temperature	Celsius	12.1	N/A	ONSITE
Field Measured Field Turbidity	NTU	5.18	N/A	ONSITE
Field Measured pH	pH	7.5		ONSITE
Inorganics				
Total Ammonia-N	mg/L	0.70	0.15	9028493
Conductivity	umho/cm	2200	1.0	9029262
Total Dissolved Solids	mg/L	1760	10	9040043
Total Kjeldahl Nitrogen (TKN)	mg/L	1.2	0.7	9032318
Dissolved Organic Carbon	mg/L	8.4	0.4	9037044
pH	pH	7.91		9029263
Dissolved Sulphate (SO4)	mg/L	850	5.0	9029629
Alkalinity (Total as CaCO3)	mg/L	380	1.0	9029261
Dissolved Chloride (Cl-)	mg/L	19	1.0	9029619
Nitrate (N)	mg/L	5.08	0.10	9029285

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 #: C3Y6046
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XMU958		
Sampling Date		2023/11/03		
COC Number		TCEC-GWCM-MA		
	UNITS	**OW84-31**	**RDL**	**QC Batch**
Metals				
Dissolved Barium (Ba)	mg/L	0.036	0.005	9030495
Dissolved Boron (B)	mg/L	1.1	0.02	9030495
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	9030495
Dissolved Calcium (Ca)	mg/L	190	0.2	9030495
Dissolved Iron (Fe)	mg/L	<0.1	0.1	9030495
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	9030495
Dissolved Magnesium (Mg)	mg/L	61	0.05	9030495
Dissolved Potassium (K)	mg/L	8.7	0.2	9030495
Dissolved Sodium (Na)	mg/L	240	0.1	9030495

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 #: C3Y6046
Report Date: 2023/11/13

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9028493	Total Ammonia-N	2023/11/07	NC	75 - 125	100	80 - 120	<0.15	mg/L	1.6 (1)	20		
9029261	Alkalinity (Total as CaCO3)	2023/11/04			96	85 - 115	<1.0	mg/L	0.34 (1)	20		
9029262	Conductivity	2023/11/06			103	85 - 115	<1.0	umho/cm	0.40 (1)	10		
9029263	pH	2023/11/04			102	98 - 103			0.16 (1)	N/A		
9029285	Nitrate (N)	2023/11/06	NC	80 - 120	100	80 - 120	<0.10	mg/L	0.71 (1)	20		
9029619	Dissolved Chloride (Cl-)	2023/11/06	NC	80 - 120	95	80 - 120	<1.0	mg/L	1.7 (1)	20		
9029629	Dissolved Sulphate (SO4)	2023/11/06	NC	75 - 125	94	80 - 120	<1.0	mg/L	0.64 (1)	20		
9030495	Dissolved Barium (Ba)	2023/11/06	97 (2)	80 - 120	93	80 - 120	<0.005	mg/L	3.5 (3)	20		
9030495	Dissolved Boron (B)	2023/11/06	NC (2)	80 - 120	90	80 - 120	<0.02	mg/L	2.5 (3)	20		
9030495	Dissolved Cadmium (Cd)	2023/11/06	100 (2)	80 - 120	95	80 - 120	<0.0001	mg/L	NC (3)	20		
9030495	Dissolved Calcium (Ca)	2023/11/06	NC (2)	80 - 120	97	80 - 120	<0.2	mg/L	3.0 (3)	20		
9030495	Dissolved Iron (Fe)	2023/11/06	101 (2)	80 - 120	98	80 - 120	<0.1	mg/L	NC (3)	20		
9030495	Dissolved Lead (Pb)	2023/11/06	97 (2)	80 - 120	97	80 - 120	<0.0005	mg/L	NC (3)	20		
9030495	Dissolved Magnesium (Mg)	2023/11/06	NC (2)	80 - 120	97	80 - 120	<0.05	mg/L	2.7 (3)	20		
9030495	Dissolved Potassium (K)	2023/11/06	105 (2)	80 - 120	97	80 - 120	<0.2	mg/L	2.1 (3)	20		
9030495	Dissolved Sodium (Na)	2023/11/06	NC (2)	80 - 120	98	80 - 120	<0.1	mg/L	2.6 (3)	20		
9032318	Total Kjeldahl Nitrogen (TKN)	2023/11/07	110	80 - 120	107	80 - 120	<0.7	mg/L	NC (1)	20	98	80 - 120
9037044	Dissolved Organic Carbon	2023/11/08	97	80 - 120	100	80 - 120	<0.4	mg/L	1.5 (1)	20		

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

Bureau Veritas Job #: C3Y6046
Report Date: 2023/11/13

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

			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
9040043	Total Dissolved Solids	2023/11/13			95	90 - 110	<10	mg/L	0.57 (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 [XMU958-03]

(3) Duplicate Parent ID [XMU958-03]

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 #: C3Y6046
Report Date: 2023/11/13

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: EW

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 Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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FIELD INFORMATION FORM

Site Name: TCE C

Site No.:

Sample: OW84F31 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: C — A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device: C

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) 11.95 (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 03 23	7.5	2.46	12.1	5.18			

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Clear — Odor: NA — Color: clear — Other:

Weather Conditions (required daily, or as conditions change): 9°C — Direction/Speed: 29 Rmh SW — Outlook: Clear — Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/03/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0873

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

REC'D IN LONDON

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Project Name:	TCEC-GWCM-MAY
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com	Location:	Twin Creeks
				Sampled By:	EW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary ODWS
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 14-Nov-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (INTERFACE AQUIFER) No VOCs	# of Cont.	COMMENTS / TAT COMMENTS
1	OW84-31	3-Nov-23	PM	GW	N	Y	X	6	
2									
3									
4									
5									
6									
7									
8									
9									
10									ON ICE
11									Metals and Filtered DOC field filtered
12									See lab addendum for analysis.

03-Nov-23 14:43
Patricia Legette
C3Y6046
AJH ENV-1214

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
EW 3-Nov-23 - PM	SOWMYA RAGAMONI	2023/11/03	14:43	Temperature (°C) on Receipt 9/7/5	Condition of Sample on Receipt ☐ OK ☐ SIF
	AKSHDEP KAUR	2023/11/03	18:30		

* MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

#626472 8/6/4

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/24
Report #: R7926321
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Z9672
Received: 2023/11/16, 09:57

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/11/22	CAM SOP-00448	SM 24 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/11/21	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2023/11/23		
Conductivity	1	N/A	2023/11/22	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2023/11/18	CAM SOP-00446	SM 23 5310 B m
Dissolved Metals by ICPMS	1	N/A	2023/11/21	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/11/21	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	1	N/A	2023/11/20	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/11/17	2023/11/22	CAM SOP-00413	SM 24th - 4500H+ B
Field Measured pH (3)	1	N/A	2023/11/23		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/11/21	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/11/18	2023/11/20	CAM SOP-00428	SM 23 2540C m
Field Temperature (3)	1	N/A	2023/11/23		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/11/20	2023/11/21	CAM SOP-00938	OMOE E3516 m
Turbidity - On-site	1	N/A	2023/11/23		

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, MELCCFP, 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.

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

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. #: 12285756
Your Project #: 2303459.01
Site#: 200
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/24
Report #: R7926321
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Z9672
Received: 2023/11/16, 09:57

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

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.

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Bureau Veritas Job #: C3Z9672
Report Date: 2023/11/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XPS501		
Sampling Date		2023/11/13		
COC Number		N/A		
	UNITS	**OW70B-5**	**RDL**	**QC Batch**
Field Measurements				
Field Conductivity	uS/cm	1767	N/A	ONSITE
Field Temperature	Celsius	13.6	N/A	ONSITE
Field Measured Field Turbidity	NTU	13.6	N/A	ONSITE
Field Measured pH	pH	7.6		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	9061820
Conductivity	umho/cm	2000	1.0	9057859
Total Dissolved Solids	mg/L	1550	10	9055211
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	9059667
Dissolved Organic Carbon	mg/L	8.2	0.4	9053938
pH	pH	8.33		9057860
Dissolved Sulphate (SO4)	mg/L	650	5.0	9058760
Alkalinity (Total as CaCO3)	mg/L	590	1.0	9057857
Dissolved Chloride (Cl-)	mg/L	5.5	1.0	9058757
Nitrate (N)	mg/L	<0.10	0.10	9057800

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

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Bureau Veritas Job #: C3Z9672
Report Date: 2023/11/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XPS501		
Sampling Date		2023/11/13		
COC Number		N/A		
	UNITS	**OW70B-5**	**RDL**	**QC Batch**
Metals				
Dissolved Barium (Ba)	mg/L	0.012	0.005	9061802
Dissolved Boron (B)	mg/L	0.42	0.02	9061802
Dissolved Cadmium (Cd)	mg/L	<0.0001	0.0001	9061802
Dissolved Calcium (Ca)	mg/L	120	0.2	9061802
Dissolved Iron (Fe)	mg/L	0.2	0.1	9061802
Dissolved Lead (Pb)	mg/L	<0.0005	0.0005	9061802
Dissolved Magnesium (Mg)	mg/L	200	0.05	9061802
Dissolved Potassium (K)	mg/L	4.4	0.2	9061802
Dissolved Sodium (Na)	mg/L	89	0.1	9061802

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3Z9672
Report Date: 2023/11/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C

Results relate only to the items tested.

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

Bureau Veritas Job #: C3Z9672
Report Date: 2023/11/24

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9053938	Dissolved Organic Carbon	2023/11/18	91	80 - 120	96	80 - 120	<0.4	mg/L	1.6 (1)	20		
9055211	Total Dissolved Solids	2023/11/20			98	80 - 120	<10	mg/L	0.76 (1)	20		
9057800	Nitrate (N)	2023/11/20	90	80 - 120	95	80 - 120	<0.10	mg/L	0.60 (1)	20		
9057857	Alkalinity (Total as CaCO3)	2023/11/22			100	85 - 115	<1.0	mg/L	1.1 (1)	20		
9057859	Conductivity	2023/11/22			102	85 - 115	<1.0	umho/cm	2.1 (1)	10		
9057860	pH	2023/11/22			102	98 - 103			1.6 (1)	N/A		
9058757	Dissolved Chloride (Cl-)	2023/11/21	NC	80 - 120	95	80 - 120	<1.0	mg/L	0.094 (1)	20		
9058760	Dissolved Sulphate (SO4)	2023/11/21	NC	75 - 125	96	80 - 120	<1.0	mg/L	0.44 (1)	20		
9059667	Total Kjeldahl Nitrogen (TKN)	2023/11/21	109 (2)	80 - 120	107	80 - 120	<0.7	mg/L	NC (3)	20	103	80 - 120
9061802	Dissolved Barium (Ba)	2023/11/21	102 (4)	80 - 120	101	80 - 120	<0.005	mg/L	1.2 (5)	20		
9061802	Dissolved Boron (B)	2023/11/21	88 (4)	80 - 120	99	80 - 120	<0.02	mg/L	1.3 (5)	20		
9061802	Dissolved Cadmium (Cd)	2023/11/21	99 (4)	80 - 120	96	80 - 120	<0.0001	mg/L	NC (5)	20		
9061802	Dissolved Calcium (Ca)	2023/11/21	NC (4)	80 - 120	103	80 - 120	<0.2	mg/L	0.25 (5)	20		
9061802	Dissolved Iron (Fe)	2023/11/21	100 (4)	80 - 120	102	80 - 120	<0.1	mg/L	0.53 (5)	20		
9061802	Dissolved Lead (Pb)	2023/11/21	96 (4)	80 - 120	95	80 - 120	<0.0005	mg/L	NC (5)	20		
9061802	Dissolved Magnesium (Mg)	2023/11/21	NC (4)	80 - 120	103	80 - 120	<0.05	mg/L	1.4 (5)	20		
9061802	Dissolved Potassium (K)	2023/11/21	104 (4)	80 - 120	105	80 - 120	<0.2	mg/L	1.3 (5)	20		
9061802	Dissolved Sodium (Na)	2023/11/21	NC (4)	80 - 120	102	80 - 120	<0.1	mg/L	3.3 (5)	20		

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

Bureau Veritas Job #: C3Z9672
Report Date: 2023/11/24

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9061820	Total Ammonia-N	2023/11/21	102	75 - 125	98	80 - 120	<0.15	mg/L	0.67 (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 [XPS501-03]

(3) Duplicate Parent ID [XPS501-03]

(4) Matrix Spike Parent ID [XPS501-04]

(5) Duplicate Parent ID [XPS501-04]

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 #: C3Z9672
Report Date: 2023/11/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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 Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: OU7 [illegible] Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 or [ ] µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC): 1.32 m (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
111323	7.6	1767	13.6	13.6	4.95		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: transparent

Odor: N/O

Color: N/C

Other:

Weather Conditions (required daily, or as conditions change): 10°C

Direction/Speed: 17 km/h NW

Outlook: Clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

1.32m

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/13/23	Jake Arbelle	[signature]	RWPS

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0875

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	TCEC-GWCM-NOV
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com, JCL@RWDI.com	Sampled By:	JRA

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-GWCM-NOV

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: ODWS (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 23-Nov-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - GW (ACTIVE AQUITARD)							# of Cont.	COMMENTS / TAT COMMENTS
1	OW70B-5	13-Nov-23	PM	GW	N	Y	X							6	
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															Metals and Filtered DOC field filtered
12															See lab addendum for analysis.

NONT-2023-11-353

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
JRA 15-Nov-23 - AM	[illegible]	2023/11/16	09:57

Laboratory Use Only

Temperature (°C) on Receipt: 8/10 [illegible]

Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

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 10, 2023 (Routine monitoring for February 9, 2023 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	8.4	900	2.2	312	12.5	47
SS10	Off-Site Flow into East Ditch Line - Background surface water quality	8.4	300	2.2	229	12.9	1
SS16	On-Site Flow from Township land to the south – Background surface water quality	7.7	440	2.4	67.9	12.2	6
SP1	Southeast Sedimentation Pond	8.1	830	2.7	139	12.6	58
SP2	Southwest Sedimentation Pond	8.4	800	2.1	21.3	12.8	25
SP3	Northwest Sedimentation Pond	8.8	550	3.0	6.12	17.7	7
SP4	Northeast Sedimentation Pond	8.3	730	2.6	41.2	14.4	15
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	8.1	980	2.4	34.2	12.8	2
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	8.4	1330	3.3	77.8	12.6	1
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	7.9	820	2.5	141	12.6	10
March 17, 2023 (Verification monitoring for February 9, 2023 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	7.8	499	6.6	>1000	10.5	208
Second Quarter							
April 2, 2023 (Routine monitoring for April 1, 2023 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	7.3	394	7.0	7.61	10.7	35
SS10	Off-Site Flow into East Ditch Line - Background surface water quality	7.0	127	10.6	522	10.7	1
SS16	On-Site Flow from Township land to the south – Background surface water quality	7.3	407	8.7	153	9.6	10
SP1	Southeast Sedimentation Pond	7.2	374	6.5	248	10.5	39
SP2	Southwest Sedimentation Pond	7.1	487	6.7	144	10.8	2
SP3	Northwest Sedimentation Pond	7.1	508	6.9	18.1	11.1	3
SP4	Northeast Sedimentation Pond	7.3	371	7.3	156	10.9	17
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	Ins					
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	Ins					
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	Ins					
April 4, 2023 (Routine monitoring for April 3, 2023 precipitation event)							
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	7.6	354	9.6	>1000	10.0	39
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	7.8	414	9.8	446	10.1	32
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	7.2	313	9.5	>1000	9.1	95
April 17, 2023 (Verification monitoring for April 2, 2023 precipitation event)							
SP2	Southwest Sedimentation Pond	7.7	492	10.2	75.0	10.5	32
May 3, 2023 (Verification monitoring for April 2, 2023 precipitation event)							
SS1	Southwest Sedimentation Pond	7.8	635	6.7	>1000	11.0	10
Third Quarter							
July 3, 2023 (Routine monitoring for July 2, 2023 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	7.9	443	23.9	>1000	8.4	Flooded
SS10	Off-Site Flow into East Ditch Line - Background surface water quality	8.1	919	28.1	276	7.0	0.3
SS16	On-Site Flow from Township land to the south – Background surface water quality	Ins					
SP1	Southeast Sedimentation Pond	9.4	334	25.9	184	9.0	7.1
SP2	Southwest Sedimentation Pond	9.6	478	27.4	58.1	9.4	3.9
SP3	Northwest Sedimentation Pond	10.0	617	28.7	12.3	14.1	41
SP4	Northeast Sedimentation Pond	Ins					
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	Ins					
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	8.3	690	32.5	>1000	8.3	1.8
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	8.1	452	27.3	426	7.3	2.5
July 7, 2023 (Routine monitoring for July 6, 2023 precipitation event)							
SP4	Northeast Sedimentation Pond	8.6	586	28.8	49.7	8.6	8.8
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	8.0	520	25.8	29.0	6.0	0.7
July 13, 2023 (Verification monitoring for July 3, 2023 sampling event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	8.1	398	20.6	356	9.0	Flooded
SP2	Southwest Sedimentation Pond	9.2	461	21.5	15.5	9.4	12
Fourth Quarter							
November 2, 2023 (Routine monitoring for November 1, 2023 precipitation event)							
SS1	Downstream of landfill 60m east of Lambton Road 79	6.5	655	6.2	50.6	12.9	11.4
SS10	Off-Site Flow into East Ditch Line - Background surface water quality	6.4	360	4.4	46.6	11.7	2.1
SS16	On-Site Flow from Township land to the south – Background surface water quality	7.8	627	5.8	31.6	11.4	2.1
SP1	Southeast Sedimentation Pond	7.2	498	5.9	32.4	12.1	17.7
SP2	Southwest Sedimentation Pond	7.2	371	7.6	11.4	12.5	10.0
SP3	Northwest Sedimentation Pond	6.8	677	5.9	6.61	11.8	6.2
SP4	Northeast Sedimentation Pond	6.7	704	5.6	60.8	11.8	4.5
SS14A	On-Site Flow into East Ditch Line, Upstream of Poplar System	6.8	818	4.3	13.0	12.6	1.7
SS14B	On-Site Flow into West Ditch Line, Background of Poplar System	6.9	1218	4.5	31.1	13.3	7.6
SS15A	On-Site Flow into Sedimentation Pond 1, intersecting point of East and West Ditch Line South of the Poplar System	6.7	852	4.5	54.4	12.5	22.5

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

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7) BOD denotes biological oxygen demand.
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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

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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.
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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

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7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
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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

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7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
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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.
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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

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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.
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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

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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	10-Feb-23	17-Mar-23	2-Apr-23	3-May-23	3-Jul-23	13-Jul-23	2-Nov-23
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	Verification	Routine	Verification	Routine	Verification	Routine	Verification	Routine
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	110	55	110	130	110	110	93	77	81	130
Conductivity	umho/cm		922	700	1500	670	510	430	635	490	398	660
Dissolved Chloride (Cl)	mg/L		18	23	29	32	11	16	1.2	4.4	11	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		390	290	660	160	130	79	35	140	110	180
Nitrate (N)	mg/L		1.07	0.41	2.06	1.61	0.46	0.60	0.56	0.45	0.18	0.66
Nitrite (N)	mg/L		0.043	0.037	0.022	0.016	0.016	<0.010	<0.010	0.020	0.017	0.012
pH	(pH units)	6.5-8.5	8.1	7.9	7.9	8.1	7.9	7.9	7.8	8.1	8.0	8.0
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	0.0015	<0.0010
Total Ammonia-N	mg/L		<0.15	0.47	<0.15	<0.15	0.22	<0.15	<0.15	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*	0.002	0.016	0.001	0.002	0.08	0.003	0.03	0.04	0.006	0.001
Total Barium (Ba)	mg/L		0.038	0.19	0.043	0.050	0.93	0.060	0.33	0.51	0.046	0.031
Total BOD	mg/L		<2	5	2	<2	<2	<2	<2	3	5	<2
Total Boron (B)	mg/L	0.200	0.11	0.13	0.08	**0.29**	**0.4**	**0.25**	**0.3**	**0.3**	**0.23**	0.15
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	**0.0003**	<0.0001	<0.0001	<0.001	<0.0001	<0.001	<0.001	<0.0001	<0.0001
Total Calcium (Ca)	mg/L		140	270	160	87	890	61	270	370	66	81
Total Chemical Oxygen Demand (COD)	mg/L		11	16	19	16	15	27	6.8	7.2	23	14
Total Chromium (Cr)	mg/L	0.0089	<0.005	0.062	<0.005	0.008	**0.34**	**0.012**	**0.11**	**0.17**	**0.010**	<0.005
Total Copper (Cu)	mg/L	0.005	**0.007**	**0.053**	**0.006**	**0.008**	**0.25**	**0.009**	**0.08**	**0.13**	**0.009**	0.002
Total Dissolved Solids	mg/L		715	390	1020	420	890	330	420	330	270	0.002
Total Iron (Fe)	mg/L	0.300	**3.1**	**64**	**3.0**	**7.2**	**330**	**10**	**100**	**170**	**9.8**	**1.2**
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	0.8	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Total Lead (Pb)	mg/L	0.005	0.0012	**0.026**	0.0010	0.0025	**0.12**	0.0036	**0.066**	**0.061**	0.0040	0.0005
Total Magnesium (Mg)	mg/L		51	61	85	30	210	18	77	100	26	30
Total Nickel (Ni)	mg/L	0.025	0.006	0.092	0.005	0.012	**0.47**	0.015	**0.15**	**0.25**	0.015	0.003
Total Phosphorus	mg/L	0.02*	**0.054**	**0.94**	**0.048**	**0.081**	**4.8**	**0.14**	**1.2**	**1.9**	**0.16**	**0.036**
Total Potassium (K)	mg/L		5	12	8.6	6.1	51	5.4	25	36	4.4	4.8
Total Sodium (Na)	mg/L		26	15	39	27	19	14	14	11	15	15
Total Suspended Solids	mg/L		98	1400	70	150	12000	150	2700	4300	270	28
Total Un-ionized Ammonia	mg/L	0.02	<0.0074	0.017	<0.00051	<0.013	0.0023	<0.00053	<0.0016	<0.0073	<0.0091	<0.00061
Total Zinc (Zn)	mg/L	0.020	0.01	**0.17**	<0.01	**0.03**	**0.8**	**0.03**	**0.3**	**0.4**	0.02	<0.01
Ion Percentage	%		3.4	21.7	0.0	4.5	43.5	5.4	40.7	37.4	9.8	2.1

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
2) * denotes interim PWQO.
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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.
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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.
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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

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7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
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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

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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.
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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.
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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	10-Feb-23	2-Apr-23	3-Jul-23	2-Nov-23	
Laboratory			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	
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	84	96	65	160	96	68	57	150	130	
Conductivity	umho/cm		190	420	290	740	200	200	130	1000	340.0	
Dissolved Chloride (Cl)	mg/L		2.1	29	8.9	16	2.5	4.5	6.3	7.3	2.7	
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010				<0.00010		<0.00010			
Dissolved Sulphate (SO_4)	mg/L		*0.5*	29	41	180	0.5	25	8.4	290	32	
Nitrate (N)	mg/L		61	9.51	5.04	8.24	0.3	0.68	0.12	21.7	<0.10	
Nitrite (N)	mg/L		0.012	0.078	0.046	0.03	0.016	0.015	0.014	0.062	<0.010	
pH	(pH units)	6.5-8.5	7.9	7.5	7.8	8.0	8.3	7.9	7.8	8.0	7.8	
Phenols-4AAP	mg/L	0.001	<0.0010	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001	<0.0010	
Total Ammonia-N	mg/L		0.13	0.53	0.097	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Total Arsenic (As)	mg/L	0.100*	0.002				0.003		<0.001			
Total Barium (Ba)	mg/L		0.03				0.048		0.005			
Total BOD	mg/L		4				<2		<2			
Total Boron (B)	mg/L	0.200	0.06	0.06	0.07	0.14	0.07	0.05	0.04	0.19	0.05	
Total Cadmium (Cd)	mg/L	0.0002	<0.0001				0.0001		<0.0001			
Total Calcium (Ca)	mg/L		29	51	42	110	33.0	29	17	150	47	
Total Chemical Oxygen Demand (COD)	mg/L		38				42		28			
Total Chromium (Cr)	mg/L	0.0089	0.006	0.007	**0.019**	0.008	**0.010**	**0.009**	<0.005	<0.005	<0.005	
Total Copper (Cu)	mg/L	0.005	0.005				**0.007**		<0.002			
Total Dissolved Solids	mg/L		185	300	160	535	140.0	235	320	745	220	
Total Iron (Fe)	mg/L	0.300	**5.0**	**5.7**	**17**	**5.5**	**9.7**	**8.9**	0.1	**1.4**	**2.0**	
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	1.6	<0.7	0.8	<0.7	1	0.8	<0.7	<0.7	
Total Lead (Pb)	mg/L	0.005	0.0022				0.0034		<0.0005			
Total Magnesium (Mg)	mg/L		6.8	13	12	25	8.3	7.9	3.6	32	11	
Total Nickel (Ni)	mg/L	0.025	0.007	0.009	0.022	0.008	0.013	0.011	<0.001	0.003	0.003	
Total Phosphorus	mg/L	0.02*	**0.21**	**0.80**	**0.34**	**0.25**	**0.22**	**0.10**	<0.030	**0.083**	**0.25**	
Total Potassium (K)	mg/L		2.9	13	4.7	3.8	3.6	2.6	1.2	2.7	3.6	
Total Sodium (Na)	mg/L		1.5	5.8	4.1	9.2	2.1	2.2	1.3	9.7	3.5	
Total Suspended Solids	mg/L		95				94		100			
Total Un-ionized Ammonia	mg/L	0.02	0.014	0.014	0.00082	<0.0027	<0.031	<0.0044	<0.00061	<0.015	<0.00061	
Total Zinc (Zn)	mg/L	0.020	0.02	**0.04**	**0.04**	0.02	0.02	0.02	<0.01	<0.01	<0.01	
Ion Percentage	%		5.7	6.3	9.0	2.1	6.4	3.2	5.3	3.4	1.2	

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
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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

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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

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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

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7) BOD denotes biological oxygen demand.
8) COD denotes chemical oxygen demand.
9) Blank denotes parameter not analyzed.
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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

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8) COD denotes chemical oxygen demand.
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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**	**10-Feb-23**	**2-Apr-23**
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**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	96	200	91	74	170	120	40	190	130	200
Conductivity	umho/cm		290	400	620	221	190	290	224	370	330	420
Dissolved Chloride (Cl)	mg/L		9.2	3.9	2.1	2.7	3.4	7.0	3.0	3.3	3.9	2.6
Dissolved Mercury (Hg)	mg/L	0.0002		<0.00010			<0.00010			<0.00010		<0.00010
Dissolved Sulphate (SO_4)	mg/L		34	10	220	30	1.9	29	*0.5*	9.4	30	21
Nitrate (N)	mg/L		0.53	<0.10	0.30	0.15	0.23	0.21	0.29	<0.10	0.20	0.23
Nitrite (N)	mg/L		0.021	<0.010	0.014	0.026	<0.010	<0.010	0.012	<0.010	0.020	<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	8.0	8.1
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		0.300	<0.050	0.210	<0.050	<0.050	0.078	0.16	<0.15	<0.15	<0.15
Total Arsenic (As)	mg/L	0.100*		<0.001			0.002			0.001		0.001
Total Barium (Ba)	mg/L			0.028			0.031			0.027		0.042
Total BOD	mg/L			<2			4			<2		<2
Total Boron (B)	mg/L	0.200	0.02	0.03	0.05	0.03	0.06	0.03	<0.02	0.04	0.03	0.03
Total Cadmium (Cd)	mg/L	0.0002		<0.0001			<0.0001			<0.0001		<0.0001
Total Calcium (Ca)	mg/L		36	64	97	32	49	45	13	56	48	60
Total Chemical Oxygen Demand (COD)	mg/L			25			39			31		19
Total Chromium (Cr)	mg/L	0.0089	**0.0090**	<0.005	0.0060	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Copper (Cu)	mg/L	0.005		0.003			0.005			0.003		0.004
Total Dissolved Solids	mg/L		255	240	425	190	200	195	50	190	155	265
Total Iron (Fe)	mg/L	0.300	**7.0**	**1.5**	**5.8**	**5.3**	**5.0**	**2.9**	**0.5**	**2.7**	**2.1**	**3.0**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	1.0
Total Lead (Pb)	mg/L	0.005		0.001			0.0022			0.0012		0.0016
Total Magnesium (Mg)	mg/L		10	14	25	8	12	10	2.4	12	11	13
Total Nickel (Ni)	mg/L	0.025	0.011	0.003	0.009	0.008	0.007	0.004	0.001	0.005	0.003	0.004
Total Phosphorus	mg/L	0.02*	**0.22**	**0.07**	**0.22**	**0.20**	**0.21**	**0.15**	**0.10**	**0.08**	**0.044**	**0.049**
Total Potassium (K)	mg/L		8.6	3.1	6.0	6.7	3.3	4.6	3.3	3.4	3.9	3.3
Total Sodium (Na)	mg/L		4.5	4.2	7.3	1.6	2.4	3.4	1.1	3.1	2.9	4.3
Total Suspended Solids	mg/L			21			95			40		62
Total Un-ionized Ammonia	mg/L	0.02	<0.00061	<0.0018	0.0062	<0.0023	0.014	<0.00061	<0.00061	<0.0026	<0.00092	<0.00061
Total Zinc (Zn)	mg/L	0.020	0.02	<0.01	0.02	0.02	0.01	0.01	<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	1.5	1.1

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	Off-Site Flow From Township Land to South (Background Surface Water Quality) - SS16									
Date			**2-Nov-23**									
Laboratory			**Bureau Veritas**									
Routine/Verification Event			**Routine**									
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	230									
Conductivity	umho/cm		590									
Dissolved Chloride (Cl)	mg/L		4.4									
Dissolved Mercury (Hg)	mg/L	0.0002										
Dissolved Sulphate (SO_4)	mg/L		77									
Nitrate (N)	mg/L		<0.10									
Nitrite (N)	mg/L		<0.010									
pH	(pH units)	6.5-8.5	7.9									
Phenols-4AAP	mg/L	0.001	0.0014									
Total Ammonia-N	mg/L		<0.15									
Total Arsenic (As)	mg/L	0.100*										
Total Barium (Ba)	mg/L											
Total BOD	mg/L											
Total Boron (B)	mg/L	0.200	0.04									
Total Cadmium (Cd)	mg/L	0.0002										
Total Calcium (Ca)	mg/L		88									
Total Chemical Oxygen Demand (COD)	mg/L											
Total Chromium (Cr)	mg/L	0.0089	<0.005									
Total Copper (Cu)	mg/L	0.005										
Total Dissolved Solids	mg/L		405									
Total Iron (Fe)	mg/L	0.300	**1.8**									
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7									
Total Lead (Pb)	mg/L	0.005										
Total Magnesium (Mg)	mg/L		21									
Total Nickel (Ni)	mg/L	0.025	0.004									
Total Phosphorus	mg/L	0.02*	**0.17**									
Total Potassium (K)	mg/L		8.8									
Total Sodium (Na)	mg/L		4.2									
Total Suspended Solids	mg/L											
Total Un-ionized Ammonia	mg/L	0.02	<0.0015									
Total Zinc (Zn)	mg/L	0.020	<0.01									
Ion Percentage	%		0.8									

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
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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.
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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.
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4) Unionized ammonia values are calculated based on field determined pH and temperature values.
5) mg/L denotes milligrams per litre.
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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

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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.
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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**	**10-Feb-23**	**2-Apr-23**	**3-Jul-23**	**2-Nov-23**					
Laboratory			**Bueau Veritas**	**Bueau Veritas**	**Bueau Veritas**	**Bueau Veritas**	**Bueau Veritas**					
Routine/Verification Event			**Routine**	**Routine**	**Routine**	**Routine**	**Routine**					
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	65	130	110	60	140					
Conductivity	umho/cm		810	650	420	310	510					
Dissolved Chloride (Cl)	mg/L		24	30	17	9.6	8.4					
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010					
Dissolved Sulphate (SO_4)	mg/L		320	150	77	73	98					
Nitrate (N)	mg/L		<0.10	1.61	0.54	<0.10	0.14					
Nitrite (N)	mg/L		<0.010	0.015	0.013	<0.010	0.012					
pH	(pH units)	6.5-8.5	8.1	8.0	8.0	**9.0**	8.1					
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	0.0015	<0.0010					
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	<0.15					
Total Arsenic (As)	mg/L	0.100*	<0.001	0.001	0.002	0.005	0.001					
Total Barium (Ba)	mg/L		0.022	0.038	0.047	0.024	0.040					
Total BOD	mg/L		<2	<2	<2	<2	<2					
Total Boron (B)	mg/L	0.200	**0.33**	**0.29**	**0.25**	**0.31**	0.20					
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					
Total Calcium (Ca)	mg/L		65	75	48	27	63					
Total Chemical Oxygen Demand (COD)	mg/L		9.3	21	13	16	20					
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	0.008	<0.005	<0.005					
Total Copper (Cu)	mg/L	0.005	<0.002	0.004	0.005	0.004	0.002					
Total Dissolved Solids	mg/L		510	395	295	195	315					
Total Iron (Fe)	mg/L	0.300	0.3	**3.1**	**5.8**	**3.4**	**1.3**					
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	<0.7	<0.7	<0.7					
Total Lead (Pb)	mg/L	0.005	<0.0005	0.0012	0.0021	0.0018	0.0005					
Total Magnesium (Mg)	mg/L		50	26	15	19	20					
Total Nickel (Ni)	mg/L	0.025	0.002	0.006	0.009	0.006	0.003					
Total Phosphorus	mg/L	0.02*	0.006	**0.049**	**0.058**	**0.086**	*<0.030*					
Total Potassium (K)	mg/L		3.5	5.3	4.7	2.4	4.6					
Total Sodium (Na)	mg/L		30	25	13	16	11					
Total Suspended Solids	mg/L		9	65	74	140	27					
Total Un-ionized Ammonia	mg/L	0.02	<0.0067	<0.0024	<0.00061	<0.11	<0.00061					
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	0.01	0.01	<0.01					
Ion Percentage	%		0.5	7.7	0.5	20.5	5.9					

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
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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.
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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.
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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.
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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

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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.
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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

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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.
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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.
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4) Unionized ammonia values are calculated based on field determined pH and temperature values.
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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.
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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.
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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**	**10-Feb-23**	**2-Apr-23**	**17-Apr-23**	**3-Jul-23**	**13-Jul-23**	**2-Nov-23**		
Laboratory			**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**		
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	140	120	82	89	96	47	48	82		
Conductivity	umho/cm		740	980	690	520	490	500	461	380		
Dissolved Chloride (Cl)	mg/L		34	56	35	26	23	30	25	13		
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		210	320	190	120	110	140	130	73		
Nitrate (N)	mg/L		<0.10	3.65	2.23	1.05	0.42	<0.10	<0.10	<0.10		
Nitrite (N)	mg/L		0.012	0.052	0.022	0.018	0.013	<0.010	<0.010	<0.010		
pH	(pH units)	6.5-8.5	8.1	8.0	7.9	7.9	8.2	**8.7**	**8.9**	8.0		
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		0.84	<0.15	<0.15	0.22	<0.15	<0.15	<0.15	<0.15		
Total Arsenic (As)	mg/L	0.100*	0.005	0.002	<0.001	0.001	0.001	0.003	0.003	0.002		
Total Barium (Ba)	mg/L		0.14	0.049	0.028	0.036	0.033	0.020	0.020	0.022		
Total BOD	mg/L		2	<2	<2	3	<2	<2	<2	6		
Total Boron (B)	mg/L	0.200	0.18	**0.28**	0.16	**0.21**	**0.21**	**0.26**	**0.23**	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		
Total Calcium (Ca)	mg/L		99	120	78	54	53	32	37	39		
Total Chemical Oxygen Demand (COD)	mg/L		11	20	16	21	15	24	22	17		
Total Chromium (Cr)	mg/L	0.0089	0.016	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005		
Total Copper (Cu)	mg/L	0.005	**0.013**	**0.008**	0.003	0.005	0.004	0.002	0.002	<0.002		
Total Dissolved Solids	mg/L		375	620	355	320	250	310	285	235		
Total Iron (Fe)	mg/L	0.300	**15**	**3.3**	0.3	**3.2**	**1.7**	**0.6**	**0.4**	**0.4**		
Total Kjeldahl Nitrogen (TKN)	mg/L		1.2	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7		
Total Lead (Pb)	mg/L	0.005	**0.0063**	0.0018	<0.0005	0.0014	0.0007	0.0007	<0.0005	<0.0005		
Total Magnesium (Mg)	mg/L		43	38	23	17	18	20	20	13		
Total Nickel (Ni)	mg/L	0.025	0.025	0.008	0.002	0.006	0.004	0.003	0.002	0.002		
Total Phosphorus	mg/L	0.02*	**0.27**	**0.081**	0.016	**0.044**	**0.032**	**0.063**	<0.030	<0.030		
Total Potassium (K)	mg/L		8.4	6.6	4.1	4.3	4.2	1.4	2.0	3.1		
Total Sodium (Na)	mg/L		30	44	29	21	22	30	29	14		
Total Suspended Solids	mg/L		440	160	11	63	33	13	16	<10		
Total Un-ionized Ammonia	mg/L	0.02	**0.035**	<0.0057	<0.0044	<0.00061	<0.0017	<0.13	<0.075	<0.00061		
Total Zinc (Zn)	mg/L	0.020	**0.04**	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01		
Ion Percentage	%		5.3	1.2	2.0	0.4	1.6	0.8	2.2	1.2		

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
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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.
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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.
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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.
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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.
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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

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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.
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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.
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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**	**10-Feb-23**	**2-Apr-23**	**3-Jul-23**	**2-Nov-23**					
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%***	44	42	73	54	100					
Conductivity	umho/cm		840	440	570	660	720					
Dissolved Chloride (Cl)	mg/L		33	19	30	21	14					
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010					
Dissolved Sulphate (SO_4)	mg/L		340	140	150	240	220					
Nitrate (N)	mg/L		<0.10	0.18	0.17	<0.10	0.16					
Nitrite (N)	mg/L		<0.010	<0.010	<0.010	<0.010	0.035					
pH	(pH units)	6.5-8.5	**8.8**	8.0	7.9	**8.9**	8.0					
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010					
Total Ammonia-N	mg/L		<0.15	<0.15	<0.15	<0.15	0.68					
Total Arsenic (As)	mg/L	0.100*	0.001	<0.001	<0.001	0.005	0.001					
Total Barium (Ba)	mg/L		0.023	0.016	0.025	0.018	0.04					
Total BOD	mg/L		<2	<2	<2	<2	6					
Total Boron (B)	mg/L	0.200	0.15	0.05	0.06	0.17	0.11					
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					
Total Calcium (Ca)	mg/L		73	43	52	40	76					
Total Chemical Oxygen Demand (COD)	mg/L		16	7.8	15	27	22					
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005					
Total Copper (Cu)	mg/L	0.005	<0.002	<0.002	0.002	<0.002	<0.002					
Total Dissolved Solids	mg/L		525	230	335	435	490					
Total Iron (Fe)	mg/L	0.300	0.1	<0.1	**1.5**	0.3	0.2					
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	<0.7	1.0	0.9	1.3					
Total Lead (Pb)	mg/L	0.005	<0.0005	<0.0005	0.001	<0.0005	<0.0005					
Total Magnesium (Mg)	mg/L		46	20	20	39	29					
Total Nickel (Ni)	mg/L	0.025	0.001	<0.001	0.003	0.003	0.002					
Total Phosphorus	mg/L	0.02*	0.008	<0.004	*<0.030*	<0.030	<0.030					
Total Potassium (K)	mg/L		4.9	2.7	3.1	4	3.7					
Total Sodium (Na)	mg/L		33	16	22	31	19					
Total Suspended Solids	mg/L		2	4	36	<10	<10					
Total Un-ionized Ammonia	mg/L	0.02	*<0.06*	<0.011	<0.00061	<0.16	0.00070					
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01	<0.01	<0.01	<0.01					
Ion Percentage	%		0.1	1.4	0.9	0.3	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.
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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.
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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.
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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.
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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.
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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.
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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**	**10-Feb-23**	**2-Apr-23**
Laboratory			**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureau Veritas**	**Bureaus Veritas**	**Bureaus Veritas**	**Bureaus Veritas**
Routine/Verification Event			**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**	**Routine**
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	160	120	47	99	140	82	150	140	100	84
Conductivity	umho/cm		550	540	450	570	500	570	650	570	570	390
Dissolved Chloride (Cl)	mg/L		26	32	37	79	45	34	37	29	27	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		78	92	120	58	43	140	130	110	140	87
Nitrate (N)	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10	0.54	0.18	<0.10	0.37	0.88
Nitrite (N)	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	0.034	<0.010	<0.010	0.011	0.016
pH	(pH units)	6.5-8.5	8.1	8.1	**9.6**	8.5	8.1	8.0	8.2	8.1	8.1	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		0.058	<0.050	<0.050	<0.15	<0.15	1.05	<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	0.003	0.001	0.003	<0.001	0.001
Total Barium (Ba)	mg/L		0.037	0.039	0.019	0.008	0.032	0.042	0.037	0.041	0.030	0.034
Total BOD	mg/L		<2	<2	<2	3	6	2	2	3	<2	<2
Total Boron (B)	mg/L	0.200	0.07	0.04	0.06	0.07	0.07	0.09	0.07	0.07	0.05	0.04
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		68	65	32	35	52	67	74	65	70	47
Total Chemical Oxygen Demand (COD)	mg/L		19	17	21	42	47	20	21	5.1	17	<4.0
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	**0.012**	<0.005	<0.005	<0.005	0.006
Total Copper (Cu)	mg/L	0.005	<0.002	0.004	<0.002	<0.002	<0.002	**0.015**	0.004	<0.002	0.003	0.004
Total Dissolved Solids	mg/L		300	310	280	355	275	315	350	305	295	260
Total Iron (Fe)	mg/L	0.300	**1.2**	**2.0**	**0.6**	**0.5**	**1.4**	**12**	**2**	**1.8**	**1.0**	**3.8**
Total Kjeldahl Nitrogen (TKN)	mg/L		0.44	0.32	0.95	<0.7	<0.7	1.9	<0.7	<0.7	<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	<0.0005	0.0013
Total Magnesium (Mg)	mg/L		17	17	19	19	13	26	26	20	23	15
Total Nickel (Ni)	mg/L	0.025	0.003	0.004	0.003	0.002	0.003	0.020	0.006	0.004	0.002	0.005
Total Phosphorus	mg/L	0.02*	**0.06**	**0.07**	**0.03**	**0.05**	**0.17**	**0.19**	**0.077**	**0.047**	0.016	**0.052**
Total Potassium (K)	mg/L		3.5	4.1	1.7	2.6	5.5	6.9	4.7	4.1	4.1	3.8
Total Sodium (Na)	mg/L		18	22	26	51	33	25	25	20	20	8
Total Suspended Solids	mg/L		38	64	16	11	45	360	41	32	23	71
Total Un-ionized Ammonia	mg/L	0.02	0.002	<0.00061	<0.048	<0.03	<0.014	0.0019	<0.0054	<0.0034	<0.0037	<0.00055
Total Zinc (Zn)	mg/L	0.020	*<0.01*	0.01	<0.01	<0.01	<0.01	**0.03**	<0.01	<0.01	<0.01	<0.01
Ion Percentage	%		0.5	2.3	1.0	0.76	1.4	5.1	1.0	0.3	2.9	1.2

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
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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.
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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			**7-Jul-23**	**2-Nov-23**								
Laboratory			**Bureau Veritas**	**Bureau Veritas**								
Routine/Verification Event			**Routine**	**Routine**								
Alkalinity (Total as $CaCO_3$)	mg/L	<25%***	90	93								
Conductivity	umho/cm		640	760								
Dissolved Chloride (Cl)	mg/L		32	8.4								
Dissolved Mercury (Hg)	mg/L	0.0002	<0.00010	<0.00010								
Dissolved Sulphate (SO_4)	mg/L		170	260								
Nitrate (N)	mg/L		<0.10	0.45								
Nitrite (N)	mg/L		<0.010	0.04								
pH	(pH units)	6.5-8.5	7.9	7.9								
Phenols-4AAP	mg/L	0.001	<0.0010	<0.0010								
Total Ammonia-N	mg/L		<0.15	0.34								
Total Arsenic (As)	mg/L	0.100*	0.003	<0.001								
Total Barium (Ba)	mg/L		0.036	0.04								
Total BOD	mg/L		3	3								
Total Boron (B)	mg/L	0.200	0.07	0.12								
Total Cadmium (Cd)	mg/L	0.0002	<0.0001	<0.0001								
Total Calcium (Ca)	mg/L		70	91								
Total Chemical Oxygen Demand (COD)	mg/L		17	15								
Total Chromium (Cr)	mg/L	0.0089	<0.005	<0.005								
Total Copper (Cu)	mg/L	0.005	0.002	0.002								
Total Dissolved Solids	mg/L		440	545								
Total Iron (Fe)	mg/L	0.300	**1.7**	**1.6**								
Total Kjeldahl Nitrogen (TKN)	mg/L		<0.7	0.9								
Total Lead (Pb)	mg/L	0.005	0.0008	0.0006								
Total Magnesium (Mg)	mg/L		26	32								
Total Nickel (Ni)	mg/L	0.025	0.003	0.004								
Total Phosphorus	mg/L	0.02*	**0.04**	*<0.030*								
Total Potassium (K)	mg/L		2.9	3.9								
Total Sodium (Na)	mg/L		23	15								
Total Suspended Solids	mg/L		50	33								
Total Un-ionized Ammonia	mg/L	0.02	<0.042	<0.00061								
Total Zinc (Zn)	mg/L	0.020	<0.01	<0.01								
Ion Percentage	%		1.7	1.2								

NOTE: 1) PWQO denotes Provincial Water Quality Objectives (1994) with updates.
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5) mg/L denotes milligrams per litre.
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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.
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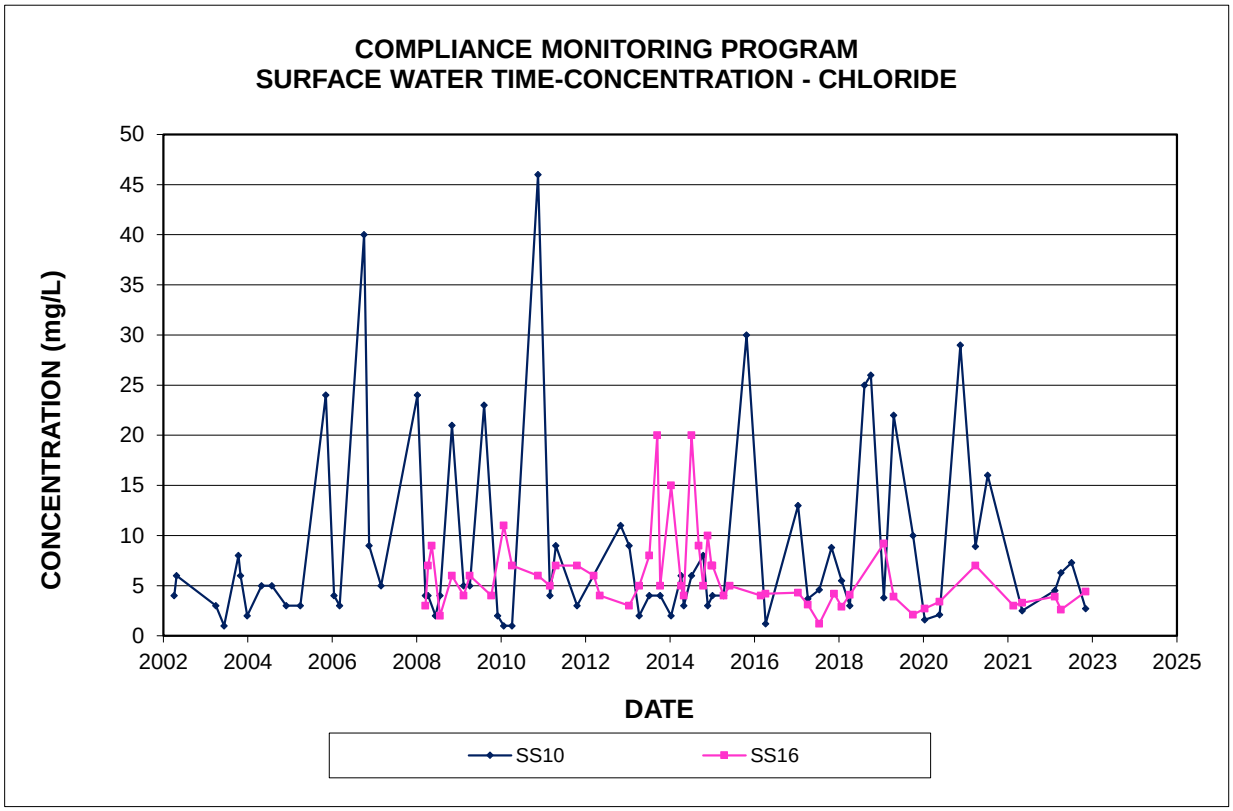

COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - CHLORIDE
CONCENTRATION (mg/L)
50
45
40
35
30
25
20
15
10
5
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
2025
DATE
SS10
SS16

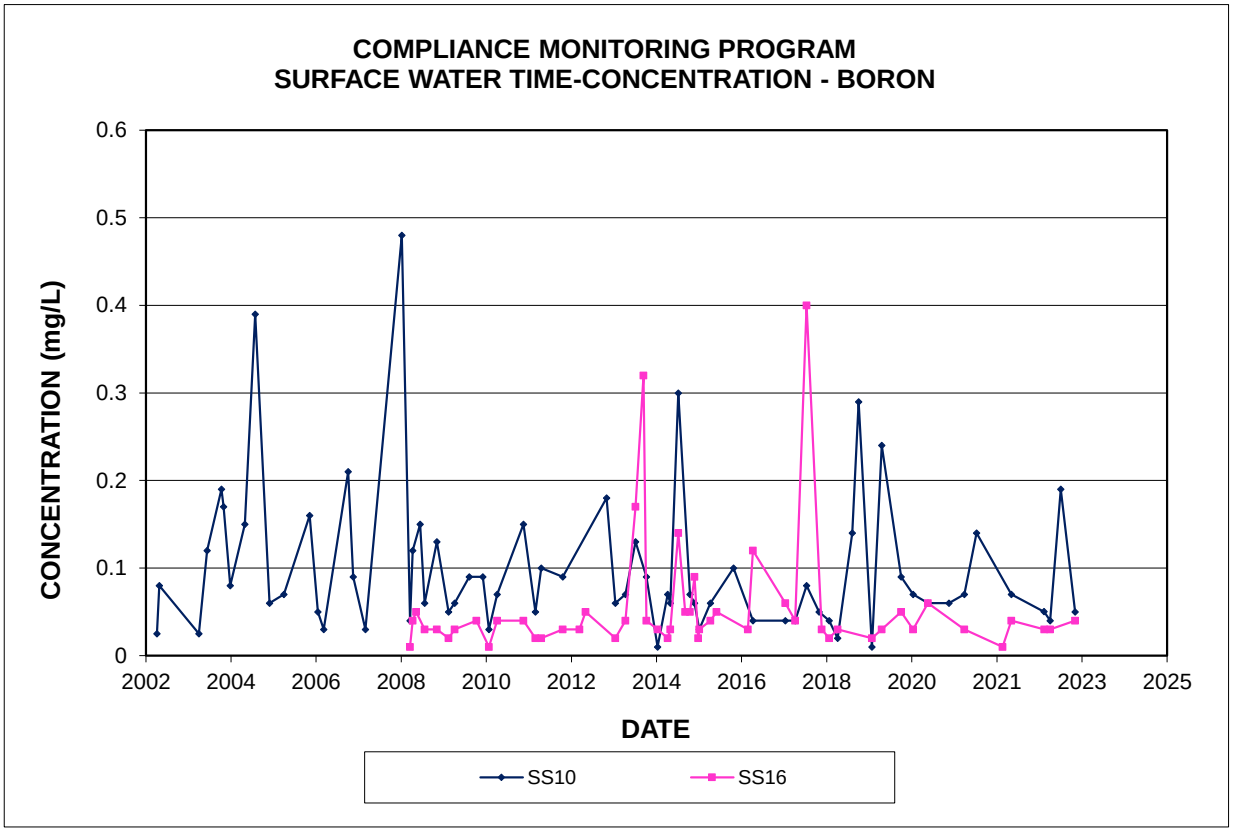
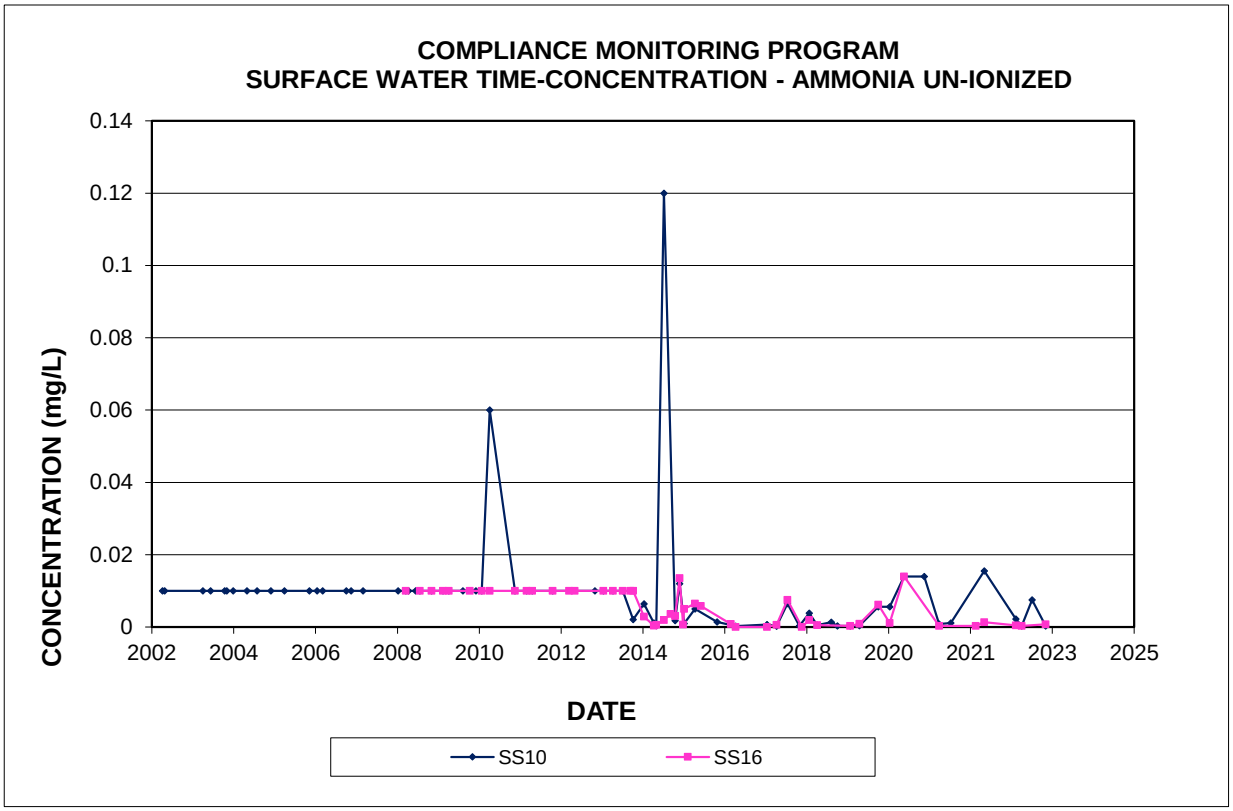

COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - BORON
CONCENTRATION (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
2025
DATE
SS10
SS16

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
2025
DATE
SS10
SS16

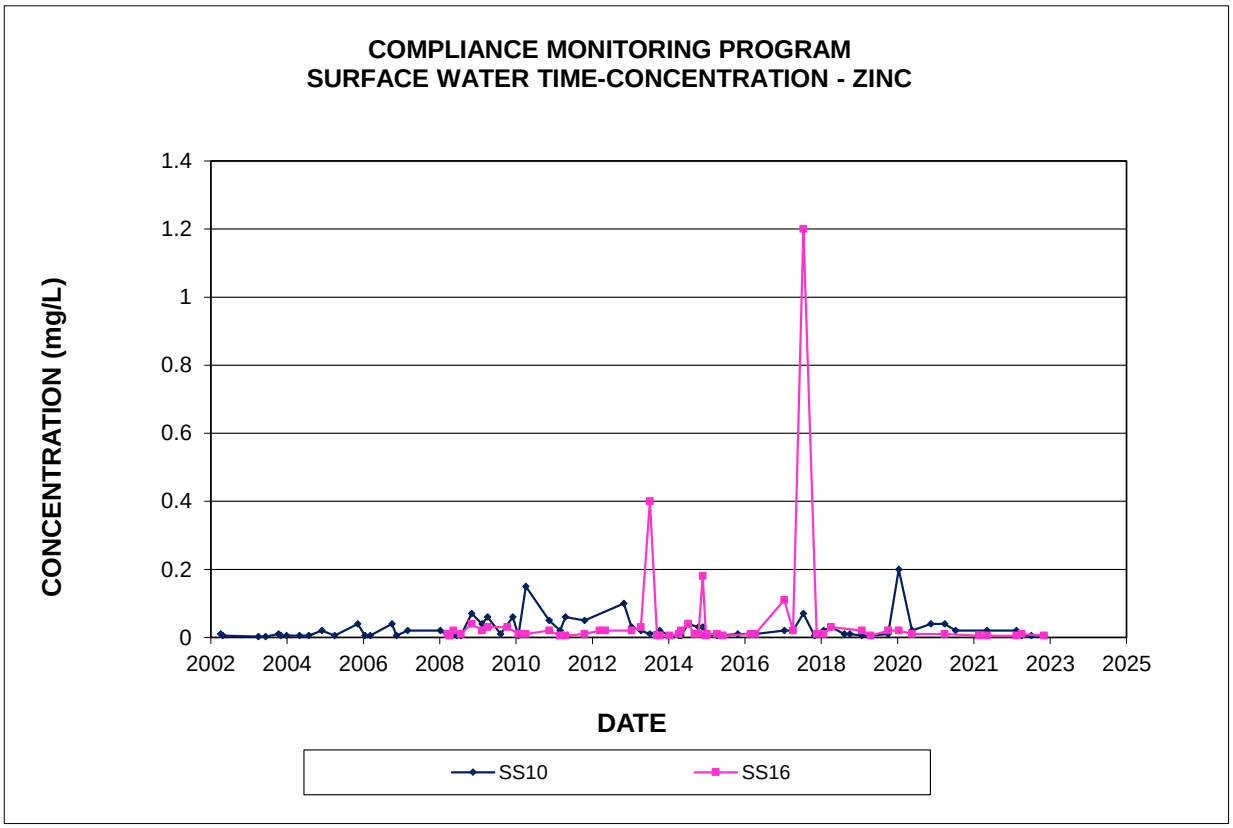
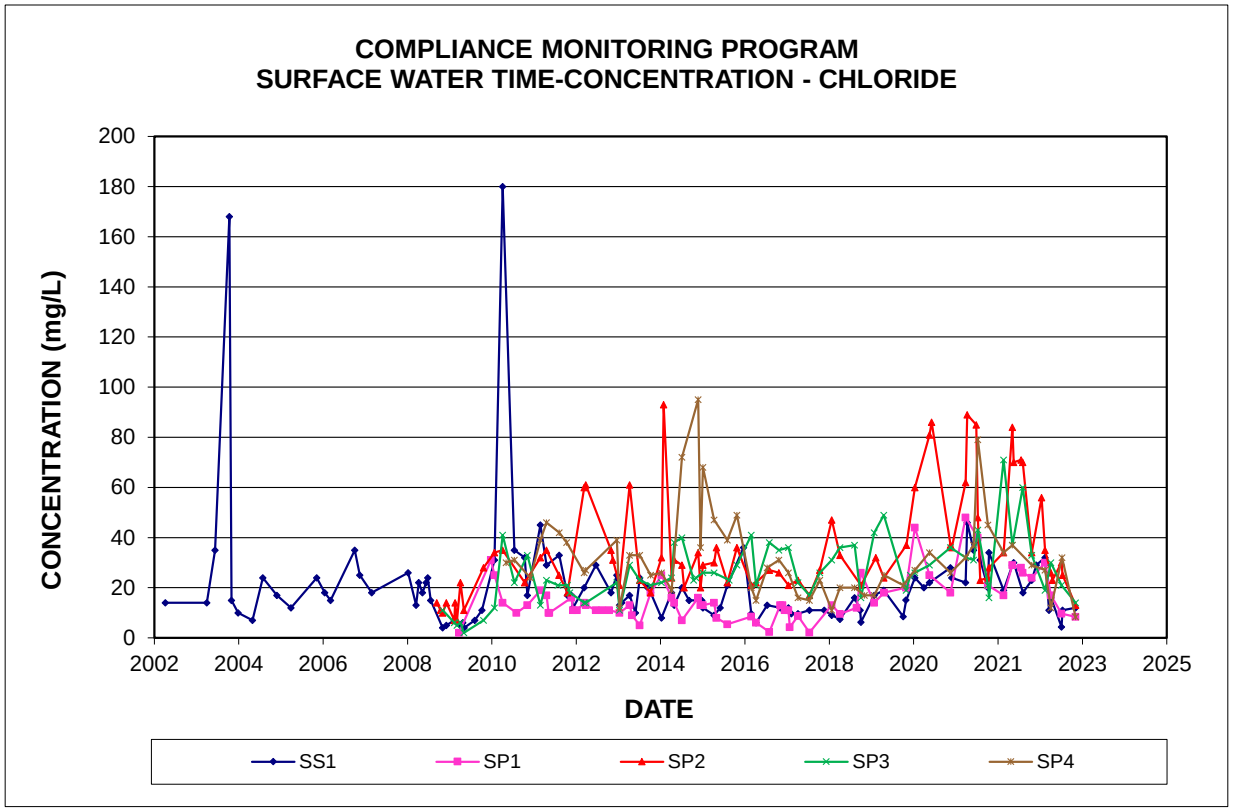

COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - ZINC
CONCENTRATION (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
2025
DATE
SS10
SS16

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

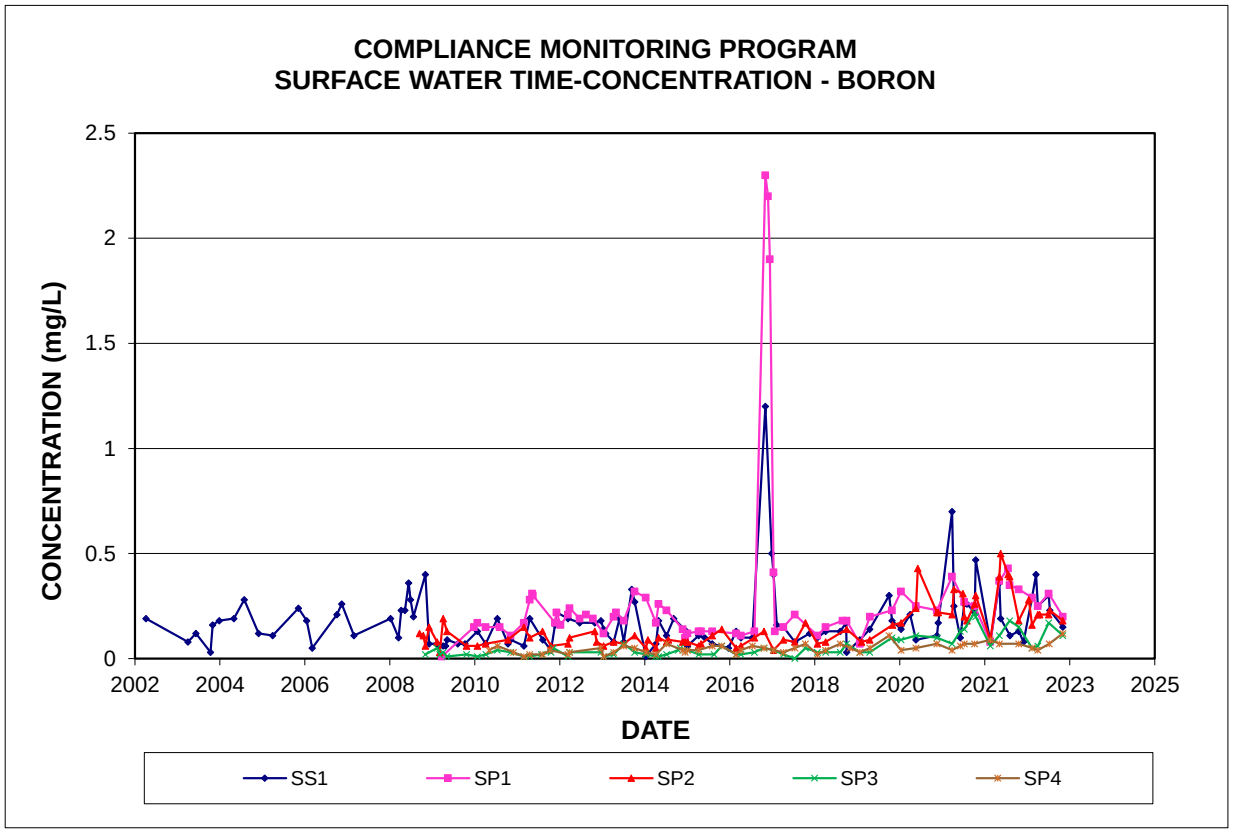
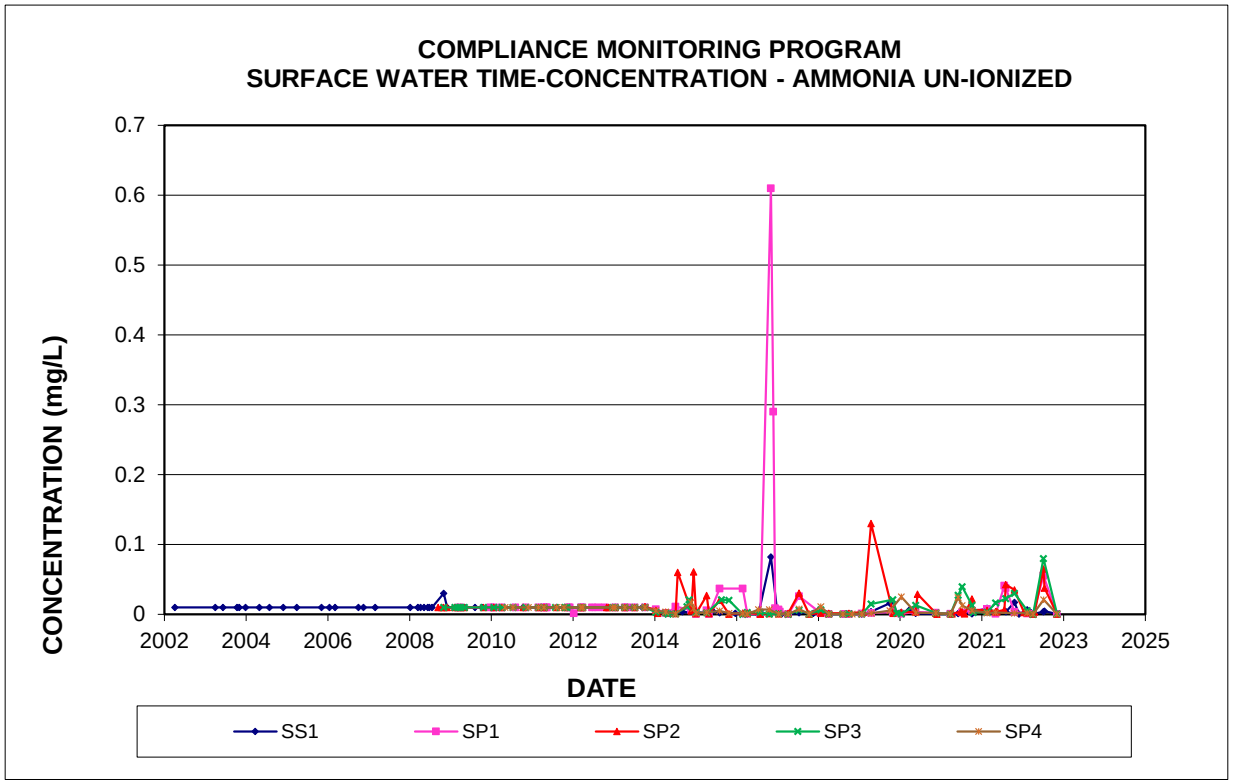

COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - BORON
CONCENTRATION (mg/L)
2.5
2
1.5
1
0.5
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
2025
DATE
SS1
SP1
SP2
SP3
SP4

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

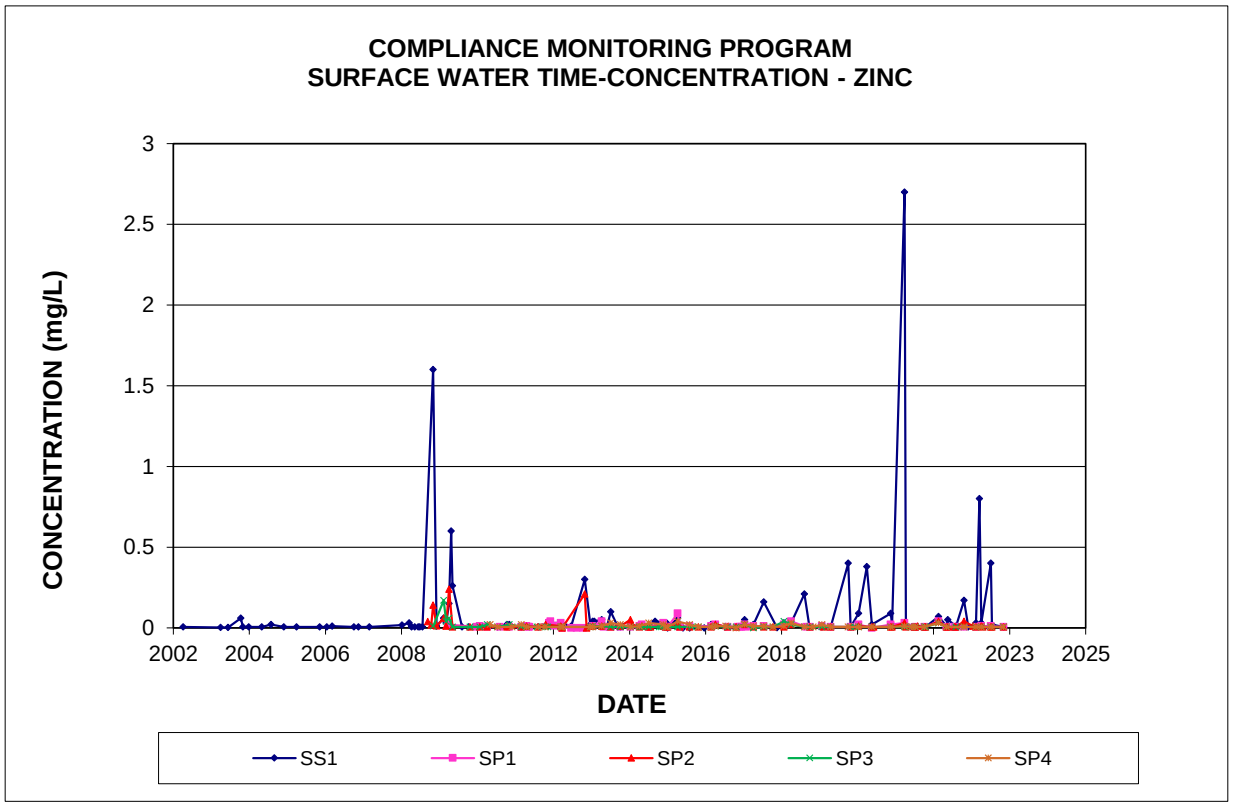

COMPLIANCE MONITORING PROGRAM
SURFACE WATER TIME-CONCENTRATION - ZINC
CONCENTRATION (mg/L)
3
2.5
2
1.5
1
0.5
0
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2021
2023
2025
DATE
SS1
SP1
SP2
SP3
SP4

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	10-Feb-23	17-Mar-23	2-Apr-23	3-May-23	3-Jul-23	13-Jul-23
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	<0.80	<0.20	<0.80	<0.80	<0.20	<0.80	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<2.0	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<2.0	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<2.0	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<2.0*	*<0.50*	*<2.0*	*<2.0*	*<0.50*	*<2.0*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	*<2.0*	<2.0	<0.50	<2.0	<2.0	<0.50	<2.0	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<1.2*	*<0.30*	*<1.2*	*<1.2*	*<0.30*	*<1.2*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<2.0	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<2.0	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	*<8.0*	<8.0	<2.0	*<8.0*	*<8.0*	<2.0	<8.0	*<2.0*
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<4.0*	*<4.0*	*<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	<0.40	<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			2-Nov-23										
Laboratory			Bureau Veritas										
Semivolatile Organics													
Benzo(a)pyrene	µg/L		<0.20										
1,2-Dichlorobenzene	µg/L	2.5	<0.50										
1,3-Dichlorobenzene	µg/L	2.5	<0.50										
1,4-Dichlorobenzene	µg/L	4	<0.50										
Hexachlorobenzene	µg/L	0.0065	*<0.50*										
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50										
2,4-Dichlorophenol	µg/L	0.2	*<0.30*										
Pentachlorophenol	µg/L	0.5	*<1.0*										
Phenol	µg/L	5*	<0.50										
2,4,6-Trichlorophenol	µg/L	18	<0.50										
Di-N-butyl phthalate	µg/L	4	<2.0										
Diethyl phthalate	µg/L	0.2	*<1.0*										
Dimethyl phthalate	µg/L	0.2	*<1.0*										
Volatile Organics													
Benzene	µg/L	100*	<0.20										
1,4-Dichlorobenzene	µg/L	4	<0.40										
Ethylbenzene	µg/L	8*	<0.20										
Dichloromethane	µg/L	100*	<2.0										
Toluene	µg/L	0.8*	<0.20										
Vinyl Chloride	µg/L	600*	<0.20										
p+m-Xylene	µg/L	32*	<0.20										
o-Xylene	µg/L	40*	<0.20										
Xylene (Total)	µg/L		<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	10-Feb-23	2-Apr-23	3-Jul-23	2-Nov-23				
Laboratory			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	<0.80	<0.20	<0.20				
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50				
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50				
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50				
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<0.50*	*<0.50*				
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50				
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<0.30*	*<0.30*				
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*				
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50				
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50				
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<2.0	<8.0	<2.0	<2.0				
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*				
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*				
Volatile Organics													
Benzene	µg/L	100*	<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				
Ethylbenzene	µg/L	8*	<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				
Toluene	µg/L	0.8*	<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				
p+m-Xylene	µg/L	32*	<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				
Xylene (Total)	µg/L		<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			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	10-Feb-23	2-Apr-23	17-Apr-23	3-Jul-23	13-Jul-23	2-Nov-23
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	<0.80	<0.20	<0.80	<0.80	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<0.50*	*<2.0*	*<2.0*	*<0.50*	*<2.0*	*<2.0*	*<0.50*	*<0.50*	*<0.50*
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<0.30*	*<0.30*	*<1.2*	*<1.2*	*<0.30*	*<1.2*	*<1.2*	*<0.30*	*<0.30*	*<0.30*
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*
Phenol	µg/L	5*	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50
2,4,6-Trichlorophenol	µg/L	18	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50	<2.0	<2.0	<0.50	<0.50	<0.50
Di-N-butyl phthalate	µg/L	4	<2.0	<2.0	<2.0	<8.0	<8.0	<2.0	<8.0	<8.0	*<2.0*	*<2.0*	<2.0
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	<4.0	*<1.0*	*<4.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<1.0*	*<4.0*	<4.0	*<1.0*	*<4.0*	*<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	<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 - 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	10-Feb-23	2-Apr-23	3-Jul-23	2-Nov-23	
Laboratory			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	<0.80	<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	<2.0	<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	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
1,4-Dichlorobenzene	µg/L	4	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<0.50*	*<2.0*	*<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	*<2.0*	<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*	*<1.2*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	*<0.30*	
Pentachlorophenol	µg/L	0.5	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	
Phenol	µg/L	5*	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<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	<0.50	<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	<2.0	<2.0	<2.0	<2.0	
Diethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<1.0*	*<4.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	
Volatile Organics													
Benzene	µg/L	100*	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<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	
Ethylbenzene	µg/L	8*	<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	
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	
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	
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	
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	
Xylene (Total)	µg/L		<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			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	10-Feb-23	2-Apr-23	7-Jul-23	2-Nov-23			
Laboratory			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	<0.80	<0.20	<0.80	<0.20	<0.80	<0.80	<0.20			
1,2-Dichlorobenzene	µg/L	2.5	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<2.0	<0.50			
1,3-Dichlorobenzene	µg/L	2.5	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<2.0	<0.50			
1,4-Dichlorobenzene	µg/L	4	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<2.0	<0.50			
Hexachlorobenzene	µg/L	0.0065	*<0.50*	*<2.0*	*<0.50*	*<2.0*	*<0.50*	*<2.0*	*<2.0*	*<0.50*			
1,2,4-Trichlorobenzene	µg/L	0.5	<0.50	*<2.0*	<0.50	<2.0	<0.50	<2.0	<2.0	<0.50			
2,4-Dichlorophenol	µg/L	0.2	*<0.30*	*<1.2*	*<0.30*	*<1.2*	*<0.30*	*<1.2*	*<1.2*	*<0.30*			
Pentachlorophenol	µg/L	0.5	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*			
Phenol	µg/L	5*	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<2.0	<0.50			
2,4,6-Trichlorophenol	µg/L	18	<0.50	<2.0	<0.50	<2.0	<0.50	<2.0	<2.0	<0.50			
Di-N-butyl phthalate	µg/L	4	<2.0	*<8.0*	<2.0	<8.0	<2.0	<8.0	<8.0	<2.0			
Diethyl phthalate	µg/L	0.2	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<4.0*	*<1.0*			
Dimethyl phthalate	µg/L	0.2	*<1.0*	*<4.0*	*<1.0*	*<4.0*	*<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			
1,4-Dichlorobenzene	µg/L	4	<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			
Dichloromethane	µg/L	100*	<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			
Vinyl Chloride	µg/L	600*	<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			
o-Xylene	µg/L	40*	<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			

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 - 2023 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	10-Feb-23	32	<0.013	<0.0010	**0.29**	0.012	0.008	0.03	NR
Q1	Verification	17-Mar-23	11	0.0023	<0.0010	**0.40**	**0.47**	**0.34**	**0.8**	PASS
Q2	Routine	2-Apr-23	16	<0.00053	<0.0010	**0.25**	0.015	0.012	0.03	PASS
Q2	Verification	3-May-23	1.2	<0.0016	<0.0010	**0.30**	**0.15**	**0.11**	**0.3**	PASS
Q3	Routine	3-Jul-23	4.4	<0.0073	0.0012	**0.30**	**0.25**	**0.17**	**0.4**	NR
Q3	Verification	13-Jul-23	11	<0.0091	0.0015	**0.23**	0.015	0.01	0.02	PASS
Q4	Routine	2-Nov-23	12	<0.00061	<0.0010	0.15	0.003	<0.005	<0.01	NR
SP1 (Internal Assessment Point)										
Q1	Routine	10-Feb-23	30	<0.0024	<0.0010	0.29	0.006	<0.005	<0.01	NR
Q2	Routine	2-Apr-23	17	<0.00061	<0.0010	0.25	0.009	0.008	0.01	PASS
Q3	Routine	3-Jul-23	9.6	*<0.11*	0.0015	0.31	0.006	<0.005	0.01	NR
Q4	Routine	2-Nov-23	8.4	<0.00061	<0.0010	0.20	0.003	<0.005	<0.01	NR
SP2 (Compliance)										
Q1	Routine	10-Feb-23	35	<0.0044	<0.0010	0.16	0.002	<0.005	<0.01	NR
Q2	Routine	2-Apr-23	26	<0.00061	<0.0010	**0.21**	0.006	0.005	0.01	PASS
Q2	Verification	17-Apr-23	23	<0.0017	<0.0010	**0.21**	0.004	<0.005	<0.01	PASS
Q3	Routine	3-Jul-23	30	*<0.13*	0.0011	**0.26**	0.003	<0.005	<0.01	NR
Q3	Verification	13-Jul-23	25	<0.075	<0.0010	**0.23**	0.002	<0.005	<0.01	PASS
Q4	Routine	2-Nov-23	13	<0.00061	<0.0010	0.18	0.002	<0.005	<0.01	NR
SP3 (Compliance)										
Q1	Routine	10-Feb-23	19	<0.011	<0.0010	0.05	<0.001	<0.005	<0.01	NR
Q2	Routine	2-Apr-23	30	<0.00061	<0.0010	0.06	0.003	<0.005	<0.01	PASS
Q3	Routine	3-Jul-23	21	*<0.16*	<0.0010	0.17	0.003	<0.005	<0.01	NR
Q4	Routine	2-Nov-23	14	0.00070	<0.0010	0.11	0.002	<0.005	<0.01	NR
SP4 (Compliance)										
Q1	Routine	10-Feb-23	27	<0.0037	<0.0010	0.05	0.002	<0.005	<0.01	NR
Q2	Routine	2-Apr-23	12	<0.00055	<0.0010	0.04	0.005	0.006	<0.01	PASS
Q3	Routine	7-Jul-23	32	*<0.042*	<0.0010	0.07	0.003	<0.005	<0.01	NR
Q4	Routine	2-Nov-23	8.4	<0.00061	<0.0010	0.12	0.004	<0.005	<0.01	NR
SS10 (Background)										
Q1	Routine	10-Feb-23	4.5	<0.0044	<0.0010	0.05	0.011	0.009	0.02	NR
Q2	Routine	2-Apr-23	6.3	<0.00061	<0.0010	0.04	<0.001	<0.005	<0.01	PASS
Q3	Routine	3-Jul-23	7.3	<0.015	0.001	0.19	0.003	<0.005	<0.01	NR
Q4	Routine	2-Nov-23	2.7	<0.00061	<0.0010	0.05	0.003	<0.005	<0.01	NR
SS16 (Background)										
Q1	Routine	10-Feb-23	3.9	<0.00092	<0.0010	0.03	0.003	<0.005	<0.01	NR
Q2	Routine	2-Apr-23	2.6	<0.00061	<0.0010	0.03	0.004	<0.005	<0.01	PASS
Q4	Routine	2-Nov-23	4.4	<0.0015	0.0014	0.04	0.004	<0.005	<0.01	NR

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. #: 12285756
Your Project #: 2303459
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-FEB

Attention: Khalid Hussein

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

Report Date: 2023/02/21
Report #: R7517024
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C341690
Received: 2023/02/13, 08:32

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2023/02/15	2023/02/15	CAM SOP-00301	EPA 8270 m
ABN Compounds in Water by GC/MS	1	2023/02/15	2023/02/16	CAM SOP-00301	EPA 8270 m
Alkalinity	2	N/A	2023/02/14	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2023/02/14	2023/02/19	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	2	N/A	2023/02/14	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2023/02/15	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	2	N/A	2023/02/17		
Conductivity	2	N/A	2023/02/14	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2023/02/17		
Dissolved Mercury in Water by CVAA	2	2023/02/15	2023/02/15	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	2	N/A	2023/02/16	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2023/02/14	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2023/02/14	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2023/02/13	2023/02/14	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2023/02/17	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2023/02/17		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/02/14	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	2	2023/02/14	2023/02/15	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2023/02/17		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/02/14	2023/02/14	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2023/02/14	2023/02/16	CAM SOP-00407	SM 23 4500-P I
Low Level Total Suspended Solids	1	2023/02/15	2023/02/16	CAM SOP-00428	SM 23 2540D m
Low Level Total Suspended Solids	1	2023/02/16	2023/02/16	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	2	N/A	2023/02/17		
Un-ionized Ammonia (3)	2	2023/02/13	2023/02/17	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2023/02/15	CAM SOP-00228	EPA 8260D

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.

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. #: 12285756
Your Project #: 2303459
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-FEB

Attention: Khalid Hussein

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

Report Date: 2023/02/21
Report #: R7517024
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C341690
Received: 2023/02/13, 08:32

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

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.

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

Bureau Veritas Job #: C341690
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VAU998		VAU999		
Sampling Date		2023/02/10		2023/02/10		
COC Number		TCEC-SWCM-FEB		TCEC-SWCM-FEB		
	UNITS	**SS1**	**QC Batch**	**SSDUP1**	**RDL**	**QC Batch**
Calculated Parameters						
Total Un-ionized Ammonia	mg/L	<0.013	8501353	<0.013	0.013	8501353
Field Measurements						
Field Conductivity	uS/cm	900	ONSITE	900	N/A	ONSITE
Field Dissolved Oxygen	mg/L	12.5	ONSITE	12.5	N/A	ONSITE
Field Temperature	Celsius	2.2	ONSITE	2.2	N/A	ONSITE
Field Turbidity	NTU	312	ONSITE	312	N/A	ONSITE
Field Measured pH	pH	8.9	ONSITE	8.9		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	8502206	<0.15	0.15	8502206
Total BOD	mg/L	<2	8502959	<2	2	8502959
Total Chemical Oxygen Demand (COD)	mg/L	16	8502258	15	4.0	8502258
Conductivity	umho/cm	670	8501929	670	1.0	8501929
Total Dissolved Solids	mg/L	420	8503920	380	10	8503920
Total Kjeldahl Nitrogen (TKN)	mg/L	0.8	8503760	<0.7	0.7	8503760
pH	pH	8.09	8501921	8.09		8501921
Phenols-4AAP	mg/L	<0.0010	8504193	<0.0010	0.0010	8504193
Total Phosphorus	mg/L	0.081	8503749	0.077	0.030	8503749
Total Suspended Solids	mg/L	150	8505062	150	3	8505050
Dissolved Sulphate (SO4)	mg/L	160	8501830	160	1.0	8501830
Alkalinity (Total as CaCO3)	mg/L	130	8501928	130	1.0	8501928
Dissolved Chloride (Cl-)	mg/L	32	8501836	31	1.0	8501836
Nitrite (N)	mg/L	0.016	8501930	0.020	0.010	8501930
Nitrate (N)	mg/L	1.61	8501930	1.61	0.10	8501930

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

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

Bureau Veritas Job #: C341690
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VAU998	VAU999		
Sampling Date		2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Metals					
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	0.10	8505550
Total Arsenic (As)	mg/L	0.002	0.002	0.001	8507950
Total Barium (Ba)	mg/L	0.050	0.048	0.005	8507950
Total Boron (B)	mg/L	0.29	0.30	0.02	8507950
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	8507950
Total Calcium (Ca)	mg/L	87	85	0.2	8507950
Total Chromium (Cr)	mg/L	0.008	0.007	0.005	8507950
Total Copper (Cu)	mg/L	0.008	0.007	0.002	8507950
Total Iron (Fe)	mg/L	7.2	6.9	0.1	8507950
Total Lead (Pb)	mg/L	0.0025	0.0025	0.0005	8507950
Total Magnesium (Mg)	mg/L	30	29	0.05	8507950
Total Nickel (Ni)	mg/L	0.012	0.011	0.001	8507950
Total Potassium (K)	mg/L	6.1	5.9	0.2	8507950
Total Sodium (Na)	mg/L	27	26	0.1	8507950
Total Zinc (Zn)	mg/L	0.03	0.03	0.01	8507950

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C341690
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		VAU998	VAU999		
Sampling Date		2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Semivolatile Organics					
Benzo(a)pyrene	ug/L	<0.20	<0.20	0.20	8505174
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	8505174
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	8505174
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	8505174
Hexachlorobenzene	ug/L	<0.50	<0.50	0.50	8505174
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	0.50	8505174
2,4-Dichlorophenol	ug/L	<0.30	<0.30	0.30	8505174
Pentachlorophenol	ug/L	<1.0	<1.0	1.0	8505174
Phenol	ug/L	<0.50	<0.50	0.50	8505174
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	0.50	8505174
Di-N-butyl phthalate	ug/L	<2.0	<2.0	2.0	8505174
Diethyl phthalate	ug/L	<1.0	<1.0	1.0	8505174
Dimethyl phthalate	ug/L	<1.0	<1.0	1.0	8505174
Surrogate Recovery (%)					
2,4,6-Tribromophenol	%	68	76		8505174
2-Fluorobiphenyl	%	80	78		8505174
2-Fluorophenol	%	30	33		8505174
D14-Terphenyl	%	87	89		8505174
D5-Nitrobenzene	%	83	77		8505174
D5-Phenol	%	21	22		8505174

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C341690
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VAU998	VAU999		
Sampling Date		2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	8503608
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	8503608
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8503608
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	8503608
Toluene	ug/L	<0.20	<0.20	0.20	8503608
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	8503608
p+m-Xylene	ug/L	<0.20	<0.20	0.20	8503608
o-Xylene	ug/L	<0.20	<0.20	0.20	8503608
Total Xylenes	ug/L	<0.20	<0.20	0.20	8503608
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	102	101		8503608
D4-1,2-Dichloroethane	%	105	105		8503608
D8-Toluene	%	95	95		8503608

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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 #: C341690
Report Date: 2023/02/21

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8503608	4-Bromofluorobenzene	2023/02/14	100	70 - 130	100	70 - 130	95	%				
8503608	D4-1,2-Dichloroethane	2023/02/14	101	70 - 130	96	70 - 130	101	%				
8503608	D8-Toluene	2023/02/14	105	70 - 130	105	70 - 130	93	%				
8505174	2,4,6-Tribromophenol	2023/02/15	80	10 - 130	89	10 - 130	75	%				
8505174	2-Fluorobiphenyl	2023/02/15	51	30 - 130	57	30 - 130	66	%				
8505174	2-Fluorophenol	2023/02/15	27	10 - 130	41	10 - 130	39	%				
8505174	D14-Terphenyl	2023/02/15	86	30 - 130	91	30 - 130	86	%				
8505174	D5-Nitrobenzene	2023/02/15	50	30 - 130	76	30 - 130	73	%				
8505174	D5-Phenol	2023/02/15	18	10 - 130	27	10 - 130	26	%				
8501830	Dissolved Sulphate (SO4)	2023/02/14	NC	75 - 125	100	80 - 120	<1.0	mg/L	1.6 (1)	20		
8501836	Dissolved Chloride (Cl-)	2023/02/14	NC	80 - 120	104	80 - 120	<1.0	mg/L	0.40 (1)	20		
8501921	pH	2023/02/14			102	98 - 103			0.54 (1)	N/A		
8501928	Alkalinity (Total as CaCO3)	2023/02/14			97	85 - 115	<1.0	mg/L	0.57 (1)	20		
8501929	Conductivity	2023/02/14			102	85 - 115	<1.0	umho/cm	0.16 (1)	25		
8501930	Nitrate (N)	2023/02/14	81	80 - 120	95	80 - 120	<0.10	mg/L	3.3 (1)	20		
8501930	Nitrite (N)	2023/02/14	103	80 - 120	108	80 - 120	<0.010	mg/L	11 (1)	20		
8502206	Total Ammonia-N	2023/02/14	101	75 - 125	101	80 - 120	<0.15	mg/L	NC (1)	20		
8502258	Total Chemical Oxygen Demand (COD)	2023/02/15	94	80 - 120	99	80 - 120	<4.0	mg/L	13 (1)	20		
8502959	Total BOD	2023/02/19					<2	mg/L	NC (2)	30	104	80 - 120
8503608	1,4-Dichlorobenzene	2023/02/14	101	70 - 130	104	70 - 130	<0.40	ug/L	NC (1)	30		
8503608	Benzene	2023/02/14	85	70 - 130	89	70 - 130	<0.20	ug/L	NC (1)	30		
8503608	Ethylbenzene	2023/02/14	80	70 - 130	87	70 - 130	<0.20	ug/L	NC (1)	30		
8503608	Methylene Chloride(Dichloromethane)	2023/02/14	107	70 - 130	107	70 - 130	<2.0	ug/L	NC (1)	30		
8503608	o-Xylene	2023/02/14	79	70 - 130	89	70 - 130	<0.20	ug/L	NC (1)	30		
8503608	p+m-Xylene	2023/02/14	87	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
8503608	Toluene	2023/02/14	89	70 - 130	93	70 - 130	<0.20	ug/L	NC (1)	30		
8503608	Total Xylenes	2023/02/14					<0.20	ug/L	NC (1)	30		
8503608	Vinyl Chloride	2023/02/14	82	70 - 130	89	70 - 130	<0.20	ug/L	NC (1)	30		
8503749	Total Phosphorus	2023/02/16	98	80 - 120	96	80 - 120	<0.030	mg/L	1.4 (1)	25	94	80 - 120

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

Bureau Veritas Job #: C341690
Report Date: 2023/02/21

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8503760	Total Kjeldahl Nitrogen (TKN)	2023/02/15	NC	80 - 120	101	80 - 120	<0.7	mg/L	0.87 (1)	20	102	80 - 120
8503920	Total Dissolved Solids	2023/02/15					<10	mg/L	4.3 (1)	20	95	90 - 110
8504193	Phenols-4AAP	2023/02/17	104	80 - 120	102	80 - 120	<0.0010	mg/L	NC (1)	20		
8505050	Total Suspended Solids	2023/02/16					<1	mg/L	12 (1)	20	95	85 - 115
8505062	Total Suspended Solids	2023/02/16					<1	mg/L	6.5 (1)	20	96	85 - 115
8505174	1,2,4-Trichlorobenzene	2023/02/15	43	30 - 130	39	30 - 130	<0.50	ug/L	NC (3)	40		
8505174	1,2-Dichlorobenzene	2023/02/15	35	30 - 130	43	30 - 130	<0.50	ug/L	NC (3)	40		
8505174	1,3-Dichlorobenzene	2023/02/15	31	30 - 130	36	30 - 130	<0.50	ug/L	NC (3)	40		
8505174	1,4-Dichlorobenzene	2023/02/15	32	30 - 130	37	30 - 130	<0.50	ug/L	NC (3)	40		
8505174	2,4,6-Trichlorophenol	2023/02/15	75	10 - 130	92	10 - 130	<0.50	ug/L	NC (3)	40		
8505174	2,4-Dichlorophenol	2023/02/15	57	10 - 130	83	10 - 130	<0.30	ug/L	NC (3)	40		
8505174	Benzo(a)pyrene	2023/02/15	89	30 - 130	98	30 - 130	<0.20	ug/L	NC (3)	40		
8505174	Diethyl phthalate	2023/02/15	85	30 - 130	98	30 - 130	<1.0	ug/L	NC (3)	40		
8505174	Dimethyl phthalate	2023/02/15	78	30 - 130	95	30 - 130	<1.0	ug/L	NC (3)	40		
8505174	Di-N-butyl phthalate	2023/02/15	100	30 - 130	101	30 - 130	<2.0	ug/L	NC (3)	40		
8505174	Hexachlorobenzene	2023/02/15	75	30 - 130	84	30 - 130	<0.50	ug/L	NC (3)	40		
8505174	Pentachlorophenol	2023/02/15	58	10 - 130	64	10 - 130	<1.0	ug/L	NC (3)	40		
8505174	Phenol	2023/02/15	20	10 - 130	29	10 - 130	<0.50	ug/L	NC (3)	40		
8505550	Dissolved Mercury (Hg)	2023/02/15	106	75 - 125	108	80 - 120	<0.10	ug/L	NC (1)	20		
8507950	Total Arsenic (As)	2023/02/17	102	80 - 120	103	80 - 120	<0.001	mg/L	NC (1)	20		
8507950	Total Barium (Ba)	2023/02/16	95	80 - 120	103	80 - 120	<0.005	mg/L				
8507950	Total Boron (B)	2023/02/16	NC	80 - 120	95	80 - 120	<0.02	mg/L				
8507950	Total Cadmium (Cd)	2023/02/17	101	80 - 120	102	80 - 120	<0.0001	mg/L	15 (1)	20		
8507950	Total Calcium (Ca)	2023/02/16	NC	80 - 120	105	80 - 120	<0.2	mg/L				
8507950	Total Chromium (Cr)	2023/02/17	99	80 - 120	101	80 - 120	<0.005	mg/L	NC (1)	20		
8507950	Total Copper (Cu)	2023/02/17	99	80 - 120	105	80 - 120	<0.002	mg/L	1.7 (1)	20		
8507950	Total Iron (Fe)	2023/02/16	96	80 - 120	102	80 - 120	<0.1	mg/L				
8507950	Total Lead (Pb)	2023/02/17	93	80 - 120	95	80 - 120	<0.0005	mg/L	2.2 (1)	20		
8507950	Total Magnesium (Mg)	2023/02/16	NC	80 - 120	103	80 - 120	<0.05	mg/L				
8507950	Total Nickel (Ni)	2023/02/17	95	80 - 120	99	80 - 120	<0.001	mg/L	4.2 (1)	20		

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

Bureau Veritas Job #: C341690
Report Date: 2023/02/21

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8507950	Total Potassium (K)	2023/02/16	NC	80 - 120	106	80 - 120	<0.2	mg/L				
8507950	Total Sodium (Na)	2023/02/16	NC	80 - 120	104	80 - 120	<0.1	mg/L				
8507950	Total Zinc (Zn)	2023/02/17	99	80 - 120	107	80 - 120	<0.01	mg/L	3.6 (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.

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 [VAU998-05]

(3) Duplicate Parent ID [VAU999-01]

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

Bureau Veritas Job #: C341690
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
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.

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: JS1 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 μ or ____ μ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: 4 — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (μmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (mS ~~μmhos/cm~~ @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
021923	8.4	0.90	7.2	312	12.5		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: turbid

Odor: NO

Color: Slight brown

Other:

Weather Conditions (required daily, or as conditions change): 2°

Direction/Speed: 17 k/h W

Outlook: overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

Depth: 25 cm — Flow: 5 sec

Width: 1 m — 5 sec

6 sec

SSDUPI Taken

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
02/19/23	Eric Wi/sam	E.W/sam	RWDI
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/2

0580

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks SW	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-FEB
Email: lmertick@wm.com		Email: BJL@RWDI.com, JCL@RWDI.com		Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ Reg. 153 ☐ Table 1 ☐ Table 2 ☐ Table 3 Sewer Use ☐ Sanitary ☐ Storm Region ____ ☐ Other ____ specify

☒ PWQO

☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # ____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 21-Feb-22

TIME Required: ____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZJ-ON-WLF-2023 TCLS - SW (COMPLIANCE POINT) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS1	10-Feb-23	AM	SW	N	N	X	13	SSDUP1 taken
2	SSDUP1	10-Feb-23	AM	SW	N	N	X	13	
3									
4									
5									
6									
7									
8									
9									
10									
11									All samples for Hg field filtered @ 45um
12									See lab addendum for lab group coding

13-Feb-23 08:32
Patricia Legette
C341690
MUM ENV-1477

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG-2/10/2023	MUSKAN	2023/02/13	0832	Temperature (°C) on Receipt 17/17/17	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

Boite MUM
melted ice 2023/02/13

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-FEB

Attention: Khalid Hussein

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

Report Date: 2023/02/21
Report #: R7517025
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C341778
Received: 2023/02/13, 08:35

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	5	2023/02/15	2023/02/16	CAM SOP-00301	EPA 8270 m
Alkalinity	5	N/A	2023/02/14	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	5	2023/02/13	2023/02/18	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	5	N/A	2023/02/14	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	5	N/A	2023/02/15	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	5	N/A	2023/02/17		
Conductivity	5	N/A	2023/02/14	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	5	N/A	2023/02/17		
Dissolved Mercury in Water by CVAA	5	2023/02/15	2023/02/15	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	5	N/A	2023/02/16	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2023/02/14	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	5	N/A	2023/02/14	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2023/02/13	2023/02/14	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	5	N/A	2023/02/13	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	5	N/A	2023/02/17		Field pH Meter
Sulphate by Automated Turbidimetry	5	N/A	2023/02/14	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids	5	2023/02/14	2023/02/15	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	5	N/A	2023/02/17		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/02/13	2023/02/14	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	3	2023/02/13	2023/02/15	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	5	2023/02/13	2023/02/14	CAM SOP-00407	SM 23 4500-P I
Low Level Total Suspended Solids	5	2023/02/15	2023/02/16	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	5	N/A	2023/02/17		
Un-ionized Ammonia (3)	5	2023/02/13	2023/02/17	Auto Calc.	PWQO
Volatile Organic Compounds in Water	5	N/A	2023/02/14	CAM SOP-00228	EPA 8260D

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.bvna.com

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

Your P.O. #: 12285756
Your Project #: 2303459
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-FEB

Attention: Khalid Hussein

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

Report Date: 2023/02/21
Report #: R7517025
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C341778
Received: 2023/02/13, 08:35

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

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 #: C341778
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VAV603		VAV604		VAV605		
Sampling Date		2023/02/10		2023/02/10		2023/02/10		
COC Number		TCEC-SWCM-FEB		TCEC-SWCM-FEB		TCEC-SWCM-FEB		
	UNITS	**SP1**	**RDL**	**SP2**	**RDL**	**SP3**	**RDL**	**QC Batch**
Calculated Parameters								
Total Un-ionized Ammonia	mg/L	<0.0024	0.0024	<0.0044	0.0044	<0.011	0.011	8501353
Field Measurements								
Field Conductivity	uS/cm	830	N/A	800	N/A	550	N/A	ONSITE
Field Dissolved Oxygen	mg/L	12.6	N/A	12.8	N/A	17.7	N/A	ONSITE
Field Temperature	Celsius	2.7	N/A	2.1	N/A	3.0	N/A	ONSITE
Field Turbidity	NTU	139	N/A	21.3	N/A	6.12	N/A	ONSITE
Field Measured pH	pH	8.1		8.4		8.8		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	0.15	<0.15	0.15	8502206
Total BOD	mg/L	<2	2	<2	2	<2	2	8502210
Total Chemical Oxygen Demand (COD)	mg/L	21	4.0	16	4.0	7.8	4.0	8502258
Conductivity	umho/cm	650	1.0	690	1.0	440	1.0	8501929
Total Dissolved Solids	mg/L	395	10	355	10	230	10	8503920
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	<0.7	0.7	<0.7	0.7	8502246
pH	pH	8.02		7.94		7.99		8501921
Phenols-4AAP	mg/L	<0.0010	0.0010	<0.0010	0.0010	<0.0010	0.0010	8502109
Total Phosphorus	mg/L	0.049	0.004	0.016	0.004	<0.004	0.004	8502212
Total Suspended Solids	mg/L	65	3	11	1	4	1	8505050
Dissolved Sulphate (SO4)	mg/L	150	1.0	190	1.0	140	1.0	8501830
Alkalinity (Total as CaCO3)	mg/L	130	1.0	82	1.0	42	1.0	8501928
Dissolved Chloride (Cl-)	mg/L	30	1.0	35	1.0	19	1.0	8501836
Nitrite (N)	mg/L	0.015	0.010	0.022	0.010	<0.010	0.010	8501930
Nitrate (N)	mg/L	1.61	0.10	2.23	0.10	0.18	0.10	8501930

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

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

Bureau Veritas Job #: C341778
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VAV606	VAV607		
Sampling Date		2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	UNITS	**SP4**	**SPDUP**	**RDL**	**QC Batch**
Calculated Parameters					
Total Un-ionized Ammonia	mg/L	<0.0037	<0.0037	0.0037	8501353
Field Measurements					
Field Conductivity	uS/cm	730	730	N/A	ONSITE
Field Dissolved Oxygen	mg/L	14.4	14.4	N/A	ONSITE
Field Temperature	Celsius	2.6	2.6	N/A	ONSITE
Field Turbidity	NTU	91.2	91.2	N/A	ONSITE
Field Measured pH	pH	8.3	8.3		ONSITE
Inorganics					
Total Ammonia-N	mg/L	<0.15	<0.15	0.15	8502206
Total BOD	mg/L	<2	<2	2	8502210
Total Chemical Oxygen Demand (COD)	mg/L	17	15	4.0	8502258
Conductivity	umho/cm	570	570	1.0	8501929
Total Dissolved Solids	mg/L	295	360	10	8503920
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	<0.7	0.7	8502246
pH	pH	8.07	8.07		8501921
Phenols-4AAP	mg/L	<0.0010	<0.0010	0.0010	8502109
Total Phosphorus	mg/L	0.016	0.020	0.004	8502212
Total Suspended Solids	mg/L	23	22	1	8505050
Dissolved Sulphate (SO4)	mg/L	140	140	1.0	8501830
Alkalinity (Total as CaCO3)	mg/L	100	100	1.0	8501928
Dissolved Chloride (Cl-)	mg/L	27	28	1.0	8501836
Nitrite (N)	mg/L	0.011	0.011	0.010	8501930
Nitrate (N)	mg/L	0.37	0.37	0.10	8501930

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

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

Bureau Veritas Job #: C341778
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VAV603	VAV604	VAV605	VAV606	VAV607		
Sampling Date		2023/02/10	2023/02/10	2023/02/10	2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	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	8505550
Total Arsenic (As)	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	0.001	8507950
Total Barium (Ba)	mg/L	0.038	0.028	0.016	0.030	0.029	0.005	8507950
Total Boron (B)	mg/L	0.29	0.16	0.05	0.05	0.05	0.02	8507950
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	8507950
Total Calcium (Ca)	mg/L	75	78	43	70	68	0.2	8507950
Total Chromium (Cr)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	8507950
Total Copper (Cu)	mg/L	0.004	0.003	<0.002	0.003	0.003	0.002	8507950
Total Iron (Fe)	mg/L	3.1	0.3	<0.1	1.0	1.0	0.1	8507950
Total Lead (Pb)	mg/L	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	8507950
Total Magnesium (Mg)	mg/L	26	23	20	23	22	0.05	8507950
Total Nickel (Ni)	mg/L	0.006	0.002	<0.001	0.002	0.002	0.001	8507950
Total Potassium (K)	mg/L	5.3	4.1	2.7	4.1	4.1	0.2	8507950
Total Sodium (Na)	mg/L	25	29	16	20	19	0.1	8507950
Total Zinc (Zn)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	8507950

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C341778
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		VAV603	VAV604	VAV605	VAV606	VAV607		
Sampling Date		2023/02/10	2023/02/10	2023/02/10	2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	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	8505174
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8505174
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8505174
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8505174
Hexachlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8505174
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8505174
2,4-Dichlorophenol	ug/L	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	8505174
Pentachlorophenol	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	8505174
Phenol	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8505174
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8505174
Di-N-butyl phthalate	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	8505174
Diethyl phthalate	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	8505174
Dimethyl phthalate	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	8505174
Surrogate Recovery (%)								
2,4,6-Tribromophenol	%	75	63	67	83	75		8505174
2-Fluorobiphenyl	%	81	69	72	80	82		8505174
2-Fluorophenol	%	34	28	29	38	36		8505174
D14-Terphenyl	%	92	83	87	89	88		8505174
D5-Nitrobenzene	%	79	70	71	79	80		8505174
D5-Phenol	%	24	21	23	27	26		8505174

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C341778
Report Date: 2023/02/21

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VAV603	VAV604	VAV605	VAV606		
Sampling Date		2023/02/10	2023/02/10	2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	UNITS	**SP1**	**SP2**	**SP3**	**SP4**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8500560
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8500560
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8500560
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8500560
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8500560
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8500560
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8500560
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8500560
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8500560
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	94	95	94	95		8500560
D4-1,2-Dichloroethane	%	109	110	110	111		8500560
D8-Toluene	%	97	97	97	97		8500560

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VAV607		
Sampling Date		2023/02/10		
COC Number		TCEC-SWCM-FEB		
	UNITS	**SPDUP**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8500560
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8500560
Ethylbenzene	ug/L	<0.20	0.20	8500560
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8500560
Toluene	ug/L	<0.20	0.20	8500560
Vinyl Chloride	ug/L	<0.20	0.20	8500560
p+m-Xylene	ug/L	<0.20	0.20	8500560
o-Xylene	ug/L	<0.20	0.20	8500560
Total Xylenes	ug/L	<0.20	0.20	8500560
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	94		8500560
D4-1,2-Dichloroethane	%	111		8500560
D8-Toluene	%	97		8500560

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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.

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

Bureau Veritas Job #: C341778
Report Date: 2023/02/21

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8500560	4-Bromofluorobenzene	2023/02/14	100	70 - 130	100	70 - 130	98	%				
8500560	D4-1,2-Dichloroethane	2023/02/14	108	70 - 130	101	70 - 130	104	%				
8500560	D8-Toluene	2023/02/14	102	70 - 130	103	70 - 130	97	%				
8505174	2,4,6-Tribromophenol	2023/02/15	80	10 - 130	89	10 - 130	75	%				
8505174	2-Fluorobiphenyl	2023/02/15	51	30 - 130	57	30 - 130	66	%				
8505174	2-Fluorophenol	2023/02/15	27	10 - 130	41	10 - 130	39	%				
8505174	D14-Terphenyl	2023/02/15	86	30 - 130	91	30 - 130	86	%				
8505174	D5-Nitrobenzene	2023/02/15	50	30 - 130	76	30 - 130	73	%				
8505174	D5-Phenol	2023/02/15	18	10 - 130	27	10 - 130	26	%				
8500560	1,4-Dichlorobenzene	2023/02/14	111	70 - 130	102	70 - 130	<0.40	ug/L	NC (1)	30		
8500560	Benzene	2023/02/14	95	70 - 130	85	70 - 130	<0.20	ug/L	NC (1)	30		
8500560	Ethylbenzene	2023/02/14	87	70 - 130	80	70 - 130	<0.20	ug/L	NC (1)	30		
8500560	Methylene Chloride(Dichloromethane)	2023/02/14	105	70 - 130	93	70 - 130	<2.0	ug/L	NC (1)	30		
8500560	o-Xylene	2023/02/14	86	70 - 130	80	70 - 130	<0.20	ug/L	NC (1)	30		
8500560	p+m-Xylene	2023/02/14	91	70 - 130	83	70 - 130	<0.20	ug/L	NC (1)	30		
8500560	Toluene	2023/02/14	94	70 - 130	86	70 - 130	<0.20	ug/L	NC (1)	30		
8500560	Total Xylenes	2023/02/14					<0.20	ug/L	NC (1)	30		
8500560	Vinyl Chloride	2023/02/14	92	70 - 130	82	70 - 130	<0.20	ug/L	NC (1)	30		
8501830	Dissolved Sulphate (SO4)	2023/02/14	NC (2)	75 - 125	100	80 - 120	<1.0	mg/L	1.6 (3)	20		
8501836	Dissolved Chloride (Cl-)	2023/02/14	NC	80 - 120	104	80 - 120	<1.0	mg/L	0.40 (1)	20		
8501921	pH	2023/02/14			102	98 - 103			0.54 (4)	N/A		
8501928	Alkalinity (Total as CaCO3)	2023/02/14			97	85 - 115	<1.0	mg/L	0.57 (4)	20		
8501929	Conductivity	2023/02/14			102	85 - 115	<1.0	umho/cm	0.16 (4)	25		
8501930	Nitrate (N)	2023/02/14	81 (5)	80 - 120	95	80 - 120	<0.10	mg/L	3.3 (6)	20		
8501930	Nitrite (N)	2023/02/14	103 (5)	80 - 120	108	80 - 120	<0.010	mg/L	11 (6)	20		
8502109	Phenols-4AAP	2023/02/13	100	80 - 120	99	80 - 120	<0.0010	mg/L	NC (1)	20		
8502206	Total Ammonia-N	2023/02/14	101 (7)	75 - 125	101	80 - 120	<0.15	mg/L	NC (8)	20		
8502210	Total BOD	2023/02/18					<2	mg/L	NC (1)	30	97	80 - 120
8502212	Total Phosphorus	2023/02/14	103	80 - 120	105	80 - 120	<0.004	mg/L	NC (1)	20	104	80 - 120

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

Bureau Veritas Job #: C341778
Report Date: 2023/02/21

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8502246	Total Kjeldahl Nitrogen (TKN)	2023/02/14	96 (9)	80 - 120	95	80 - 120	<0.7	mg/L	NC (10)	20	104	80 - 120
8502258	Total Chemical Oxygen Demand (COD)	2023/02/15	94	80 - 120	99	80 - 120	<4.0	mg/L	13 (1)	20		
8503920	Total Dissolved Solids	2023/02/15					<10	mg/L	4.3 (11)	20	95	90 - 110
8505050	Total Suspended Solids	2023/02/16					<1	mg/L	12 (1)	20	95	85 - 115
8505174	1,2,4-Trichlorobenzene	2023/02/15	43	30 - 130	39	30 - 130	<0.50	ug/L	NC (1)	40		
8505174	1,2-Dichlorobenzene	2023/02/15	35	30 - 130	43	30 - 130	<0.50	ug/L	NC (1)	40		
8505174	1,3-Dichlorobenzene	2023/02/15	31	30 - 130	36	30 - 130	<0.50	ug/L	NC (1)	40		
8505174	1,4-Dichlorobenzene	2023/02/15	32	30 - 130	37	30 - 130	<0.50	ug/L	NC (1)	40		
8505174	2,4,6-Trichlorophenol	2023/02/15	75	10 - 130	92	10 - 130	<0.50	ug/L	NC (1)	40		
8505174	2,4-Dichlorophenol	2023/02/15	57	10 - 130	83	10 - 130	<0.30	ug/L	NC (1)	40		
8505174	Benzo(a)pyrene	2023/02/15	89	30 - 130	98	30 - 130	<0.20	ug/L	NC (1)	40		
8505174	Diethyl phthalate	2023/02/15	85	30 - 130	98	30 - 130	<1.0	ug/L	NC (1)	40		
8505174	Dimethyl phthalate	2023/02/15	78	30 - 130	95	30 - 130	<1.0	ug/L	NC (1)	40		
8505174	Di-N-butyl phthalate	2023/02/15	100	30 - 130	101	30 - 130	<2.0	ug/L	NC (1)	40		
8505174	Hexachlorobenzene	2023/02/15	75	30 - 130	84	30 - 130	<0.50	ug/L	NC (1)	40		
8505174	Pentachlorophenol	2023/02/15	58	10 - 130	64	10 - 130	<1.0	ug/L	NC (1)	40		
8505174	Phenol	2023/02/15	20	10 - 130	29	10 - 130	<0.50	ug/L	NC (1)	40		
8505550	Dissolved Mercury (Hg)	2023/02/15	106 (12)	75 - 125	108	80 - 120	<0.10	ug/L	NC (13)	20		
8507950	Total Arsenic (As)	2023/02/17	102	80 - 120	103	80 - 120	<0.001	mg/L	NC (1)	20		
8507950	Total Barium (Ba)	2023/02/16	95	80 - 120	103	80 - 120	<0.005	mg/L				
8507950	Total Boron (B)	2023/02/16	NC	80 - 120	95	80 - 120	<0.02	mg/L				
8507950	Total Cadmium (Cd)	2023/02/17	101	80 - 120	102	80 - 120	<0.0001	mg/L	15 (1)	20		
8507950	Total Calcium (Ca)	2023/02/16	NC	80 - 120	105	80 - 120	<0.2	mg/L				
8507950	Total Chromium (Cr)	2023/02/17	99	80 - 120	101	80 - 120	<0.005	mg/L	NC (1)	20		
8507950	Total Copper (Cu)	2023/02/17	99	80 - 120	105	80 - 120	<0.002	mg/L	1.7 (1)	20		
8507950	Total Iron (Fe)	2023/02/16	96	80 - 120	102	80 - 120	<0.1	mg/L				
8507950	Total Lead (Pb)	2023/02/17	93	80 - 120	95	80 - 120	<0.0005	mg/L	2.2 (1)	20		
8507950	Total Magnesium (Mg)	2023/02/16	NC	80 - 120	103	80 - 120	<0.05	mg/L				
8507950	Total Nickel (Ni)	2023/02/17	95	80 - 120	99	80 - 120	<0.001	mg/L	4.2 (1)	20		
8507950	Total Potassium (K)	2023/02/16	NC	80 - 120	106	80 - 120	<0.2	mg/L				

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Bureau Veritas Job #: C341778
Report Date: 2023/02/21

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8507950	Total Sodium (Na)	2023/02/16	NC	80 - 120	104	80 - 120	<0.1	mg/L				
8507950	Total Zinc (Zn)	2023/02/17	99	80 - 120	107	80 - 120	<0.01	mg/L	3.6 (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.

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 [VAV605-04]

(3) Duplicate Parent ID [VAV605-04]

(4) Duplicate Parent ID [VAV603-04]

(5) Matrix Spike Parent ID [VAV606-04]

(6) Duplicate Parent ID [VAV606-04]

(7) Matrix Spike Parent ID [VAV603-09]

(8) Duplicate Parent ID [VAV603-09]

(9) Matrix Spike Parent ID [VAV604-08]

(10) Duplicate Parent ID [VAV604-08]

(11) Duplicate Parent ID [VAV607-03]

(12) Matrix Spike Parent ID [VAV607-07]

(13) Duplicate Parent ID [VAV607-07]

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Bureau Veritas Job #: C341778
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RWDI Inc.
Client Project #: 2303459
Site Location: ON07
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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

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.

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SP1 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N, 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (~~µmhos~~ mS/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
021023	8.1	0.83	2.7	139	12.6		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent Odor: N/O Color: yellow hue Other:

Weather Conditions (required daily, or as conditions change): 2°C Direction/Speed: 25kmh W Outlook: overcast Precipitation: Y or N

FIELD COMMENTS

Specific Comments (including purge/well volume calculations if required):

Depth: 20cm Flow: 4 sec

Width: 1.25m 4 sec

5 sec

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
02/10/23	Eric Wilson	E. Wilson	RWDI
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

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S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.: Sample: SP2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
021023	8.4	0.8	2.1	21.3	12.8		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent Odor: N/O Color: clear Other: —

Weather Conditions (required daily, or as conditions change): 2°C Direction/Speed: 25km/hr Outlook: mostly cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Depth
width 1.8m
time@1m 1:15s
2:14s
3:15s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
02/10/23	Jake Abtalb	[signature]	RWDI

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: tCEC

Site No.:

Sample: SP3 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Type: A (A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____)

Sampling Device:

X-Other:

Sample Tube Type: A (A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____)

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: ____ Units ____
021023	5.8	ms 0.55	3.0	6.12	17.7		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: Transparent

Odor: N/O

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 2°C

Direction/Speed: 25 Kh NW

Outlook: overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Depth: 0.5m — Flow: 1.5 min

Width: 1 m — 1 min

1.25 min

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
02/10/23	Eric Wilson	E Wilson	RWDI
~~02/10/23~~			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

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BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SP4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
021023	8.3	0.773	20.6	41.2	14.4		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: Clear/transparent Odor: none Color: clear Other:

Weather Conditions (required daily, or as conditions change): 2°C Direction/Speed: 25km/hW Outlook: mostly cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

SP Dup taken

Depth 0.5m

width 1.3m

time @ 1m 1:42

2: 44

3: 46

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
10/10/23	Jake Arbiol		R vors

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1

IMMEDIATE

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks SW	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-FEB
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 21-Feb-22
TIME Required:

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZL-ON-WLF-2023 TCLS - SW (POND OUTLETS) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SP1	10-Feb-23	PM	SW	N	N	X	13	
2	SP2	10-Feb-23	PM	SW	N	N	X	13	
3	SP3	10-Feb-23	PM	SW	N	N	X	13	
4	SP4	10-Feb-23	PM	SW	N	N	X	13	SPDUP taken
5	SPDUP	10-Feb-23	PM	SW	N	N	X	13	
6									
7									
8									
9									
10									
11									All samples for Hg field filtered @ 45um
12									See lab addendum for lab group coding

13-Feb-23 08:35
Patricia Legette
C341778
SWP ENV-127

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG-2/10/2023	[illegible]	2023/02/13	0835	Temperature (°C) on Receipt 16/16/17 19/19/19	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

melted ice packs 19/19/20

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-FEB

Attention: Khalid Hussein

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

Report Date: 2023/02/23
Report #: R7520196
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C344451
Received: 2023/02/15, 11:39

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2023/02/16	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	2	N/A	2023/02/17	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	2	N/A	2023/02/22		
Conductivity	2	N/A	2023/02/16	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2023/02/22		
Total Metals by ICPMS	2	N/A	2023/02/21	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2023/02/17	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2023/02/16	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2023/02/16	2023/02/16	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2023/02/21	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2023/02/22		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/02/17	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	2	2023/02/15	2023/02/16	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2023/02/22		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/02/16	2023/02/21	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2023/02/16	2023/02/22	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2023/02/16	2023/02/17	CAM SOP-00407	SM 23 4500-P I
Turbidity - On-site	2	N/A	2023/02/22		
Un-ionized Ammonia (3)	2	2023/02/15	2023/02/22	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.

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-FEB

Attention: Khalid Hussein

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

Report Date: 2023/02/23
Report #: R7520196
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C344451
Received: 2023/02/15, 11:39

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 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 #: C344451
Report Date: 2023/02/23

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VBJ790		VBJ791		
Sampling Date		2023/02/10		2023/02/10		
COC Number		TCEC-SWCM-FEB		TCEC-SWCM-FEB		
	UNITS	**SS10**	**RDL**	**SS16**	**RDL**	**QC Batch**
Calculated Parameters						
Total Un-ionized Ammonia	mg/L	<0.0044	0.0044	<0.00092	0.00092	8505417
Field Measurements						
Field Conductivity	uS/cm	300	N/A	440	N/A	ONSITE
Field Dissolved Oxygen	mg/L	12.9	N/A	12.2	N/A	ONSITE
Field Temperature	Celsius	2.2	N/A	2.4	N/A	ONSITE
Field Turbidity	NTU	229	N/A	67.9	N/A	ONSITE
Field Measured pH	pH	8.4		7.7		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	0.15	<0.15	0.15	8507714
Conductivity	umho/cm	200	1.0	330	1.0	8507985
Total Dissolved Solids	mg/L	235	10	155	10	8506796
Total Kjeldahl Nitrogen (TKN)	mg/L	1	1	<0.7	0.7	8508406
pH	pH	7.86		7.97		8507968
Phenols-4AAP	mg/L	<0.0010	0.0010	<0.0010	0.0010	8514121
Total Phosphorus	mg/L	0.10	0.004	0.044	0.004	8509275
Dissolved Sulphate (SO4)	mg/L	25	1.0	30	1.0	8507843
Alkalinity (Total as CaCO3)	mg/L	68	1.0	130	1.0	8507981
Dissolved Chloride (Cl-)	mg/L	4.5	1.0	3.9	1.0	8507963
Nitrite (N)	mg/L	0.015	0.010	0.020	0.010	8507830
Nitrate (N)	mg/L	0.68	0.10	0.20	0.10	8507830

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 #: C344451
Report Date: 2023/02/23

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VBJ790	VBJ791		
Sampling Date		2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	UNITS	**SS10**	**SS16**	**RDL**	**QC Batch**
Metals					
Total Boron (B)	mg/L	0.05	0.03	0.02	8513963
Total Calcium (Ca)	mg/L	29	48	0.2	8513963
Total Chromium (Cr)	mg/L	0.009	<0.005	0.005	8513963
Total Iron (Fe)	mg/L	8.9	2.1	0.1	8513963
Total Magnesium (Mg)	mg/L	7.9	11	0.05	8513963
Total Nickel (Ni)	mg/L	0.011	0.003	0.001	8513963
Total Potassium (K)	mg/L	2.6	3.9	0.2	8513963
Total Sodium (Na)	mg/L	2.2	2.9	0.1	8513963
Total Zinc (Zn)	mg/L	0.02	<0.01	0.01	8513963

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C344451
Report Date: 2023/02/23

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8506796	Total Dissolved Solids	2023/02/16					<10	mg/L	2.2 (1)	20	97	90 - 110
8507714	Total Ammonia-N	2023/02/17	104 (2)	75 - 125	98	80 - 120	<0.15	mg/L	NC (3)	20		
8507830	Nitrate (N)	2023/02/16	101 (4)	80 - 120	103	80 - 120	<0.10	mg/L	1.9 (5)	20		
8507830	Nitrite (N)	2023/02/16	107 (4)	80 - 120	110	80 - 120	<0.010	mg/L	1.4 (5)	20		
8507843	Dissolved Sulphate (SO4)	2023/02/17	NC (6)	75 - 125	102	80 - 120	<1.0	mg/L	1.1 (7)	20		
8507963	Dissolved Chloride (Cl-)	2023/02/17	111 (4)	80 - 120	102	80 - 120	<1.0	mg/L	NC (5)	20		
8507968	pH	2023/02/16			102	98 - 103			0.52 (8)	N/A		
8507981	Alkalinity (Total as CaCO3)	2023/02/16			97	85 - 115	<1.0	mg/L	0.16 (8)	20		
8507985	Conductivity	2023/02/16			101	85 - 115	<1.0	umho/cm	0.25 (8)	25		
8508406	Total Kjeldahl Nitrogen (TKN)	2023/02/21	97 (9)	80 - 120	105	80 - 120	<0.7	mg/L	16 (10)	20	105	80 - 120
8509275	Total Phosphorus	2023/02/17	100	80 - 120	100	80 - 120	<0.004	mg/L	NC (8)	20	101	80 - 120
8513963	Total Boron (B)	2023/02/21	NC	80 - 120	105	80 - 120	<0.02	mg/L	2.3 (8)	20		
8513963	Total Calcium (Ca)	2023/02/21	NC	80 - 120	102	80 - 120	<0.2	mg/L				
8513963	Total Chromium (Cr)	2023/02/21	99	80 - 120	97	80 - 120	<0.005	mg/L	NC (8)	20		
8513963	Total Iron (Fe)	2023/02/21	NC	80 - 120	99	80 - 120	<0.1	mg/L				
8513963	Total Magnesium (Mg)	2023/02/21	NC	80 - 120	98	80 - 120	<0.05	mg/L				
8513963	Total Nickel (Ni)	2023/02/21	95	80 - 120	95	80 - 120	<0.001	mg/L	0.58 (8)	20		
8513963	Total Potassium (K)	2023/02/21	NC	80 - 120	101	80 - 120	<0.2	mg/L				
8513963	Total Sodium (Na)	2023/02/21	NC	80 - 120	98	80 - 120	<0.1	mg/L				
8513963	Total Zinc (Zn)	2023/02/21	100	80 - 120	101	80 - 120	<0.01	mg/L	NC (8)	20		

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

Bureau Veritas Job #: C344451
Report Date: 2023/02/23

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8514121	Phenols-4AAP	2023/02/21	80	80 - 120	101	80 - 120	<0.0010	mg/L	5.4 (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.

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 [VBJ790-02]

(2) Matrix Spike Parent ID [VBJ791-06]

(3) Duplicate Parent ID [VBJ791-06]

(4) Matrix Spike Parent ID [VBJ790-01]

(5) Duplicate Parent ID [VBJ790-01]

(6) Matrix Spike Parent ID [VBJ791-01]

(7) Duplicate Parent ID [VBJ791-01]

(8) Duplicate Parent ID

(9) Matrix Spike Parent ID [VBJ790-05]

(10) Duplicate Parent ID [VBJ790-05]

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

Bureau Veritas Job #: C344451
Report Date: 2023/02/23

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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.

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FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.: Sample: 3S1D (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 μ or ____ μ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (μmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (μmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
02 10 23	8.4	0.30	2.2	229	12.9		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: ~~Transparent~~ translucent

Odor: N/O

Color: Slightly brown

Other:

Weather Conditions (required daily, or as conditions change): 2°c

Direction/Speed: 25 NW

Outlook: overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

Depth - 5cm

Width : 30cm

Flow : 15 sec

20 sec

13 sec

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
02/10/23	Eric Wilson	Eric Wilson	REWD
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0586

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: S3116 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
021023	7.7	0.44 (mS)	2.4	679	1.02		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: turbid

Odor: None

Color: None/clear

Other:

Weather Conditions (required daily, or as conditions change): 3°C

Direction/Speed: 13km/h/W

Outlook: Overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Width 1m
Depth: 0.2m
time @ 1m: 3:53
2:32s
3:31s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
02/10/23	Jake Artikell	[signature]	RVDS

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0581

IMMEDIATE

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	Twin Creeks SW
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	JRA

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-SWCM-FEB

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ Reg. 558 ☒ PWQO

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☐ Other _____ specify

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 21-Feb-22

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZH-ON-WLF-2023 TCLS - SW (BKGRND STATION) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS10	10-Feb-23	PM	SW	N	N	X	6	
2	SS16	10-Feb-23	PM	SW	N	N	X	6	
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

15-Feb-23 11:39
Patricia Legette
C344451
MUM ENV-1222

See lab addendum for lab group coding

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
BEG-2/10/2023	[illegible]	2023/02/17	1139

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
19/19/9	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

ice melted

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-FEB

Attention: Khalid Hussein

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

Report Date: 2023/02/23
Report #: R7520210
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C344455
Received: 2023/02/15, 11:39

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2023/02/16	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	3	N/A	2023/02/16	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	1	N/A	2023/02/17	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	4	N/A	2023/02/17		
Field Measured Dissolved Oxygen in Water	4	N/A	2023/02/17		
Total Metals by ICPMS	4	N/A	2023/02/16	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	4	N/A	2023/02/16	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	4	N/A	2023/02/16	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Phenols (4AAP)	3	N/A	2023/02/21	CAM SOP-00444	OMOE E3179 m
Phenols (4AAP)	1	N/A	2023/02/22	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	4	N/A	2023/02/17		Field pH Meter
Sulphate by Automated Turbidimetry	4	N/A	2023/02/17	CAM SOP-00464	SM 23 4500-SO42- E m
Field Temperature (2)	4	N/A	2023/02/17		Field Thermometer
Total Organic Carbon (TOC) (3)	2	N/A	2023/02/15	CAM SOP-00446	SM 23 5310B m
Total Organic Carbon (TOC) (3)	2	N/A	2023/02/16	CAM SOP-00446	SM 23 5310B m
Turbidity - On-site	4	N/A	2023/02/17		
Un-ionized Ammonia (4)	4	2023/02/15	2023/02/17	Auto Calc.	PWQO
Volatile Organic Compounds in Water	4	N/A	2023/02/16	CAM SOP-00226	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

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-FEB

Attention: Khalid Hussein

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

Report Date: 2023/02/23
Report #: R7520210
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C344455
Received: 2023/02/15, 11:39

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) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.
(4) 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 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 #: C344455
Report Date: 2023/02/23

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VBJ808		VBJ809			VBJ810		
Sampling Date		2023/02/10		2023/02/10			2023/02/10		
COC Number		TCEC-SWCM-FEB		TCEC-SWCM-FEB			TCEC-SWCM-FEB		
	UNITS	**SS14A**	**RDL**	**SS14B**	**RDL**	**QC Batch**	**SS15A**	**RDL**	**QC Batch**
Calculated Parameters									
Total Un-ionized Ammonia	mg/L	<0.00076	0.00076	0.0021	0.0016	8505417	0.0014	0.00061	8505417
Field Measurements									
Field Conductivity	uS/cm	980	N/A	1330	N/A	ONSITE	820	N/A	ONSITE
Field Dissolved Oxygen	mg/L	12.8	N/A	12.6	N/A	ONSITE	12.6	N/A	ONSITE
Field Temperature	Celsius	2.4	N/A	3.3	N/A	ONSITE	2.5	N/A	ONSITE
Field Turbidity	NTU	34.2	N/A	77.8	N/A	ONSITE	141	N/A	ONSITE
Field Measured pH	pH	8.1		8.4		ONSITE	7.9		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.050	0.050	0.065	0.050	8506988	0.14	0.050	8506988
Total Organic Carbon (TOC)	mg/L	5.7	0.40	7.9	0.40	8506601	7.5	0.40	8506601
Phenols-4AAP	mg/L	<0.0010	0.0010	<0.0010	0.0010	8514121	<0.0010	0.0010	8514121
Dissolved Sulphate (SO4)	mg/L	180	1.0	200	1.0	8507843	130	1.0	8507843
Alkalinity (Total as CaCO3)	mg/L	210	1.0	220	1.0	8506523	170	1.0	8506523
Dissolved Chloride (Cl-)	mg/L	9.6	1.0	110	1.0	8506694	27	1.0	8507963
Nitrate (N)	mg/L	0.40	0.10	2.65	0.10	8506527	1.62	0.10	8506527

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

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Bureau Veritas Job #: C344455
Report Date: 2023/02/23

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VBJ811		
Sampling Date		2023/02/10		
COC Number		TCEC-SWCM-FEB		
	UNITS	**PSSWDUP**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.00061	0.00061	8505417
Field Measurements				
Field Conductivity	uS/cm	820	N/A	ONSITE
Field Dissolved Oxygen	mg/L	12.6	N/A	ONSITE
Field Temperature	Celsius	2.5	N/A	ONSITE
Field Turbidity	NTU	141	N/A	ONSITE
Field Measured pH	pH	7.9		ONSITE
Inorganics				
Total Ammonia-N	mg/L	0.051	0.050	8506988
Total Organic Carbon (TOC)	mg/L	8.1	0.40	8506601
Phenols-4AAP	mg/L	<0.0010	0.0010	8514121
Dissolved Sulphate (SO4)	mg/L	130	1.0	8507843
Alkalinity (Total as CaCO3)	mg/L	160	1.0	8506523
Dissolved Chloride (Cl-)	mg/L	26	1.0	8506694
Nitrate (N)	mg/L	1.51	0.10	8506527

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

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RWDI Inc.
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Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VBJ808	VBJ809	VBJ810	VBJ811		
Sampling Date		2023/02/10	2023/02/10	2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	UNITS	**SS14A**	**SS14B**	**SS15A**	**PSSWDUP**	**RDL**	**QC Batch**
Metals							
Total Boron (B)	mg/L	0.05	0.48	0.32	0.30	0.02	8507950
Total Calcium (Ca)	mg/L	110	120	84	84	0.2	8507950
Total Chromium (Cr)	mg/L	<0.005	<0.005	<0.005	<0.005	0.005	8507950
Total Iron (Fe)	mg/L	0.4	0.4	4.3	4.3	0.1	8507950
Total Magnesium (Mg)	mg/L	34	40	27	26	0.05	8507950
Total Nickel (Ni)	mg/L	0.001	0.006	0.007	0.007	0.001	8507950
Total Potassium (K)	mg/L	4.5	7.7	5.1	5.1	0.2	8507950
Total Sodium (Na)	mg/L	9.8	68	24	23	0.1	8507950
Total Zinc (Zn)	mg/L	<0.01	<0.01	0.01	0.01	0.01	8507950

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VBJ808	VBJ809	VBJ810	VBJ811		
Sampling Date		2023/02/10	2023/02/10	2023/02/10	2023/02/10		
COC Number		TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB	TCEC-SWCM-FEB		
	UNITS	**SS14A**	**SS14B**	**SS15A**	**PSSWDUP**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	8503456
Ethylbenzene	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	8503456
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8503456
p+m-Xylene	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	8503456
o-Xylene	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	8503456
Total Xylenes	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	8503456
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	107	108	106	107		8503456
D4-1,2-Dichloroethane	%	93	94	93	92		8503456
D8-Toluene	%	99	98	97	99		8503456

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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

Bureau Veritas Job #: C344455
Report Date: 2023/02/23

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8503456	4-Bromofluorobenzene	2023/02/16	109	70 - 130	109	70 - 130	104	%		
8503456	D4-1,2-Dichloroethane	2023/02/16	92	70 - 130	92	70 - 130	89	%		
8503456	D8-Toluene	2023/02/16	100	70 - 130	99	70 - 130	99	%		
8503456	Benzene	2023/02/16	91	70 - 130	90	70 - 130	<0.10	ug/L	NC (1)	30
8503456	Ethylbenzene	2023/02/16	90	70 - 130	89	70 - 130	<0.10	ug/L	NC (1)	30
8503456	o-Xylene	2023/02/16	90	70 - 130	88	70 - 130	<0.10	ug/L	NC (1)	30
8503456	p+m-Xylene	2023/02/16	96	70 - 130	94	70 - 130	<0.10	ug/L	NC (1)	30
8503456	Toluene	2023/02/16	94	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30
8503456	Total Xylenes	2023/02/16					<0.10	ug/L	NC (1)	30
8506523	Alkalinity (Total as CaCO3)	2023/02/16			99	85 - 115	<1.0	mg/L	0.0047 (1)	20
8506527	Nitrate (N)	2023/02/16	97 (2)	80 - 120	101	80 - 120	<0.10	mg/L	2.7 (3)	20
8506601	Total Organic Carbon (TOC)	2023/02/15	NC	80 - 120	97	80 - 120	<0.40	mg/L	0.91 (1)	20
8506694	Dissolved Chloride (Cl-)	2023/02/16	96 (4)	80 - 120	103	80 - 120	<1.0	mg/L	1.3 (5)	20
8506988	Total Ammonia-N	2023/02/16	101	75 - 125	97	80 - 120	<0.050	mg/L	12 (1)	20
8507843	Dissolved Sulphate (SO4)	2023/02/17	NC	75 - 125	102	80 - 120	<1.0	mg/L	1.1 (1)	20
8507950	Total Boron (B)	2023/02/16	NC	80 - 120	95	80 - 120	<0.02	mg/L		
8507950	Total Calcium (Ca)	2023/02/16	NC	80 - 120	105	80 - 120	<0.2	mg/L		
8507950	Total Chromium (Cr)	2023/02/17	99	80 - 120	101	80 - 120	<0.005	mg/L	NC (1)	20
8507950	Total Iron (Fe)	2023/02/16	96	80 - 120	102	80 - 120	<0.1	mg/L		
8507950	Total Magnesium (Mg)	2023/02/16	NC	80 - 120	103	80 - 120	<0.05	mg/L		
8507950	Total Nickel (Ni)	2023/02/17	95	80 - 120	99	80 - 120	<0.001	mg/L	4.2 (1)	20
8507950	Total Potassium (K)	2023/02/16	NC	80 - 120	106	80 - 120	<0.2	mg/L		
8507950	Total Sodium (Na)	2023/02/16	NC	80 - 120	104	80 - 120	<0.1	mg/L		
8507950	Total Zinc (Zn)	2023/02/17	99	80 - 120	107	80 - 120	<0.01	mg/L	3.6 (1)	20
8507963	Dissolved Chloride (Cl-)	2023/02/17	111	80 - 120	102	80 - 120	<1.0	mg/L	NC (1)	20

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Bureau Veritas Job #: C344455
Report Date: 2023/02/23

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8514121	Phenols-4AAP	2023/02/21	80	80 - 120	101	80 - 120	<0.0010	mg/L	5.4 (1)	20

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.

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 [VBJ810-02]

(3) Duplicate Parent ID [VBJ810-02]

(4) Matrix Spike Parent ID [VBJ808-02]

(5) Duplicate Parent ID [VBJ808-02]

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Bureau Veritas Job #: C344455
Report Date: 2023/02/23

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.: Sample: SS14A (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
02 10 23	8.1	0.98	2.4	34.2	12.8		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent Odor: N/O Color: clear Other:

Weather Conditions (required daily, or as conditions change): 2-C Direction/Speed: 25 Kph NW Outlook: overcast Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Depth: 10 cm Flow: 60 sec

Width: 2m 55 sec

63 sec

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
02/10/23	Eric Wilson	E. Wilson	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0584

S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TKEC

Site No.:

Sample: SS1 4B (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
021023	8.44	mS 1.33	3.3	778	12.6		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent Odor: N/O Color: Yellow Hue Other:

Weather Conditions (required daily, or as conditions change): 3°C Direction/Speed: 20 km/h NW Outlook: overcast Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Depth 0.07m
with 0.7m
time @1m 1: 41s
2: 39s
3: 37s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
02/10/23	Jake Arbiello	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 09/20

0585

S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SS15A (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE mS ~~umhos~~/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
02 10 23	7.91	0.82	2.5	141	12.6		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent

Odor: None

Color: Clear

Other:

Weather Conditions (required daily, or as conditions change): 2°C

Direction/Speed: 20km/h NW

Outlook: Overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Depth ~~0.5m~~ 0.30m PSSW Dup taken

width 0.5m

time @ 1m 1:25s

2:28s

3 27s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
02/10/23	Jake Artibalo		RUPE

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0583

Maxxam Analytics Inc. 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

IMMEDIATE

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	Twin Creeks SW
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	JRA

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-SWCM-FEB

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ Reg. 558 ☒ PWQO

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☐ Other _____ specify

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 21-Feb-22

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZP-ON-WLF-2023 TCLS - SW (POPLAR) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS14A	10-Feb-23	AM	SW	N	N	X	7	
2	SS14B	10-Feb-23	AM	SW	N	N	X	7	
3	SS15A	10-Feb-23	AM	SW	N	N	X	7	PSSWDUP taken
4	PSSWDUP	10-Feb-23	AM	SW	N	N	X	7	
5									
6									
7									
8									
9									
10									
11									
12									See lab addendum for lab group coding

15-Feb-23 11:39
Patricia Legette
C344455
MLIM ENV-576

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only: Temperature (°C) on Receipt	Condition of Sample on Receipt
BEG-2/10/2023	[illegible]	FEB 15 2023	11:39	19/19/19	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

ice melted

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: tcec-swcm-mar

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/03/27
Report #: R7563007
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C377036
Received: 2023/03/18, 08:43

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2023/03/19	2023/03/20	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2023/03/20	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2023/03/20	2023/03/25	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2023/03/21	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2023/03/20	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2023/03/27		
Conductivity	1	N/A	2023/03/20	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2023/03/27		
Dissolved Mercury in Water by CVAA	1	2023/03/20	2023/03/20	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2023/03/23	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/03/22	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/03/20	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/03/20	2023/03/20	CAM SOP-00413	SM 4500H+ B m
Phenol (4AAP)	1	N/A	2023/03/20	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2023/03/27		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/03/21	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/03/21	2023/03/22	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2023/03/27		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/03/20	2023/03/24	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/03/20	2023/03/21	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	1	2023/03/22	2023/03/23	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2023/03/27		
Un-ionized Ammonia (3)	1	2023/03/18	2023/03/27	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2023/03/20	CAM SOP-00228	EPA 8260D

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: tcec-swcm-mar

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/03/27
Report #: R7563007
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C377036
Received: 2023/03/18, 08:43

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.

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

Bureau Veritas Job #: C377036
Report Date: 2023/03/27

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VIB755		
Sampling Date		2023/03/17		
COC Number		tcec-swcm-mar		
	UNITS	**SS1**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	0.0023	0.0016	8560746
Field Measurements				
Field Conductivity	uS/cm	499	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.5	N/A	ONSITE
Field Temperature	Celsius	6.6	N/A	ONSITE
Field Turbidity	NTU	>1000	N/A	ONSITE
Field Measured pH	pH	7.8		ONSITE
Inorganics				
Total Ammonia-N	mg/L	0.22	0.15	8562313
Total BOD	mg/L	<2	2	8562850
Total Chemical Oxygen Demand (COD	mg/L	15	4.0	8562436
Conductivity	umho/cm	510	1.0	8561918
Total Dissolved Solids	mg/L	890	10	8564518
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8562485
pH	pH	7.88		8561915
Phenols-4AAP	mg/L	<0.0010	0.0010	8562950
Total Phosphorus	mg/L	4.8	0.10	8562464
Total Suspended Solids	mg/L	12000	100	8566342
Dissolved Sulphate (SO4)	mg/L	130	1.0	8562025
Alkalinity (Total as CaCO3)	mg/L	110	1.0	8561913
Dissolved Chloride (Cl-)	mg/L	11	1.0	8562013
Nitrite (N)	mg/L	0.016	0.010	8561973
Nitrate (N)	mg/L	0.46	0.10	8561973

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

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

Bureau Veritas Job #: C377036
Report Date: 2023/03/27

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VIB755		
Sampling Date		2023/03/17		
COC Number		tcec-swcm-mar		
	UNITS	**SS1**	**RDL**	**QC Batch**
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8561944
Total Arsenic (As)	mg/L	0.08	0.01	8566043
Total Barium (Ba)	mg/L	0.93	0.05	8566043
Total Boron (B)	mg/L	0.4	0.2	8566043
Total Cadmium (Cd)	mg/L	<0.001	0.001	8566043
Total Calcium (Ca)	mg/L	890	2	8566043
Total Chromium (Cr)	mg/L	0.34	0.05	8566043
Total Copper (Cu)	mg/L	0.25	0.02	8566043
Total Iron (Fe)	mg/L	330	1	8566043
Total Lead (Pb)	mg/L	0.12	0.005	8566043
Total Magnesium (Mg)	mg/L	210	0.5	8566043
Total Nickel (Ni)	mg/L	0.47	0.01	8566043
Total Potassium (K)	mg/L	51	2	8566043
Total Sodium (Na)	mg/L	19	1	8566043
Total Zinc (Zn)	mg/L	0.8	0.1	8566043

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C377036
Report Date: 2023/03/27

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		VIB755		
Sampling Date		2023/03/17		
COC Number		tcec-swcm-mar		
	UNITS	**SS1**	**RDL**	**QC Batch**
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.80	0.80	8561161
1,2-Dichlorobenzene	ug/L	<2.0	2.0	8561161
1,3-Dichlorobenzene	ug/L	<2.0	2.0	8561161
1,4-Dichlorobenzene	ug/L	<2.0	2.0	8561161
Hexachlorobenzene	ug/L	<2.0	2.0	8561161
1,2,4-Trichlorobenzene	ug/L	<2.0	2.0	8561161
2,4-Dichlorophenol	ug/L	<1.2	1.2	8561161
Pentachlorophenol	ug/L	<4.0	4.0	8561161
Phenol	ug/L	<2.0	2.0	8561161
2,4,6-Trichlorophenol	ug/L	<2.0	2.0	8561161
Di-N-butyl phthalate	ug/L	<8.0	8.0	8561161
Diethyl phthalate	ug/L	<4.0	4.0	8561161
Dimethyl phthalate	ug/L	<4.0	4.0	8561161
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	45		8561161
2-Fluorobiphenyl	%	66		8561161
2-Fluorophenol	%	19		8561161
D14-Terphenyl	%	90		8561161
D5-Nitrobenzene	%	80		8561161
D5-Phenol	%	23		8561161

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C377036
Report Date: 2023/03/27

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VIB755		
Sampling Date		2023/03/17		
COC Number		tcec-swcm-mar		
	UNITS	**SS1**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8560902
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8560902
Ethylbenzene	ug/L	<0.20	0.20	8560902
Methylene Chloride(Dichloromethane	ug/L	<2.0	2.0	8560902
Toluene	ug/L	<0.20	0.20	8560902
Vinyl Chloride	ug/L	<0.20	0.20	8560902
p+m-Xylene	ug/L	<0.20	0.20	8560902
o-Xylene	ug/L	<0.20	0.20	8560902
Total Xylenes	ug/L	<0.20	0.20	8560902
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	101		8560902
D4-1,2-Dichloroethane	%	107		8560902
D8-Toluene	%	96		8560902

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 #: C377036
Report Date: 2023/03/27

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

GENERAL COMMENTS

Sample VIB755 [SS1] : ABN Analysis: Due to the sample matrix, a smaller amount was used for analysis. Detection limits were adjusted accordingly.

Metals Analysis:Due to the sample matrix, the 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.

Bureau Veritas Job #: C377036
Report Date: 2023/03/27

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8560902	4-Bromofluorobenzene	2023/03/20	100	70 - 130	100	70 - 130	101	%				
8560902	D4-1,2-Dichloroethane	2023/03/20	107	70 - 130	99	70 - 130	100	%				
8560902	D8-Toluene	2023/03/20	98	70 - 130	100	70 - 130	100	%				
8561161	2,4,6-Tribromophenol	2023/03/20	107	10 - 130	102	10 - 130	76	%				
8561161	2-Fluorobiphenyl	2023/03/20	75	30 - 130	76	30 - 130	83	%				
8561161	2-Fluorophenol	2023/03/20	37	10 - 130	50	10 - 130	40	%				
8561161	D14-Terphenyl	2023/03/20	118	30 - 130	106	30 - 130	100	%				
8561161	D5-Nitrobenzene	2023/03/20	77	30 - 130	88	30 - 130	85	%				
8561161	D5-Phenol	2023/03/20	27	10 - 130	34	10 - 130	29	%				
8560902	1,4-Dichlorobenzene	2023/03/20	109	70 - 130	115	70 - 130	<0.40	ug/L	NC (1)	30		
8560902	Benzene	2023/03/20	92	70 - 130	93	70 - 130	<0.20	ug/L	2.6 (1)	30		
8560902	Ethylbenzene	2023/03/20	91	70 - 130	96	70 - 130	<0.20	ug/L	3.4 (1)	30		
8560902	Methylene Chloride(Dichloromethane)	2023/03/20	104	70 - 130	101	70 - 130	<2.0	ug/L	NC (1)	30		
8560902	o-Xylene	2023/03/20	90	70 - 130	96	70 - 130	<0.20	ug/L	4.0 (1)	30		
8560902	p+m-Xylene	2023/03/20	94	70 - 130	100	70 - 130	<0.20	ug/L	3.7 (1)	30		
8560902	Toluene	2023/03/20	93	70 - 130	95	70 - 130	<0.20	ug/L	4.2 (1)	30		
8560902	Total Xylenes	2023/03/20					<0.20	ug/L	3.8 (1)	30		
8560902	Vinyl Chloride	2023/03/20	86	70 - 130	91	70 - 130	<0.20	ug/L	0.12 (1)	30		
8561161	1,2,4-Trichlorobenzene	2023/03/20	44	30 - 130	46	30 - 130	<0.50	ug/L				
8561161	1,2-Dichlorobenzene	2023/03/20	47	30 - 130	50	30 - 130	<0.50	ug/L				
8561161	1,3-Dichlorobenzene	2023/03/20	45	30 - 130	48	30 - 130	<0.50	ug/L				
8561161	1,4-Dichlorobenzene	2023/03/20	48	30 - 130	54	30 - 130	<0.50	ug/L				
8561161	2,4,6-Trichlorophenol	2023/03/20	90	10 - 130	95	10 - 130	<0.50	ug/L				
8561161	2,4-Dichlorophenol	2023/03/20	92	10 - 130	103	10 - 130	<0.30	ug/L				
8561161	Benzo(a)pyrene	2023/03/20	117	30 - 130	99	30 - 130	<0.20	ug/L				
8561161	Diethyl phthalate	2023/03/20	99	30 - 130	99	30 - 130	<1.0	ug/L				
8561161	Dimethyl phthalate	2023/03/20	96	30 - 130	96	30 - 130	<1.0	ug/L				
8561161	Di-N-butyl phthalate	2023/03/20	107	30 - 130	112	30 - 130	<2.0	ug/L	NC (1)	40		
8561161	Hexachlorobenzene	2023/03/20	97	30 - 130	91	30 - 130	<0.50	ug/L				
8561161	Pentachlorophenol	2023/03/20	94	10 - 130	78	10 - 130	<1.0	ug/L				

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

Bureau Veritas Job #: C377036
Report Date: 2023/03/27

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8561161	Phenol	2023/03/20	31	10 - 130	38	10 - 130	<0.50	ug/L				
8561913	Alkalinity (Total as CaCO3)	2023/03/20			96	85 - 115	<1.0	mg/L	3.9 (2)	20		
8561915	pH	2023/03/20			102	98 - 103			1.2 (2)	N/A		
8561918	Conductivity	2023/03/20			100	85 - 115	<1.0	umho/cm	0.19 (2)	25		
8561944	Dissolved Mercury (Hg)	2023/03/20	99	75 - 125	102	80 - 120	<0.10	ug/L	NC (1)	20		
8561973	Nitrate (N)	2023/03/20	82	80 - 120	87	80 - 120	<0.10	mg/L	NC (1)	20		
8561973	Nitrite (N)	2023/03/20	107	80 - 120	106	80 - 120	<0.010	mg/L	NC (1)	20		
8562013	Dissolved Chloride (Cl-)	2023/03/21	95	80 - 120	92	80 - 120	<1.0	mg/L	0.83 (1)	20		
8562025	Dissolved Sulphate (SO4)	2023/03/21	90	75 - 125	97	80 - 120	<1.0	mg/L	0.66 (1)	20		
8562313	Total Ammonia-N	2023/03/22	91	75 - 125	99	80 - 120	<0.15	mg/L	NC (1)	20		
8562436	Total Chemical Oxygen Demand (COD)	2023/03/20	NC	80 - 120	103	80 - 120	<4.0	mg/L	1.1 (1)	20		
8562464	Total Phosphorus	2023/03/21	106	80 - 120	103	80 - 120	<0.030	mg/L	0.076 (1)	25	94	80 - 120
8562485	Total Kjeldahl Nitrogen (TKN)	2023/03/24	NC	80 - 120	99	80 - 120	<0.7	mg/L	2.0 (1)	20	99	80 - 120
8562850	Total BOD	2023/03/25					<2	mg/L	1.9 (1)	30	96	80 - 120
8562950	Phenols-4AAP	2023/03/20	99	80 - 120	97	80 - 120	<0.0040	mg/L	NC (1)	25		
8564518	Total Dissolved Solids	2023/03/22					<10	mg/L	2.8 (1)	20	95	90 - 110
8566043	Total Arsenic (As)	2023/03/22	102	80 - 120	103	80 - 120	<0.001	mg/L				
8566043	Total Barium (Ba)	2023/03/22	NC	80 - 120	97	80 - 120	<0.005	mg/L				
8566043	Total Boron (B)	2023/03/22	NC	80 - 120	102	80 - 120	<0.02	mg/L	5.6 (1)	20		
8566043	Total Cadmium (Cd)	2023/03/22	97	80 - 120	98	80 - 120	<0.0001	mg/L	NC (1)	20		
8566043	Total Calcium (Ca)	2023/03/22	NC	80 - 120	100	80 - 120	<0.2	mg/L				
8566043	Total Chromium (Cr)	2023/03/22	96	80 - 120	98	80 - 120	<0.005	mg/L	NC (1)	20		
8566043	Total Copper (Cu)	2023/03/22	97	80 - 120	98	80 - 120	<0.002	mg/L	NC (1)	20		
8566043	Total Iron (Fe)	2023/03/22	NC	80 - 120	100	80 - 120	<0.1	mg/L				
8566043	Total Lead (Pb)	2023/03/22	92	80 - 120	97	80 - 120	<0.0005	mg/L	NC (1)	20		
8566043	Total Magnesium (Mg)	2023/03/22	NC	80 - 120	100	80 - 120	<0.05	mg/L				
8566043	Total Nickel (Ni)	2023/03/22	94	80 - 120	98	80 - 120	<0.001	mg/L	5.7 (1)	20		
8566043	Total Potassium (K)	2023/03/22	NC	80 - 120	99	80 - 120	<0.2	mg/L				
8566043	Total Sodium (Na)	2023/03/22	NC	80 - 120	101	80 - 120	<0.1	mg/L				

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

Bureau Veritas Job #: C377036
Report Date: 2023/03/27

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8566043	Total Zinc (Zn)	2023/03/22	98	80 - 120	105	80 - 120	<0.01	mg/L	NC (1)	20		
8566342	Total Suspended Solids	2023/03/23					<10	mg/L	NC (1)	20	97	85 - 115

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 [VIB755-01]

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

Bureau Veritas Job #: C377036
Report Date: 2023/03/27

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

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FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEL

Site No.:

Sample: SS11 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other: ____

Sampling Device:

X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) ____ (ft/msl)

Depth to Water (DTW) (from TOC) ____ (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) ____ (ft msl)

Total Well Depth (from TOC) ____ (ft)

Stick Up (from ground elevation) ____ (ft)

Casing ID ____ (in)

Casing Material ____

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ~~ppm~~)	eH/ORP (mV)	Other: ____ Units ____
03 17 23	7.8	499	6.6	>1000	16.5		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: Brown w Sed, Opaque

Odor: N/O

Color: Brown

Other: ____

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 31km/h S

Outlook: Rain

Precipitation: Y or N

FIELD COMMENTS

Specific Comments (including purge/well volume calculations if required):

Depth: 0.6m
Width: 1.5m
time @ 1m 18 4s
2: 5s
3: 4s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
03/17/23	Jake Arbiello	[signature]	RUPI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v.3.1 06/20

0594

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks SW
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Location:	Twin Creeks
				Sampled By:	JRA

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-SWCM-MAR

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 28-Mar-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZJ-ON-WLF-2023 TCLS - SW (COMPLIANCE POINT) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS1	17-Mar-23	AM	SW	N	N	X	13	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									All samples for Hg field filtered @ 45um
12									See lab addendum for lab group coding

18-Mar-23 08:43
Patricia Legette
C377036
KTN ENV-1094

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG-3/17/2023	legette for JAC/DEC KAN	2023/03/18	08/43	Temperature (°C) on Receipt 5/4/7	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

Afterhour

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: tcec-swcm-apr

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/12
Report #: R7584153
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C393396
Received: 2023/04/04, 08:45

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	2	2023/04/05	2023/04/06	CAM SOP-00301	EPA 8270 m
Alkalinity	2	N/A	2023/04/05	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2023/04/05	2023/04/10	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	2	N/A	2023/04/05	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2023/04/04	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	2	N/A	2023/04/11		
Conductivity	2	N/A	2023/04/05	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2023/04/11		
Dissolved Mercury in Water by CVAA	2	2023/04/06	2023/04/10	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	2	N/A	2023/04/10	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2023/04/06	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2023/04/06	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2023/04/04	2023/04/05	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2023/04/05	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2023/04/11		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/04/05	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	2	2023/04/04	2023/04/05	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2023/04/11		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/04/04	2023/04/06	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2023/04/04	2023/04/05	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	2	2023/04/04	2023/04/05	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	2	N/A	2023/04/11		
Un-ionized Ammonia (3)	2	2023/04/04	2023/04/11	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2023/04/05	CAM SOP-00228	EPA 8260D

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: tcec-swcm-apr

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/12
Report #: R7584153
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C393396
Received: 2023/04/04, 08:45

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.

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

Bureau Veritas Job #: C393396
Report Date: 2023/04/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VLP377	VLP378		
Sampling Date		2023/04/02	2023/04/02		
COC Number		tcec-swcm-apr	tcec-swcm-apr		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Calculated Parameters					
Total Un-ionized Ammonia	mg/L	<0.00053	<0.00053	0.00053	8590196
Field Measurements					
Field Conductivity	uS/cm	394	394	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.67	10.67	N/A	ONSITE
Field Temperature	Celsius	7.0	7.0	N/A	ONSITE
Field Turbidity	NTU	7.6	7.6	N/A	ONSITE
Field Measured pH	pH	7.3	7.3		ONSITE
Inorganics					
Total Ammonia-N	mg/L	<0.15	<0.15	0.15	8589823
Total BOD	mg/L	<2	<2	2	8591815
Total Chemical Oxygen Demand (COD)	mg/L	27	12	4.0	8590821
Conductivity	umho/cm	430	430	1.0	8591333
Total Dissolved Solids	mg/L	330	345	10	8589549
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	<0.7	0.7	8591094
pH	pH	7.89	8.02		8591316
Phenols-4AAP	mg/L	<0.0010	<0.0010	0.0010	8592083
Total Phosphorus	mg/L	0.14	0.13	0.030	8591016
Total Suspended Solids	mg/L	150	210	10	8590929
Dissolved Sulphate (SO4)	mg/L	79	77	1.0	8591289
Alkalinity (Total as CaCO3)	mg/L	110	120	1.0	8591331
Dissolved Chloride (Cl-)	mg/L	16	17	1.0	8591287
Nitrite (N)	mg/L	<0.010	0.017	0.010	8591274
Nitrate (N)	mg/L	0.60	0.56	0.10	8591274

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

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

Bureau Veritas Job #: C393396
Report Date: 2023/04/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VLP377	VLP378		
Sampling Date		2023/04/02	2023/04/02		
COC Number		tcec-swcm-apr	tcec-swcm-apr		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Metals					
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	0.10	8594712
Total Arsenic (As)	mg/L	0.003	0.003	0.001	8598069
Total Barium (Ba)	mg/L	0.060	0.058	0.005	8598069
Total Boron (B)	mg/L	0.25	0.26	0.02	8598069
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	8598069
Total Calcium (Ca)	mg/L	61	62	0.2	8598069
Total Chromium (Cr)	mg/L	0.012	0.011	0.005	8598069
Total Copper (Cu)	mg/L	0.009	0.009	0.002	8598069
Total Iron (Fe)	mg/L	10	9.9	0.1	8598069
Total Lead (Pb)	mg/L	0.0036	0.0034	0.0005	8598069
Total Magnesium (Mg)	mg/L	18	18	0.05	8598069
Total Nickel (Ni)	mg/L	0.015	0.014	0.001	8598069
Total Potassium (K)	mg/L	5.4	5.1	0.2	8598069
Total Sodium (Na)	mg/L	14	14	0.1	8598069
Total Zinc (Zn)	mg/L	0.03	0.03	0.01	8598069

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C393396
Report Date: 2023/04/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		VLP377	VLP378		
Sampling Date		2023/04/02	2023/04/02		
COC Number		tcec-swcm-apr	tcec-swcm-apr		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Semivolatile Organics					
Benzo(a)pyrene	ug/L	<0.80	<0.80	0.80	8593495
1,2-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	8593495
1,3-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	8593495
1,4-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	8593495
Hexachlorobenzene	ug/L	<2.0	<2.0	2.0	8593495
1,2,4-Trichlorobenzene	ug/L	<2.0	<2.0	2.0	8593495
2,4-Dichlorophenol	ug/L	<1.2	<1.2	1.2	8593495
Pentachlorophenol	ug/L	<4.0	<4.0	4.0	8593495
Phenol	ug/L	<2.0	<2.0	2.0	8593495
2,4,6-Trichlorophenol	ug/L	<2.0	<2.0	2.0	8593495
Di-N-butyl phthalate	ug/L	<8.0	<8.0	8.0	8593495
Diethyl phthalate	ug/L	<4.0	<4.0	4.0	8593495
Dimethyl phthalate	ug/L	<4.0	<4.0	4.0	8593495
Surrogate Recovery (%)					
2,4,6-Tribromophenol	%	62	64		8593495
2-Fluorobiphenyl	%	42	82		8593495
2-Fluorophenol	%	2.7 (1)	23		8593495
D14-Terphenyl	%	95	93		8593495
D5-Nitrobenzene	%	4.1 (1)	80		8593495
D5-Phenol	%	11	25		8593495

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 lower bias in some results.

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

Bureau Veritas Job #: C393396
Report Date: 2023/04/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VLP377	VLP378		
Sampling Date		2023/04/02	2023/04/02		
COC Number		tcec-swcm-apr	tcec-swcm-apr		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	8591250
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	8591250
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8591250
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	8591250
Toluene	ug/L	<0.20	<0.20	0.20	8591250
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	8591250
p+m-Xylene	ug/L	<0.20	<0.20	0.20	8591250
o-Xylene	ug/L	<0.20	<0.20	0.20	8591250
Total Xylenes	ug/L	<0.20	<0.20	0.20	8591250
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	94	94		8591250
D4-1,2-Dichloroethane	%	118	111		8591250
D8-Toluene	%	90	91		8591250

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

GENERAL COMMENTS

Sample VLP377 [SS1] : ABN Analysis: Due to the sample matrix, a smaller amount was used for analysis. Detection limits were adjusted accordingly.

Sample VLP378 [SSDUP1] : ABN Analysis: Due to the sample matrix, a smaller amount was used for analysis. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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

Bureau Veritas Job #: C393396
Report Date: 2023/04/12

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8591250	4-Bromofluorobenzene	2023/04/05	100	70 - 130	100	70 - 130	97	%				
8591250	D4-1,2-Dichloroethane	2023/04/05	106	70 - 130	101	70 - 130	102	%				
8591250	D8-Toluene	2023/04/05	102	70 - 130	102	70 - 130	96	%				
8593495	2,4,6-Tribromophenol	2023/04/06	110	10 - 130	100	10 - 130	73	%				
8593495	2-Fluorobiphenyl	2023/04/06	82	30 - 130	75	30 - 130	78	%				
8593495	2-Fluorophenol	2023/04/06	53	10 - 130	54	10 - 130	48	%				
8593495	D14-Terphenyl	2023/04/06	107	30 - 130	95	30 - 130	96	%				
8593495	D5-Nitrobenzene	2023/04/06	93	30 - 130	89	30 - 130	88	%				
8593495	D5-Phenol	2023/04/06	35	10 - 130	35	10 - 130	35	%				
8589549	Total Dissolved Solids	2023/04/05					<10	mg/L	13 (1)	20	100	90 - 110
8589823	Total Ammonia-N	2023/04/06	93	75 - 125	95	80 - 120	<0.15	mg/L	1.4 (1)	20		
8590821	Total Chemical Oxygen Demand (COD)	2023/04/04	95	80 - 120	99	80 - 120	<4.0	mg/L	5.1 (1)	20		
8590929	Total Suspended Solids	2023/04/05					<10	mg/L	3.6 (1)	20	99	85 - 115
8591016	Total Phosphorus	2023/04/05	99 (2)	80 - 120	101	80 - 120	<0.030	mg/L	0.60 (3)	25	97	80 - 120
8591094	Total Kjeldahl Nitrogen (TKN)	2023/04/06	102 (4)	80 - 120	101	80 - 120	<0.7	mg/L	NC (5)	20	102	80 - 120
8591250	1,4-Dichlorobenzene	2023/04/05	106	70 - 130	100	70 - 130	<0.40	ug/L				
8591250	Benzene	2023/04/05	93	70 - 130	89	70 - 130	<0.20	ug/L	NC (1)	30		
8591250	Ethylbenzene	2023/04/05	82	70 - 130	84	70 - 130	<0.20	ug/L	NC (1)	30		
8591250	Methylene Chloride(Dichloromethane)	2023/04/05	101	70 - 130	98	70 - 130	<2.0	ug/L				
8591250	o-Xylene	2023/04/05	83	70 - 130	87	70 - 130	<0.20	ug/L	NC (1)	30		
8591250	p+m-Xylene	2023/04/05	84	70 - 130	87	70 - 130	<0.20	ug/L	NC (1)	30		
8591250	Toluene	2023/04/05	93	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
8591250	Total Xylenes	2023/04/05					<0.20	ug/L	NC (1)	30		
8591250	Vinyl Chloride	2023/04/05	96	70 - 130	96	70 - 130	<0.20	ug/L				
8591274	Nitrate (N)	2023/04/06	100	80 - 120	102	80 - 120	<0.10	mg/L	0.0095 (1)	20		
8591274	Nitrite (N)	2023/04/06	103	80 - 120	107	80 - 120	<0.010	mg/L	8.8 (1)	20		
8591287	Dissolved Chloride (Cl-)	2023/04/05	89	80 - 120	99	80 - 120	<1.0	mg/L	0.66 (1)	20		
8591289	Dissolved Sulphate (SO4)	2023/04/05	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.74 (1)	20		
8591316	pH	2023/04/05			102	98 - 103			0.78 (6)	N/A		
8591331	Alkalinity (Total as CaCO3)	2023/04/05			97	85 - 115	<1.0	mg/L	1.0 (6)	20		

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Bureau Veritas Job #: C393396
Report Date: 2023/04/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8591333	Conductivity	2023/04/05			100	85 - 115	<1.0	umho/cm	0.23 (6)	25		
8591815	Total BOD	2023/04/10					<2	mg/L	2.2 (1)	30	93	80 - 120
8592083	Phenols-4AAP	2023/04/05	100	80 - 120	101	80 - 120	<0.0010	mg/L	NC (1)	20		
8593495	1,2,4-Trichlorobenzene	2023/04/06	54	30 - 130	48	30 - 130	<0.50	ug/L	NC (1)	40		
8593495	1,2-Dichlorobenzene	2023/04/06	61	30 - 130	57	30 - 130	<0.50	ug/L	NC (1)	40		
8593495	1,3-Dichlorobenzene	2023/04/06	58	30 - 130	54	30 - 130	<0.50	ug/L	NC (1)	40		
8593495	1,4-Dichlorobenzene	2023/04/06	61	30 - 130	56	30 - 130	<0.50	ug/L	NC (1)	40		
8593495	2,4,6-Trichlorophenol	2023/04/06	95	10 - 130	94	10 - 130	<0.50	ug/L	NC (1)	40		
8593495	2,4-Dichlorophenol	2023/04/06	105	10 - 130	107	10 - 130	<0.30	ug/L	NC (1)	40		
8593495	Benzo(a)pyrene	2023/04/06	100	30 - 130	97	30 - 130	<0.20	ug/L	NC (1)	40		
8593495	Diethyl phthalate	2023/04/06	97	30 - 130	104	30 - 130	<1.0	ug/L	NC (1)	40		
8593495	Dimethyl phthalate	2023/04/06	97	30 - 130	100	30 - 130	<1.0	ug/L	NC (1)	40		
8593495	Di-N-butyl phthalate	2023/04/06	107	30 - 130	108	30 - 130	<2.0	ug/L	NC (1)	40		
8593495	Hexachlorobenzene	2023/04/06	95	30 - 130	91	30 - 130	<0.50	ug/L	NC (1)	40		
8593495	Pentachlorophenol	2023/04/06	83	10 - 130	78	10 - 130	<1.0	ug/L	NC (1)	40		
8593495	Phenol	2023/04/06	37	10 - 130	38	10 - 130	<0.50	ug/L	NC (1)	40		
8594712	Dissolved Mercury (Hg)	2023/04/10	99	75 - 125	94	80 - 120	<0.10	ug/L	NC (1)	20		
8598069	Total Arsenic (As)	2023/04/10	99 (7)	80 - 120	97	80 - 120	<0.001	mg/L	3.5 (8)	20		
8598069	Total Barium (Ba)	2023/04/10	97 (7)	80 - 120	93	80 - 120	<0.005	mg/L	1.3 (8)	20		
8598069	Total Boron (B)	2023/04/10	99 (7)	80 - 120	96	80 - 120	<0.02	mg/L	2.0 (8)	20		
8598069	Total Cadmium (Cd)	2023/04/10	101 (7)	80 - 120	97	80 - 120	<0.0001	mg/L	NC (8)	20		
8598069	Total Calcium (Ca)	2023/04/10	NC (7)	80 - 120	95	80 - 120	<0.2	mg/L	1.0 (8)	20		
8598069	Total Chromium (Cr)	2023/04/10	96 (7)	80 - 120	93	80 - 120	<0.005	mg/L	4.1 (8)	20		
8598069	Total Copper (Cu)	2023/04/10	96 (7)	80 - 120	93	80 - 120	<0.002	mg/L	0.24 (8)	20		
8598069	Total Iron (Fe)	2023/04/10	98 (7)	80 - 120	95	80 - 120	<0.1	mg/L	2.4 (8)	20		
8598069	Total Lead (Pb)	2023/04/10	93 (7)	80 - 120	91	80 - 120	<0.0005	mg/L	3.7 (8)	20		
8598069	Total Magnesium (Mg)	2023/04/10	92 (7)	80 - 120	92	80 - 120	<0.05	mg/L	2.1 (8)	20		
8598069	Total Nickel (Ni)	2023/04/10	92 (7)	80 - 120	92	80 - 120	<0.001	mg/L	3.8 (8)	20		
8598069	Total Potassium (K)	2023/04/10	101 (7)	80 - 120	93	80 - 120	<0.2	mg/L	1.5 (8)	20		

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Bureau Veritas Job #: C393396
Report Date: 2023/04/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8598069	Total Sodium (Na)	2023/04/10	92 (7)	80 - 120	93	80 - 120	<0.1	mg/L	1.1 (8)	20		
8598069	Total Zinc (Zn)	2023/04/10	100 (7)	80 - 120	99	80 - 120	<0.01	mg/L	0.35 (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 [VLP378-06]

(3) Duplicate Parent ID [VLP378-06]

(4) Matrix Spike Parent ID [VLP377-06]

(5) Duplicate Parent ID [VLP377-06]

(6) Duplicate Parent ID [VLP377-02]

(7) Matrix Spike Parent ID [VLP377-05]

(8) Duplicate Parent ID [VLP377-05]

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Bureau Veritas Job #: C393396
Report Date: 2023/04/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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.

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FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SS1 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ~~ppm~~)	eH/ORP (mV)	Other: Units
040223	7.3	394	7.0	7.68	10.67		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: translucent

Odor: No odor

Color: Slight Yellow

Other: —

Weather Conditions (required daily, or as conditions change): ~~clear~~ Clear

Direction/Speed: 13 km/h SE

Outlook: Clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Width: 1m

Depth: 15 cm

Time (1m): 4s; 5s; 4; s

SS1DUP taken

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/02/23	Eric Wilson	E.W./Sam.	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0364

Maxxam ANALYTICS IMMEDIATE

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks SW	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-APR
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA
[x] PWQO
[ ] Reg. 558

Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3

Sewer Use: [ ] Sanitary [ ] Storm Region _____

[ ] Other _____ specify

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: 12-Apr-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZJ-ON-WLF-2023 TCLS - SW (COMPLIANCE POINT) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS1	2-Apr-23	AM	SW	N	N	X	12	SSDUP1 taken
2	SSDUP1	2-Apr-23	AM	SW	N	N	X	12	
3									
4									
5									
6									
7									
8									
9									
10									
11									All samples for Hg field filtered @ 45um
12									See lab addendum for lab group coding

04-Apr-23 08:45
Patricia Legette
C393396
KTN ENV-1161

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA-4/2/2023	[illegible]	2023/04/04	0845	Temperature (°C) on Receipt 6/4/5	Condition of Sample on Receipt [ ] OK [ ] SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

ice

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-APR

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/11
Report #: R7583346
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C393399
Received: 2023/04/04, 08:39

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2023/04/05	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2023/04/06	2023/04/11	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	4	N/A	2023/04/05	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2023/04/04	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	4	N/A	2023/04/11		
Conductivity	4	N/A	2023/04/05	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	4	N/A	2023/04/11		
Dissolved Mercury in Water by CVAA	2	2023/04/06	2023/04/10	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	4	N/A	2023/04/10	CAM SOP-00447	EPA 6020B m
Ammonia-N	4	N/A	2023/04/06	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	4	N/A	2023/04/05	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	4	2023/04/04	2023/04/05	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	4	N/A	2023/04/05	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	4	N/A	2023/04/11		Field pH Meter
Sulphate by Automated Turbidimetry	4	N/A	2023/04/05	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	4	2023/04/04	2023/04/05	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	4	N/A	2023/04/11		Field Thermometer
Total Kjeldahl Nitrogen in Water	3	2023/04/04	2023/04/05	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	1	2023/04/04	2023/04/06	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	4	2023/04/04	2023/04/05	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	2	2023/04/04	2023/04/05	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	4	N/A	2023/04/11		
Un-ionized Ammonia (3)	4	2023/04/04	2023/04/11	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

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-APR

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/11
Report #: R7583346
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C393399
Received: 2023/04/04, 08:39

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.

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

Bureau Veritas Job #: C393399
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VLP407			VLP408		
Sampling Date		2023/04/02			2023/04/02		
COC Number		TCEC-SWCM-APR			TCEC-SWCM-APR		
	UNITS	**SS10 (1)**	**RDL**	**QC Batch**	**SS10 (2)**	**RDL**	**QC Batch**
Calculated Parameters							
Total Un-ionized Ammonia	mg/L	<0.00061	0.00061	8590196	<0.00061	0.00061	8590196
Field Measurements							
Field Conductivity	uS/cm	127	N/A	ONSITE	127	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.7	N/A	ONSITE	10.7	N/A	ONSITE
Field Temperature	Celsius	10.6	N/A	ONSITE	10.6	N/A	ONSITE
Field Turbidity	NTU	522	N/A	ONSITE	522	N/A	ONSITE
Field Measured pH	pH	7.0		ONSITE	7.0		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	8589823	<0.15	0.15	8589823
Total BOD	mg/L				<2	2	8594326
Total Chemical Oxygen Demand (COD)	mg/L				28	4.0	8590821
Conductivity	umho/cm	130	1.0	8591333	130	1.0	8591333
Total Dissolved Solids	mg/L	300	10	8589549	320	10	8589549
Total Kjeldahl Nitrogen (TKN)	mg/L	0.8	0.7	8591094	<0.7	0.7	8591094
pH	pH	7.83		8591316	7.86		8591316
Phenols-4AAP	mg/L	<0.0010	0.0010	8592138	<0.0010	0.0010	8592138
Total Phosphorus	mg/L	<0.030	0.030	8591016	<0.030	0.030	8591016
Total Suspended Solids	mg/L				100	10	8590929
Dissolved Sulphate (SO4)	mg/L	8.4	1.0	8591289	9.0	1.0	8591289
Alkalinity (Total as CaCO3)	mg/L	57	1.0	8591331	57	1.0	8591331
Dissolved Chloride (Cl-)	mg/L	6.3	1.0	8591287	5.7	1.0	8591287
Nitrite (N)	mg/L	0.014	0.010	8591283	0.020	0.010	8591283
Nitrate (N)	mg/L	0.12	0.10	8591283	0.11	0.10	8591283

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

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

Bureau Veritas Job #: C393399
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VLP409			VLP410		
Sampling Date		2023/04/02			2023/04/02		
COC Number		TCEC-SWCM-APR			TCEC-SWCM-APR		
	UNITS	**SS16 (1)**	**RDL**	**QC Batch**	**SS16 (2)**	**RDL**	**QC Batch**
Calculated Parameters							
Total Un-ionized Ammonia	mg/L	<0.00061	0.00061	8590196	<0.00061	0.00061	8590196
Field Measurements							
Field Conductivity	uS/cm	407	N/A	ONSITE	407	N/A	ONSITE
Field Dissolved Oxygen	mg/L	9.59	N/A	ONSITE	9.59	N/A	ONSITE
Field Temperature	Celsius	8.7	N/A	ONSITE	8.7	N/A	ONSITE
Field Turbidity	NTU	133	N/A	ONSITE	133	N/A	ONSITE
Field Measured pH	pH	7.3		ONSITE	7.3		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	8589823	<0.15	0.15	8589823
Total BOD	mg/L				<2	2	8594326
Total Chemical Oxygen Demand (COD)	mg/L				19	4.0	8590821
Conductivity	umho/cm	410	1.0	8591333	420	1.0	8591333
Total Dissolved Solids	mg/L	255	10	8589549	265	10	8589549
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8591094	1.0	0.7	8591094
pH	pH	7.98		8591316	8.05		8591316
Phenols-4AAP	mg/L	<0.0010	0.0010	8592138	<0.0010	0.0010	8592138
Total Phosphorus	mg/L	0.046	0.030	8591016	0.049	0.030	8591016
Total Suspended Solids	mg/L				62	10	8590929
Dissolved Sulphate (SO4)	mg/L	21	1.0	8591289	20	1.0	8591289
Alkalinity (Total as CaCO3)	mg/L	200	1.0	8591331	200	1.0	8591331
Dissolved Chloride (Cl-)	mg/L	2.2	1.0	8591287	2.6	1.0	8591287
Nitrite (N)	mg/L	<0.010	0.010	8591283	<0.010	0.010	8591283
Nitrate (N)	mg/L	0.23	0.10	8591283	0.22	0.10	8591283

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

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

Bureau Veritas Job #: C393399
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VLP407			VLP408			VLP409		
Sampling Date		2023/04/02			2023/04/02			2023/04/02		
COC Number		TCEC-SWCM-APR			TCEC-SWCM-APR			TCEC-SWCM-APR		
	UNITS	**SS10 (1)**	**RDL**	**QC Batch**	**SS10 (2)**	**RDL**	**QC Batch**	**SS16 (1)**	**RDL**	**QC Batch**
Metals										
Dissolved Mercury (Hg)	ug/L				<0.10	0.10	8594712			
Total Arsenic (As)	mg/L				<0.001	0.001	8598069			
Total Barium (Ba)	mg/L				0.005	0.005	8598069			
Total Boron (B)	mg/L	0.04	0.02	8598069				0.03	0.02	8598069
Total Cadmium (Cd)	mg/L				<0.0001	0.0001	8598069			
Total Calcium (Ca)	mg/L	17	0.2	8598069				60	0.2	8598069
Total Chromium (Cr)	mg/L	<0.005	0.005	8598069				<0.005	0.005	8598069
Total Copper (Cu)	mg/L				<0.002	0.002	8598069			
Total Iron (Fe)	mg/L	0.1	0.1	8598069				3.0	0.1	8598069
Total Lead (Pb)	mg/L				<0.0005	0.0005	8598069			
Total Magnesium (Mg)	mg/L	3.6	0.05	8598069				13	0.05	8598069
Total Nickel (Ni)	mg/L	<0.001	0.001	8598069				0.004	0.001	8598069
Total Potassium (K)	mg/L	1.2	0.2	8598069				3.3	0.2	8598069
Total Sodium (Na)	mg/L	1.3	0.1	8598069				4.3	0.1	8598069
Total Zinc (Zn)	mg/L	<0.01	0.01	8598069				<0.01	0.01	8598069

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VLP410		
Sampling Date		2023/04/02		
COC Number		TCEC-SWCM-APR		
	UNITS	**SS16 (2)**	**RDL**	**QC Batch**
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8594712
Total Arsenic (As)	mg/L	0.001	0.001	8598069
Total Barium (Ba)	mg/L	0.042	0.005	8598069
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8598069
Total Copper (Cu)	mg/L	0.004	0.002	8598069
Total Lead (Pb)	mg/L	0.0016	0.0005	8598069

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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.

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

Bureau Veritas Job #: C393399
Report Date: 2023/04/11

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8589549	Total Dissolved Solids	2023/04/05					<10	mg/L	13 (1)	20	100	90 - 110
8589823	Total Ammonia-N	2023/04/06	93	75 - 125	95	80 - 120	<0.15	mg/L	1.4 (1)	20		
8590821	Total Chemical Oxygen Demand (COD)	2023/04/04	95 (2)	80 - 120	99	80 - 120	<4.0	mg/L	5.1 (3)	20		
8590929	Total Suspended Solids	2023/04/05					<10	mg/L	3.6 (1)	20	99	85 - 115
8591016	Total Phosphorus	2023/04/05	99	80 - 120	101	80 - 120	<0.030	mg/L	0.60 (1)	25	97	80 - 120
8591094	Total Kjeldahl Nitrogen (TKN)	2023/04/06	102	80 - 120	101	80 - 120	<0.7	mg/L	NC (1)	20	102	80 - 120
8591283	Nitrate (N)	2023/04/05	91	80 - 120	100	80 - 120	<0.10	mg/L	0.68 (1)	20		
8591283	Nitrite (N)	2023/04/05	102	80 - 120	105	80 - 120	<0.010	mg/L	NC (1)	20		
8591287	Dissolved Chloride (Cl-)	2023/04/05	89	80 - 120	99	80 - 120	<1.0	mg/L	0.66 (1)	20		
8591289	Dissolved Sulphate (SO4)	2023/04/05	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.74 (1)	20		
8591316	pH	2023/04/05			102	98 - 103			0.78 (1)	N/A		
8591331	Alkalinity (Total as CaCO3)	2023/04/05			97	85 - 115	<1.0	mg/L	1.0 (1)	20		
8591333	Conductivity	2023/04/05			100	85 - 115	<1.0	umho/cm	0.23 (1)	25		
8592138	Phenols-4AAP	2023/04/05	102	80 - 120	103	80 - 120	<0.0010	mg/L	0 (1)	20		
8594326	Total BOD	2023/04/11					<2	mg/L	NC (1)	30	95	80 - 120
8594712	Dissolved Mercury (Hg)	2023/04/10	99 (4)	75 - 125	94	80 - 120	<0.10	ug/L	NC (5)	20		
8598069	Total Arsenic (As)	2023/04/10	99	80 - 120	97	80 - 120	<0.001	mg/L	3.5 (1)	20		
8598069	Total Barium (Ba)	2023/04/10	97	80 - 120	93	80 - 120	<0.005	mg/L	1.3 (1)	20		
8598069	Total Boron (B)	2023/04/10	99	80 - 120	96	80 - 120	<0.02	mg/L	2.0 (1)	20		
8598069	Total Cadmium (Cd)	2023/04/10	101	80 - 120	97	80 - 120	<0.0001	mg/L	NC (1)	20		
8598069	Total Calcium (Ca)	2023/04/10	NC	80 - 120	95	80 - 120	<0.2	mg/L	1.0 (1)	20		
8598069	Total Chromium (Cr)	2023/04/10	96	80 - 120	93	80 - 120	<0.005	mg/L	4.1 (1)	20		
8598069	Total Copper (Cu)	2023/04/10	96	80 - 120	93	80 - 120	<0.002	mg/L	0.24 (1)	20		
8598069	Total Iron (Fe)	2023/04/10	98	80 - 120	95	80 - 120	<0.1	mg/L	2.4 (1)	20		
8598069	Total Lead (Pb)	2023/04/10	93	80 - 120	91	80 - 120	<0.0005	mg/L	3.7 (1)	20		
8598069	Total Magnesium (Mg)	2023/04/10	92	80 - 120	92	80 - 120	<0.05	mg/L	2.1 (1)	20		
8598069	Total Nickel (Ni)	2023/04/10	92	80 - 120	92	80 - 120	<0.001	mg/L	3.8 (1)	20		
8598069	Total Potassium (K)	2023/04/10	101	80 - 120	93	80 - 120	<0.2	mg/L	1.5 (1)	20		
8598069	Total Sodium (Na)	2023/04/10	92	80 - 120	93	80 - 120	<0.1	mg/L	1.1 (1)	20		

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

Bureau Veritas Job #: C393399
Report Date: 2023/04/11

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8598069	Total Zinc (Zn)	2023/04/10	100	80 - 120	99	80 - 120	<0.01	mg/L	0.35 (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 [VLP408-05]

(3) Duplicate Parent ID [VLP408-05]

(4) Matrix Spike Parent ID [VLP410-07]

(5) Duplicate Parent ID [VLP410-07]

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 #: C393399
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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.

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 5510
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device:
A-Submersible Pump
B-Peristaltic Pump
C-QED Bladder Pump
D-Bailer
E-Piston Pump
F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Filter Type: A
A-In-line Disposable
B-Pressure
C-Vacuum
X-Other:

Sample Tube Type: A
A-Teflon
B-Stainless Steel
C-PVC
D-Polypropylene
X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ~~ppm~~)	eH/ORP (mV)	Other: Units
04 02 23	7.0	127	10.6	522	10.7		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: translucent Odor: none Color: Slight yellow Other: —

Weather Conditions (required daily, or as conditions change): 2°C Direction/Speed: 15 km/h SE Outlook: Clear Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

width = 0.15
depth 0.10
time @ 1m 1:15
2:15
3:17

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/02/23	Jake Arbitelli	[signature]	RVDE

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0606

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TLEC

Site No.:

Sample: S S 1 6 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sampling Device:

X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
0 4 0 2 2 0	7.3	407	8.7	152	9.59		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: translucent Odor: none Color: none Other:

Weather Conditions (required daily, or as conditions change): 2°C Direction/Speed: 15 km/h SE Outlook: clear Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

width 0.8m
Depth 0.2m
time@in 1:16s
2:17s
2:16s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/02/20	Jake Arbitell	[signature]	RWPI
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0365

Maxxam IMMEDIATE

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks SW	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-APR
Email: lmertick@wm.com		Email: BJL@RWDI.com, JCL@RWDI.com		Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 12-Apr-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZH-ON-WLF-2023 TCLS - SW (BKGRND STATION) QUARTERLY	ZI-ON-WLF-2023 TCLS - SW (BKGRND STATION) SPRING QTRLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS10	2-Apr-23	PM	SW	N	N	X		5	
2	SS10	2-Apr-23	PM	SW	N	N		X	8	
3	SS16	2-Apr-23	PM	SW	N	N	X		5	
4	SS16	2-Apr-23	PM	SW	N	N		X	8	
5										
6										
7										
8										
9										
10										
11										All samples for Hg field filtered @ 45um
12										See lab addendum for lab group coding

04-Apr-23 08:39
Patricia Legette
C393399
MUM ENV-1983

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA-4/2/2023	MUSTAN	2023/04/04	0839	Temperature (°C) on Receipt 5/5/6	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

9/8/6 omit pacts

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-APR

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/11
Report #: R7582891
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C393443
Received: 2023/04/04, 08:48

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	5	2023/04/05	2023/04/06	CAM SOP-00301	EPA 8270 m
Alkalinity	5	N/A	2023/04/05	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	5	2023/04/05	2023/04/10	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	5	N/A	2023/04/05	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	5	N/A	2023/04/05	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	5	N/A	2023/04/11		
Conductivity	5	N/A	2023/04/05	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	5	N/A	2023/04/11		
Dissolved Mercury in Water by CVAA	5	2023/04/06	2023/04/10	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	5	N/A	2023/04/10	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2023/04/06	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	5	N/A	2023/04/05	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2023/04/04	2023/04/05	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	5	N/A	2023/04/05	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	5	N/A	2023/04/11		Field pH Meter
Sulphate by Automated Turbidimetry	5	N/A	2023/04/05	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	5	2023/04/04	2023/04/05	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	5	N/A	2023/04/11		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/04/04	2023/04/05	CAM SOP-00938	OMOE E3516 m
Total Kjeldahl Nitrogen in Water	3	2023/04/04	2023/04/06	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	5	2023/04/04	2023/04/05	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	5	2023/04/04	2023/04/05	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	5	N/A	2023/04/11		
Un-ionized Ammonia (3)	5	2023/04/04	2023/04/11	Auto Calc.	PWQO
Volatile Organic Compounds in Water	5	N/A	2023/04/06	CAM SOP-00228	EPA 8260D

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.bvna.com

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-APR

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/11
Report #: R7582891
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C393443
Received: 2023/04/04, 08:48

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

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 #: C393443
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VLP589	VLP590	VLP591		
Sampling Date		2023/04/02	2023/04/02	2023/04/02		
COC Number		TCEC-SWCM-APR	TCEC-SWCM-APR	TCEC-SWCM-APR		
	UNITS	**SP1**	**SP2**	**SP3**	**RDL**	**QC Batch**
Calculated Parameters						
Total Un-ionized Ammonia	mg/L	<0.00061	<0.00061	<0.00061	0.00061	8590196
Field Measurements						
Field Conductivity	uS/cm	374	487	508	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.5	10.76	11.1	N/A	ONSITE
Field Temperature	Celsius	6.5	6.7	6.9	N/A	ONSITE
Field Turbidity	NTU	248	144	18.1	N/A	ONSITE
Field Measured pH	pH	7.2	7.1	7.1		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	0.22	<0.15	0.15	8589823
Total BOD	mg/L	<2	3	<2	2	8591815
Total Chemical Oxygen Demand (COD)	mg/L	13	21	15	4.0	8590993
Conductivity	umho/cm	420	520	570	1.0	8591333
Total Dissolved Solids	mg/L	295	320	335	10	8590965
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	<0.7	1.0	0.7	8591094
pH	pH	7.98	7.90	7.93		8591316
Phenols-4AAP	mg/L	<0.0010	<0.0010	<0.0010	0.0010	8592745
Total Phosphorus	mg/L	0.058	0.044	<0.030	0.030	8591016
Total Suspended Solids	mg/L	74	63	36	10	8590929
Dissolved Sulphate (SO4)	mg/L	77	120	150	1.0	8591289
Alkalinity (Total as CaCO3)	mg/L	110	89	73	1.0	8591331
Dissolved Chloride (Cl-)	mg/L	17	26	30	1.0	8591287
Nitrite (N)	mg/L	0.013	0.018	<0.010	0.010	8591283
Nitrate (N)	mg/L	0.54	1.05	0.17	0.10	8591283

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 #: C393443
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VLP592	VLP593		
Sampling Date		2023/04/02	2023/04/02		
COC Number		TCEC-SWCM-APR	TCEC-SWCM-APR		
	UNITS	**SP4**	**SPDUP**	**RDL**	**QC Batch**
Calculated Parameters					
Total Un-ionized Ammonia	mg/L	<0.00055	<0.00055	0.00055	8590196
Field Measurements					
Field Conductivity	uS/cm	371	371	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.91	10.91	N/A	ONSITE
Field Temperature	Celsius	7.3	7.3	N/A	ONSITE
Field Turbidity	NTU	156	156	N/A	ONSITE
Field Measured pH	pH	7.3	7.3		ONSITE
Inorganics					
Total Ammonia-N	mg/L	<0.15	<0.15	0.15	8589823
Total BOD	mg/L	<2	<2	2	8591815
Total Chemical Oxygen Demand (COD)	mg/L	<4.0	4.3	4.0	8590993
Conductivity	umho/cm	390	390	1.0	8591333
Total Dissolved Solids	mg/L	260	270	10	8590965
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	<0.7	0.7	8591094
pH	pH	7.96	7.95		8591316
Phenols-4AAP	mg/L	<0.0010	<0.0010	0.0010	8592745
Total Phosphorus	mg/L	0.052	0.052	0.030	8591016
Total Suspended Solids	mg/L	71	72	10	8590929
Dissolved Sulphate (SO4)	mg/L	87	85	1.0	8591289
Alkalinity (Total as CaCO3)	mg/L	84	84	1.0	8591331
Dissolved Chloride (Cl-)	mg/L	12	12	1.0	8591287
Nitrite (N)	mg/L	0.016	0.014	0.010	8591283
Nitrate (N)	mg/L	0.88	0.89	0.10	8591283

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 #: C393443
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VLP589	VLP590	VLP591	VLP592	VLP593		
Sampling Date		2023/04/02	2023/04/02	2023/04/02	2023/04/02	2023/04/02		
COC Number		TCEC-SWCM-APR	TCEC-SWCM-APR	TCEC-SWCM-APR	TCEC-SWCM-APR	TCEC-SWCM-APR		
	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	8594712
Total Arsenic (As)	mg/L	0.002	0.001	<0.001	0.001	0.001	0.001	8598069
Total Barium (Ba)	mg/L	0.047	0.036	0.025	0.034	0.033	0.005	8598069
Total Boron (B)	mg/L	0.25	0.21	0.06	0.04	0.04	0.02	8598069
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	8598069
Total Calcium (Ca)	mg/L	48	54	52	47	48	0.2	8598069
Total Chromium (Cr)	mg/L	0.008	0.005	<0.005	0.006	0.006	0.005	8598069
Total Copper (Cu)	mg/L	0.005	0.005	0.002	0.004	0.004	0.002	8598069
Total Iron (Fe)	mg/L	5.8	3.2	1.5	3.8	4.0	0.1	8598069
Total Lead (Pb)	mg/L	0.0021	0.0014	0.0010	0.0013	0.0013	0.0005	8598069
Total Magnesium (Mg)	mg/L	15	17	20	15	16	0.05	8598069
Total Nickel (Ni)	mg/L	0.009	0.006	0.003	0.005	0.006	0.001	8598069
Total Potassium (K)	mg/L	4.7	4.3	3.1	3.8	3.9	0.2	8598069
Total Sodium (Na)	mg/L	13	21	22	8.0	8.3	0.1	8598069
Total Zinc (Zn)	mg/L	0.01	0.01	<0.01	<0.01	<0.01	0.01	8598069

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C393443
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		VLP589	VLP590		VLP591		VLP592		
Sampling Date		2023/04/02	2023/04/02		2023/04/02		2023/04/02		
COC Number		TCEC-SWCM-APR	TCEC-SWCM-APR		TCEC-SWCM-APR		TCEC-SWCM-APR		
	UNITS	**SP1**	**SP2**	**RDL**	**SP3**	**RDL**	**SP4**	**RDL**	**QC Batch**
Semivolatile Organics									
Benzo(a)pyrene	ug/L	<0.80	<0.80	0.80	<0.20	0.20	<0.80	0.80	8593495
1,2-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	<0.50	0.50	<2.0	2.0	8593495
1,3-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	<0.50	0.50	<2.0	2.0	8593495
1,4-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	<0.50	0.50	<2.0	2.0	8593495
Hexachlorobenzene	ug/L	<2.0	<2.0	2.0	<0.50	0.50	<2.0	2.0	8593495
1,2,4-Trichlorobenzene	ug/L	<2.0	<2.0	2.0	<0.50	0.50	<2.0	2.0	8593495
2,4-Dichlorophenol	ug/L	<1.2	<1.2	1.2	<0.30	0.30	<1.2	1.2	8593495
Pentachlorophenol	ug/L	<4.0	<4.0	4.0	<1.0	1.0	<4.0	4.0	8593495
Phenol	ug/L	<2.0	<2.0	2.0	<0.50	0.50	<2.0	2.0	8593495
2,4,6-Trichlorophenol	ug/L	<2.0	<2.0	2.0	<0.50	0.50	<2.0	2.0	8593495
Di-N-butyl phthalate	ug/L	<8.0	<8.0	8.0	<2.0	2.0	<8.0	8.0	8593495
Diethyl phthalate	ug/L	<4.0	<4.0	4.0	<1.0	1.0	<4.0	4.0	8593495
Dimethyl phthalate	ug/L	<4.0	<4.0	4.0	<1.0	1.0	<4.0	4.0	8593495
Surrogate Recovery (%)									
2,4,6-Tribromophenol	%	69	76		90		59		8593495
2-Fluorobiphenyl	%	76	78		80		80		8593495
2-Fluorophenol	%	41	31		40		21		8593495
D14-Terphenyl	%	99	102		94		99		8593495
D5-Nitrobenzene	%	79	80		82		85		8593495
D5-Phenol	%	34	27		31		24		8593495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C393443
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		VLP593		
Sampling Date		2023/04/02		
COC Number		TCEC-SWCM-APR		
	UNITS	**SPDUP**	**RDL**	**QC Batch**
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.80	0.80	8593495
1,2-Dichlorobenzene	ug/L	<2.0	2.0	8593495
1,3-Dichlorobenzene	ug/L	<2.0	2.0	8593495
1,4-Dichlorobenzene	ug/L	<2.0	2.0	8593495
Hexachlorobenzene	ug/L	<2.0	2.0	8593495
1,2,4-Trichlorobenzene	ug/L	<2.0	2.0	8593495
2,4-Dichlorophenol	ug/L	<1.2	1.2	8593495
Pentachlorophenol	ug/L	<4.0	4.0	8593495
Phenol	ug/L	<2.0	2.0	8593495
2,4,6-Trichlorophenol	ug/L	<2.0	2.0	8593495
Di-N-butyl phthalate	ug/L	<8.0	8.0	8593495
Diethyl phthalate	ug/L	<4.0	4.0	8593495
Dimethyl phthalate	ug/L	<4.0	4.0	8593495
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	66		8593495
2-Fluorobiphenyl	%	78		8593495
2-Fluorophenol	%	27		8593495
D14-Terphenyl	%	102		8593495
D5-Nitrobenzene	%	87		8593495
D5-Phenol	%	23		8593495

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C393443
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VLP589	VLP590	VLP591	VLP592		
Sampling Date		2023/04/02	2023/04/02	2023/04/02	2023/04/02		
COC Number		TCEC-SWCM-APR	TCEC-SWCM-APR	TCEC-SWCM-APR	TCEC-SWCM-APR		
	UNITS	**SP1**	**SP2**	**SP3**	**SP4**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8592750
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8592750
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8592750
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8592750
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8592750
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8592750
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8592750
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8592750
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8592750
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	97	97	97	95		8592750
D4-1,2-Dichloroethane	%	115	115	115	116		8592750
D8-Toluene	%	93	93	93	93		8592750

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		VLP593		
Sampling Date		2023/04/02		
COC Number		TCEC-SWCM-APR		
	UNITS	**SPDUP**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8592750
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8592750
Ethylbenzene	ug/L	<0.20	0.20	8592750
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8592750
Toluene	ug/L	<0.20	0.20	8592750
Vinyl Chloride	ug/L	<0.20	0.20	8592750
p+m-Xylene	ug/L	<0.20	0.20	8592750
o-Xylene	ug/L	<0.20	0.20	8592750
Total Xylenes	ug/L	<0.20	0.20	8592750
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	96		8592750
D4-1,2-Dichloroethane	%	118		8592750
D8-Toluene	%	92		8592750

RDL = Reportable Detection Limit
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RWDI Inc.
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GENERAL COMMENTS

Sample VLP589 [SP1] : ABN Analysis: Due to the sample matrix, a smaller amount was used for analysis. Detection limits were adjusted accordingly.

Sample VLP590 [SP2] : ABN Analysis: Due to the sample matrix, a smaller amount was used for analysis. Detection limits were adjusted accordingly.
TKN < Ammonia: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Sample VLP592 [SP4] : ABN Analysis: Due to the sample matrix, a smaller amount was used for analysis. Detection limits were adjusted accordingly.

Sample VLP593 [SPDUP] : ABN Analysis: Due to the sample matrix, a smaller amount was used for analysis. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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

Bureau Veritas Job #: C393443
Report Date: 2023/04/11

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8592750	4-Bromofluorobenzene	2023/04/06	99 (3)	70 - 130	99	70 - 130	98	%				
8592750	D4-1,2-Dichloroethane	2023/04/06	112 (3)	70 - 130	106	70 - 130	110	%				
8592750	D8-Toluene	2023/04/06	104 (3)	70 - 130	104	70 - 130	94	%				
8593495	2,4,6-Tribromophenol	2023/04/06	110	10 - 130	100	10 - 130	73	%				
8593495	2-Fluorobiphenyl	2023/04/06	82	30 - 130	75	30 - 130	78	%				
8593495	2-Fluorophenol	2023/04/06	53	10 - 130	54	10 - 130	48	%				
8593495	D14-Terphenyl	2023/04/06	107	30 - 130	95	30 - 130	96	%				
8593495	D5-Nitrobenzene	2023/04/06	93	30 - 130	89	30 - 130	88	%				
8593495	D5-Phenol	2023/04/06	35	10 - 130	35	10 - 130	35	%				
8589823	Total Ammonia-N	2023/04/06	93	75 - 125	95	80 - 120	<0.15	mg/L	1.4 (1)	20		
8590929	Total Suspended Solids	2023/04/05					<10	mg/L	3.6 (1)	20	99	85 - 115
8590965	Total Dissolved Solids	2023/04/05					<10	mg/L	5.6 (2)	20	97	90 - 110
8590993	Total Chemical Oxygen Demand (COD)	2023/04/05	88	80 - 120	96	80 - 120	<4.0	mg/L	16 (1)	20		
8591016	Total Phosphorus	2023/04/05	99	80 - 120	101	80 - 120	<0.030	mg/L	0.60 (1)	25	97	80 - 120
8591094	Total Kjeldahl Nitrogen (TKN)	2023/04/06	102	80 - 120	101	80 - 120	<0.7	mg/L	NC (1)	20	102	80 - 120
8591283	Nitrate (N)	2023/04/05	91	80 - 120	100	80 - 120	<0.10	mg/L	0.68 (1)	20		
8591283	Nitrite (N)	2023/04/05	102	80 - 120	105	80 - 120	<0.010	mg/L	NC (1)	20		
8591287	Dissolved Chloride (Cl-)	2023/04/05	89	80 - 120	99	80 - 120	<1.0	mg/L	0.66 (1)	20		
8591289	Dissolved Sulphate (SO4)	2023/04/05	NC	75 - 125	98	80 - 120	<1.0	mg/L	0.74 (1)	20		
8591316	pH	2023/04/05			102	98 - 103			0.78 (1)	N/A		
8591331	Alkalinity (Total as CaCO3)	2023/04/05			97	85 - 115	<1.0	mg/L	1.0 (1)	20		
8591333	Conductivity	2023/04/05			100	85 - 115	<1.0	umho/cm	0.23 (1)	25		
8591815	Total BOD	2023/04/10					<2	mg/L	2.2 (1)	30	93	80 - 120
8592745	Phenols-4AAP	2023/04/05	101	80 - 120	102	80 - 120	<0.0010	mg/L	NC (1)	20		
8592750	1,4-Dichlorobenzene	2023/04/06	113 (3)	70 - 130	111	70 - 130	<0.40	ug/L	NC (4)	30		
8592750	Benzene	2023/04/06	95 (3)	70 - 130	90	70 - 130	<0.20	ug/L	NC (4)	30		
8592750	Ethylbenzene	2023/04/06	84 (3)	70 - 130	81	70 - 130	<0.20	ug/L	NC (4)	30		
8592750	Methylene Chloride(Dichloromethane)	2023/04/06	114 (3)	70 - 130	106	70 - 130	<2.0	ug/L	NC (4)	30		
8592750	o-Xylene	2023/04/06	82 (3)	70 - 130	83	70 - 130	<0.20	ug/L	NC (4)	30		

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Bureau Veritas Job #: C393443
Report Date: 2023/04/11

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8592750	p+m-Xylene	2023/04/06	86 (3)	70 - 130	84	70 - 130	<0.20	ug/L	NC (4)	30		
8592750	Toluene	2023/04/06	97 (3)	70 - 130	93	70 - 130	<0.20	ug/L	NC (4)	30		
8592750	Total Xylenes	2023/04/06					<0.20	ug/L	NC (4)	30		
8592750	Vinyl Chloride	2023/04/06	109 (3)	70 - 130	101	70 - 130	<0.20	ug/L	NC (4)	30		
8593495	1,2,4-Trichlorobenzene	2023/04/06	54	30 - 130	48	30 - 130	<0.50	ug/L	NC (5)	40		
8593495	1,2-Dichlorobenzene	2023/04/06	61	30 - 130	57	30 - 130	<0.50	ug/L	NC (5)	40		
8593495	1,3-Dichlorobenzene	2023/04/06	58	30 - 130	54	30 - 130	<0.50	ug/L	NC (5)	40		
8593495	1,4-Dichlorobenzene	2023/04/06	61	30 - 130	56	30 - 130	<0.50	ug/L	NC (5)	40		
8593495	2,4,6-Trichlorophenol	2023/04/06	95	10 - 130	94	10 - 130	<0.50	ug/L	NC (5)	40		
8593495	2,4-Dichlorophenol	2023/04/06	105	10 - 130	107	10 - 130	<0.30	ug/L	NC (5)	40		
8593495	Benzo(a)pyrene	2023/04/06	100	30 - 130	97	30 - 130	<0.20	ug/L	NC (5)	40		
8593495	Diethyl phthalate	2023/04/06	97	30 - 130	104	30 - 130	<1.0	ug/L	NC (5)	40		
8593495	Dimethyl phthalate	2023/04/06	97	30 - 130	100	30 - 130	<1.0	ug/L	NC (5)	40		
8593495	Di-N-butyl phthalate	2023/04/06	107	30 - 130	108	30 - 130	<2.0	ug/L	NC (5)	40		
8593495	Hexachlorobenzene	2023/04/06	95	30 - 130	91	30 - 130	<0.50	ug/L	NC (5)	40		
8593495	Pentachlorophenol	2023/04/06	83	10 - 130	78	10 - 130	<1.0	ug/L	NC (5)	40		
8593495	Phenol	2023/04/06	37	10 - 130	38	10 - 130	<0.50	ug/L	NC (5)	40		
8594712	Dissolved Mercury (Hg)	2023/04/10	99	75 - 125	94	80 - 120	<0.10	ug/L	NC (1)	20		
8598069	Total Arsenic (As)	2023/04/10	99	80 - 120	97	80 - 120	<0.001	mg/L	3.5 (1)	20		
8598069	Total Barium (Ba)	2023/04/10	97	80 - 120	93	80 - 120	<0.005	mg/L	1.3 (1)	20		
8598069	Total Boron (B)	2023/04/10	99	80 - 120	96	80 - 120	<0.02	mg/L	2.0 (1)	20		
8598069	Total Cadmium (Cd)	2023/04/10	101	80 - 120	97	80 - 120	<0.0001	mg/L	NC (1)	20		
8598069	Total Calcium (Ca)	2023/04/10	NC	80 - 120	95	80 - 120	<0.2	mg/L	1.0 (1)	20		
8598069	Total Chromium (Cr)	2023/04/10	96	80 - 120	93	80 - 120	<0.005	mg/L	4.1 (1)	20		
8598069	Total Copper (Cu)	2023/04/10	96	80 - 120	93	80 - 120	<0.002	mg/L	0.24 (1)	20		
8598069	Total Iron (Fe)	2023/04/10	98	80 - 120	95	80 - 120	<0.1	mg/L	2.4 (1)	20		
8598069	Total Lead (Pb)	2023/04/10	93	80 - 120	91	80 - 120	<0.0005	mg/L	3.7 (1)	20		
8598069	Total Magnesium (Mg)	2023/04/10	92	80 - 120	92	80 - 120	<0.05	mg/L	2.1 (1)	20		
8598069	Total Nickel (Ni)	2023/04/10	92	80 - 120	92	80 - 120	<0.001	mg/L	3.8 (1)	20		
8598069	Total Potassium (K)	2023/04/10	101	80 - 120	93	80 - 120	<0.2	mg/L	1.5 (1)	20		

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

Bureau Veritas Job #: C393443
Report Date: 2023/04/11

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8598069	Total Sodium (Na)	2023/04/10	92	80 - 120	93	80 - 120	<0.1	mg/L	1.1 (1)	20		
8598069	Total Zinc (Zn)	2023/04/10	100	80 - 120	99	80 - 120	<0.01	mg/L	0.35 (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 [VLP592-03]

(3) Matrix Spike Parent ID [VLP589-10]

(4) Duplicate Parent ID [VLP589-10]

(5) Duplicate Parent ID [VLP591-01]

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 #: C393443
Report Date: 2023/04/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SP (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or . µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
04 02 23	7.2	374	6.5	248	10.5		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: translucent

Odor: none

Color: light brown

Other: Sediment

Weather Conditions (required daily, or as conditions change): 2°C

Direction/Speed: 15km/hr SE

Outlook: clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Depth: 0.3m
width: 1m
time @ 1m: 7 3:8
2 8

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04 02 23	Jake Arbuckle		RWPS

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0368

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SP2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
04 22 23	7.13	487	6.7	144	10.76		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: translucent

Odor: none

Color: light brown

Other:

Weather Conditions (required daily, or as conditions change): 2°C

Direction/Speed: clear 13kn/hSE

Outlook: clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Width: 1.2m
Depth: 20cm
Time (1m): 2min
1.5min
2.1min

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/22/23	Eric Wilson	E. Wilson	RWPI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0366

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SPD (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N, 0.45 or ____ µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ~~ppm~~)	eH/ORP (mV)	Other: Units
04 02 23	7.1	568	6.9	68.1	11.1		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: translucent

Odor: none

Color: Slight Green

Other: Sediment

Weather Conditions (required daily, or as conditions change): 2°C

Direction/Speed: clear 15km/hr SE

Outlook: Clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

width: 0.6
Depth: 0.15
time @ 1m 1131
2933
3.34

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/02/23	Jake Arbitelli	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0605

FIELD INFORMATION FORM

BUREAU VERITAS

WM WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SP4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L ~~ppm~~)	eH/ORP (mV)	Other: Units
04 10 23	7.36	371	7.3	156	10.91		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: translucent Odor: No odour Color: Slight yellow Other:

Weather Conditions (required daily, or as conditions change): 2°c Direction/Speed: 15 Km/h Outlook: clear Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Width: 2m
Depth: 20cm
Time(1m): 25 sec
22 sec
23 sec

SPDP taken

Duplicate taken

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/10/23	Eric Wilcom	E Wilcom	RWPI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0369

Maxxam Analytics Inc. 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: 800) 563-6266

IMMEDIATE

04-Apr-23 08:48
Patricia Legette
C393443

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORM	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01 SPJ ENV-1485
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks SW
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Location:	Twin Creeks
				Sampled By:	JRA

TCEC-SWCM-APR

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 12-Apr-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZL-ON-WLF-2023 TCLS - SW (POND OUTLETS) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SP1	2-Apr-23	PM	SW	N	N	X	12	
2	SP2	2-Apr-23	PM	SW	N	N	X	12	
3	SP3	2-Apr-23	PM	SW	N	N	X	12	
4	SP4	2-Apr-23	PM	SW	N	N	X	12	SPDUP taken
5	SPDUP	2-Apr-23	PM	SW	N	N	X	12	
6									
7									
8									
9									
10									
11									All samples for Hg field filtered @ 45um
12									See lab addendum for lab group coding

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA-4/2/2023	JMUSKAN	2023/04/04	0848	Temperature (°C) on Receipt 7/7/4 4/4/3	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

Onile

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-APR

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/14
Report #: R7586954
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C396348
Received: 2023/04/06, 09:13

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/04/10	CAM SOP-00448	SM 23 2320 B m
Alkalinity	3	N/A	2023/04/11	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	4	N/A	2023/04/10	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	4	N/A	2023/04/13		
Field Measured Dissolved Oxygen in Water	4	N/A	2023/04/13		
Total Metals by ICPMS	4	N/A	2023/04/12	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	4	N/A	2023/04/12	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	4	N/A	2023/04/10	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Phenols (4AAP)	4	N/A	2023/04/10	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	4	N/A	2023/04/13		Field pH Meter
Sulphate by Automated Turbidimetry	4	N/A	2023/04/10	CAM SOP-00464	SM 23 4500-SO42- E m
Field Temperature (2)	4	N/A	2023/04/13		Field Thermometer
Total Organic Carbon (TOC) (3)	4	N/A	2023/04/11	CAM SOP-00446	SM 23 5310B m
Turbidity - On-site	4	N/A	2023/04/13		
Un-ionized Ammonia (4)	4	2023/04/06	2023/04/13	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2023/04/11	CAM SOP-00226	EPA 8260C m
Volatile Organic Compounds in Water	2	N/A	2023/04/12	CAM SOP-00226	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

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-APR

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/14
Report #: R7586954
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C396348
Received: 2023/04/06, 09:13
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) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.
(4) 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 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 #: C396348
Report Date: 2023/04/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VME661		VME662		VME663	VME664		
Sampling Date		2023/04/04		2023/04/04		2023/04/04	2023/04/04		
COC Number		TCEC-SWCM-APR		TCEC-SWCM-APR		TCEC-SWCM-APR	TCEC-SWCM-APR		
	UNITS	**SS14A**	**RDL**	**SS14B**	**RDL**	**SS15A**	**PSSWDUP**	**RDL**	**QC Batch**
Calculated Parameters									
Total Un-ionized Ammonia	mg/L	<0.00061	0.00061	0.0063	0.0007	<0.00061	<0.00061	0.00061	8594696
Field Measurements									
Field Conductivity	uS/cm	354	N/A	414	N/A	313	313	N/A	ONSITE
Field Dissolved Oxygen	mg/L	9.97	N/A	10.1	N/A	9.06	9.06	N/A	ONSITE
Field Temperature	Celsius	9.6	N/A	9.8	N/A	9.5	9.5	N/A	ONSITE
Field Turbidity	NTU	>1000	N/A	446	N/A	>1000	>1000	N/A	ONSITE
Field Measured pH	pH	7.6		7.8		7.2	7.2		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.050	0.050	0.45	0.050	0.054	0.052	0.050	8599612
Total Organic Carbon (TOC)	mg/L	9.7	0.40	10	0.40	17	17	0.40	8599017
Phenols-4AAP	mg/L	<0.0010	0.0010	<0.0010	0.0010	<0.0010	<0.0010	0.0010	8599394
Dissolved Sulphate (SO4)	mg/L	65	1.0	45	1.0	33	33	1.0	8595389
Alkalinity (Total as CaCO3)	mg/L	140	1.0	160	1.0	110	110	1.0	8595277
Dissolved Chloride (Cl-)	mg/L	3.4	1.0	25	1.0	7.4	7.6	1.0	8595377
Nitrate (N)	mg/L	0.82	0.10	0.20	0.10	0.42	0.39	0.10	8595627

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

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

Bureau Veritas Job #: C396348
Report Date: 2023/04/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VME661	VME662	VME663	VME664		
Sampling Date		2023/04/04	2023/04/04	2023/04/04	2023/04/04		
COC Number		TCEC-SWCM-APR	TCEC-SWCM-APR	TCEC-SWCM-APR	TCEC-SWCM-APR		
	UNITS	**SS14A**	**SS14B**	**SS15A**	**PSSWDUP**	**RDL**	**QC Batch**
Metals							
Total Boron (B)	mg/L	0.06	0.49	0.24	0.24	0.02	8602421
Total Calcium (Ca)	mg/L	87	69	59	59	0.2	8602421
Total Chromium (Cr)	mg/L	0.026	0.011	0.050	0.050	0.005	8602421
Total Iron (Fe)	mg/L	26	11	50	50	0.1	8602421
Total Magnesium (Mg)	mg/L	25	19	22	22	0.05	8602421
Total Nickel (Ni)	mg/L	0.036	0.018	0.066	0.067	0.001	8602421
Total Potassium (K)	mg/L	6.3	6.9	7.4	7.5	0.2	8602421
Total Sodium (Na)	mg/L	4.7	27	11	11	0.1	8602421
Total Zinc (Zn)	mg/L	0.06	0.03	0.12	0.12	0.01	8602421

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C396348
Report Date: 2023/04/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VME661	VME662		VME663	VME664		
Sampling Date		2023/04/04	2023/04/04		2023/04/04	2023/04/04		
COC Number		TCEC-SWCM-APR	TCEC-SWCM-APR		TCEC-SWCM-APR	TCEC-SWCM-APR		
	UNITS	**SS14A**	**SS14B**	**QC Batch**	**SS15A**	**PSSWDUP**	**RDL**	**QC Batch**
Volatile Organics								
Benzene	ug/L	<0.10	<0.10	8597970	<0.10	<0.10	0.10	8597969
Ethylbenzene	ug/L	<0.10	<0.10	8597970	<0.10	<0.10	0.10	8597969
Toluene	ug/L	<0.20	<0.20	8597970	<0.20	<0.20	0.20	8597969
p+m-Xylene	ug/L	<0.10	<0.10	8597970	<0.10	<0.10	0.10	8597969
o-Xylene	ug/L	<0.10	<0.10	8597970	<0.10	<0.10	0.10	8597969
Total Xylenes	ug/L	<0.10	<0.10	8597970	<0.10	<0.10	0.10	8597969
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	100	98	8597970	91	92		8597969
D4-1,2-Dichloroethane	%	101	100	8597970	95	92		8597969
D8-Toluene	%	100	100	8597970	103	104		8597969

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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.

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

Bureau Veritas Job #: C396348
Report Date: 2023/04/14

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8597969	4-Bromofluorobenzene	2023/04/11	98	70 - 130	102	70 - 130	91	%		
8597969	D4-1,2-Dichloroethane	2023/04/11	94	70 - 130	98	70 - 130	91	%		
8597969	D8-Toluene	2023/04/11	103	70 - 130	102	70 - 130	102	%		
8597970	4-Bromofluorobenzene	2023/04/11	99	70 - 130	100	70 - 130	97	%		
8597970	D4-1,2-Dichloroethane	2023/04/11	92	70 - 130	97	70 - 130	97	%		
8597970	D8-Toluene	2023/04/11	101	70 - 130	99	70 - 130	100	%		
8595277	Alkalinity (Total as CaCO3)	2023/04/10			97	85 - 115	<1.0	mg/L	1.9 (1)	20
8595377	Dissolved Chloride (Cl-)	2023/04/10	88	80 - 120	92	80 - 120	<1.0	mg/L	4.2 (2)	20
8595389	Dissolved Sulphate (SO4)	2023/04/10	NC	75 - 125	91	80 - 120	<1.0	mg/L	4.5 (2)	20
8595627	Nitrate (N)	2023/04/10	91 (3)	80 - 120	95	80 - 120	<0.10	mg/L	0.64 (4)	20
8597969	Benzene	2023/04/11	NC	70 - 130	88	70 - 130	<0.10	ug/L	0.54 (2)	30
8597969	Ethylbenzene	2023/04/11	94	70 - 130	92	70 - 130	<0.10	ug/L	0.41 (2)	30
8597969	o-Xylene	2023/04/11	NC	70 - 130	92	70 - 130	<0.10	ug/L	1.5 (2)	30
8597969	p+m-Xylene	2023/04/11	NC	70 - 130	97	70 - 130	<0.10	ug/L	0.40 (2)	30
8597969	Toluene	2023/04/11	NC	70 - 130	91	70 - 130	<0.20	ug/L	0.51 (2)	30
8597969	Total Xylenes	2023/04/11					<0.10	ug/L	0.79 (2)	30
8597970	Benzene	2023/04/12	93	70 - 130	98	70 - 130	<0.10	ug/L	NC (5)	30
8597970	Ethylbenzene	2023/04/12	95	70 - 130	99	70 - 130	<0.10	ug/L	NC (5)	30
8597970	o-Xylene	2023/04/12	94	70 - 130	98	70 - 130	<0.10	ug/L	NC (5)	30
8597970	p+m-Xylene	2023/04/12	100	70 - 130	102	70 - 130	<0.10	ug/L	NC (5)	30
8597970	Toluene	2023/04/12	97	70 - 130	98	70 - 130	<0.20	ug/L	NC (5)	30
8597970	Total Xylenes	2023/04/12					<0.10	ug/L	NC (5)	30
8599017	Total Organic Carbon (TOC)	2023/04/11	93	80 - 120	99	80 - 120	<0.40	mg/L	1.1 (2)	20
8599394	Phenols-4AAP	2023/04/10	98	80 - 120	99	80 - 120	<0.0010	mg/L	NC (2)	20
8599612	Total Ammonia-N	2023/04/12	96	75 - 125	98	80 - 120	<0.050	mg/L	10 (2)	20
8602421	Total Boron (B)	2023/04/12	97 (6)	80 - 120	97	80 - 120	<0.02	mg/L	5.1 (7)	20
8602421	Total Calcium (Ca)	2023/04/12	NC (6)	80 - 120	97	80 - 120	<0.2	mg/L	6.8 (7)	20
8602421	Total Chromium (Cr)	2023/04/12	96 (6)	80 - 120	95	80 - 120	<0.005	mg/L	7.4 (7)	20
8602421	Total Iron (Fe)	2023/04/12	97 (6)	80 - 120	98	80 - 120	<0.1	mg/L	6.7 (7)	20
8602421	Total Magnesium (Mg)	2023/04/12	92 (6)	80 - 120	95	80 - 120	<0.05	mg/L	5.0 (7)	20

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

Bureau Veritas Job #: C396348
Report Date: 2023/04/14

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8602421	Total Nickel (Ni)	2023/04/12	95 (6)	80 - 120	96	80 - 120	<0.001	mg/L	8.8 (7)	20
8602421	Total Potassium (K)	2023/04/12	100 (6)	80 - 120	94	80 - 120	<0.2	mg/L	4.1 (7)	20
8602421	Total Sodium (Na)	2023/04/12	NC (6)	80 - 120	96	80 - 120	<0.1	mg/L	4.4 (7)	20
8602421	Total Zinc (Zn)	2023/04/12	103 (6)	80 - 120	104	80 - 120	<0.01	mg/L	3.5 (7)	20

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.

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 [VME662-01]

(2) Duplicate Parent ID

(3) Matrix Spike Parent ID [VME663-01]

(4) Duplicate Parent ID [VME663-01]

(5) Duplicate Parent ID [VME661-05]

(6) Matrix Spike Parent ID [VME662-02]

(7) Duplicate Parent ID [VME662-02]

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Bureau Veritas Job #: C396348
Report Date: 2023/04/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BEG

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

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

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 5514A (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

	Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1st									
2nd									
3rd									
4th									
Input Range for 3 consec. readings or Permit/State requirements:			+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
040423	7.6	354	9.6	71000	9.97		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: opaque Odor: NO Color: brown Other:

Weather Conditions (required daily, or as conditions change): 8°C Direction/Speed: 10km/h E Outlook: overcast Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

Streamflow @ 1m: T1: 11s
T2: 15s
T3: 12s
depth: 0.2m
width: 2.5m

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/04/23	Brady Grubb	Brady Grubb	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0612

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TLEC

Site No.:

Sample: 3 3 1 4 B (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
04 04 23	7.8	414	9.8	446	10.1		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: opaque

Odor: N/O

Color: brown

Other:

Weather Conditions (required daily, or as conditions change): 8°C

Direction/Speed: 10 Km/h E

Outlook: overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

Streamflow over 1m T_1: 8s

T_2: 8s

width: 1.4m T_3: 10s

depth: 0.2m

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/04/23	Brady Grabb	Brady Grabb	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0611

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SS15A (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
040423	7.2	313	9.5	>1000	9.06		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: opaque Odor: no Color: brown Other:

Weather Conditions (required daily, or as conditions change): 8°C Direction/Speed: 10km/h E Outlook: overcast Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

PSSWDUP TAKEN

Stream flow @ 1m T1: 5

Width 1m T2: 7

depth 0.6m T3: 7

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/04/23	Brady Grubb	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0607

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

IMMEDIATE

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks SW	TCEC-SWCM-APR
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Location:	Twin Creeks	
				Sampled By:	BEG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA [ ] Reg. 153 [ ] Table 1 [ ] Table 2 [ ] Table 3 [ ] Sewer Use [ ] Sanitary [ ] Storm Region _____ [ ] Other _____ specify
[x] PWQO
[ ] Reg. 558

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: 17-Apr-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZP-ON-WLF-2023 TCLS - SW (POPLAR) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS14A	4-Apr-23	AM	SW	N	N	X	7	
2	SS14B	4-Apr-23	AM	SW	N	N	X	7	
3	SS15A	4-Apr-23	AM	SW	N	N	X	7	PSSWDUP taken
4	PSSWDUP	4-Apr-23	AM	SW	N	N	X	7	
5									
6									
7									
8									
9									
10									
11									
12									See lab addendum for lab group coding

06-Apr-23 09:13
Patricia Legette
C396348
KTN ENV-1421

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BEG-4/5/2023	mom TIMMAN MUSKAN	2023/04/06	0913	Temperature (°C) on Receipt 8/7/7	Condition of Sample on Receipt [ ] OK [ ] SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

omile White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-APR

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/26
Report #: R7603371
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3A9051
Received: 2023/04/19, 09:26

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2023/04/24	2023/04/25	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2023/04/21	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2023/04/20	2023/04/25	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2023/04/21	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2023/04/21	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2023/04/26		
Conductivity	1	N/A	2023/04/21	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2023/04/26		
Dissolved Mercury in Water by CVAA	1	2023/04/21	2023/04/21	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2023/04/21	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/04/24	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/04/21	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/04/20	2023/04/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/04/21	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2023/04/26		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/04/21	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/04/22	2023/04/24	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2023/04/26		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/04/21	2023/04/25	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/04/21	2023/04/21	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	1	2023/04/21	2023/04/24	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2023/04/26		
Un-ionized Ammonia (3)	1	2023/04/19	2023/04/26	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2023/04/21	CAM SOP-00228	EPA 8260D

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-APR

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/04/26
Report #: R7603371
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3A9051
Received: 2023/04/19, 09:26

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.

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

Bureau Veritas Job #: C3A9051
Report Date: 2023/04/26

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		VOV868		
Sampling Date		2023/04/17		
COC Number		TCEC-SWCM-APR		
	UNITS	**SP2**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.0017	0.0017	8616638
Field Measurements				
Field Conductivity	uS/cm	492	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.5	N/A	ONSITE
Field Temperature	Celsius	10.2	N/A	ONSITE
Field Turbidity	NTU	75.0	N/A	ONSITE
Field Measured pH	pH	7.7		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8621336
Total BOD	mg/L	<2	2	8618226
Total Chemical Oxygen Demand (COD)	mg/L	15	4.0	8621314
Conductivity	umho/cm	490	1.0	8618844
Total Dissolved Solids	mg/L	250	10	8622308
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8621182
pH	pH	8.18		8618837
Phenols-4AAP	mg/L	<0.0010	0.0010	8621301
Total Phosphorus	mg/L	0.032	0.030	8621187
Total Suspended Solids	mg/L	33	10	8621219
Dissolved Sulphate (SO4)	mg/L	110	1.0	8618856
Alkalinity (Total as CaCO3)	mg/L	96	1.0	8618847
Dissolved Chloride (Cl-)	mg/L	23	1.0	8618853
Nitrite (N)	mg/L	0.013	0.010	8618727
Nitrate (N)	mg/L	0.42	0.10	8618727

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

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

Bureau Veritas Job #: C3A9051
Report Date: 2023/04/26

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		VOV868		
Sampling Date		2023/04/17		
COC Number		TCEC-SWCM-APR		
	UNITS	**SP2**	**RDL**	**QC Batch**
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8621209
Total Arsenic (As)	mg/L	0.001	0.001	8620766
Total Barium (Ba)	mg/L	0.033	0.005	8620766
Total Boron (B)	mg/L	0.21	0.02	8620766
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8620766
Total Calcium (Ca)	mg/L	53	0.2	8620766
Total Chromium (Cr)	mg/L	<0.005	0.005	8620766
Total Copper (Cu)	mg/L	0.004	0.002	8620766
Total Iron (Fe)	mg/L	1.7	0.1	8620766
Total Lead (Pb)	mg/L	0.0007	0.0005	8620766
Total Magnesium (Mg)	mg/L	18	0.05	8620766
Total Nickel (Ni)	mg/L	0.004	0.001	8620766
Total Potassium (K)	mg/L	4.2	0.2	8620766
Total Sodium (Na)	mg/L	22	0.1	8620766
Total Zinc (Zn)	mg/L	<0.01	0.01	8620766

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3A9051
Report Date: 2023/04/26

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		VOV868		
Sampling Date		2023/04/17		
COC Number		TCEC-SWCM-APR		
	UNITS	**SP2**	**RDL**	**QC Batch**
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.80	0.80	8625730
1,2-Dichlorobenzene	ug/L	<2.0	2.0	8625730
1,3-Dichlorobenzene	ug/L	<2.0	2.0	8625730
1,4-Dichlorobenzene	ug/L	<2.0	2.0	8625730
Hexachlorobenzene	ug/L	<2.0	2.0	8625730
1,2,4-Trichlorobenzene	ug/L	<2.0	2.0	8625730
2,4-Dichlorophenol	ug/L	<1.2	1.2	8625730
Pentachlorophenol	ug/L	<4.0	4.0	8625730
Phenol	ug/L	<2.0	2.0	8625730
2,4,6-Trichlorophenol	ug/L	<2.0	2.0	8625730
Di-N-butyl phthalate	ug/L	<8.0	8.0	8625730
Diethyl phthalate	ug/L	<4.0	4.0	8625730
Dimethyl phthalate	ug/L	<4.0	4.0	8625730
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	40		8625730
2-Fluorobiphenyl	%	64		8625730
2-Fluorophenol	%	20		8625730
D14-Terphenyl	%	82		8625730
D5-Nitrobenzene	%	77		8625730
D5-Phenol	%	21		8625730

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 #: C3A9051
Report Date: 2023/04/26

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		VOV868		
Sampling Date		2023/04/17		
COC Number		TCEC-SWCM-APR		
	UNITS	**SP2**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8618954
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8618954
Ethylbenzene	ug/L	<0.20	0.20	8618954
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8618954
Toluene	ug/L	<0.20	0.20	8618954
Vinyl Chloride	ug/L	<0.20	0.20	8618954
p+m-Xylene	ug/L	<0.20	0.20	8618954
o-Xylene	ug/L	<0.20	0.20	8618954
Total Xylenes	ug/L	<0.20	0.20	8618954
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	107		8618954
D4-1,2-Dichloroethane	%	108		8618954
D8-Toluene	%	91		8618954

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 VOV868 [SP2] : ABN Analysis: Due to the sample matrix, a smaller amount was used for analysis. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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

Bureau Veritas Job #: C3A9051
Report Date: 2023/04/26

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8618954	4-Bromofluorobenzene	2023/04/21	106 (4)	70 - 130	102	70 - 130	103	%				
8618954	D4-1,2-Dichloroethane	2023/04/21	105 (4)	70 - 130	100	70 - 130	102	%				
8618954	D8-Toluene	2023/04/21	94 (4)	70 - 130	102	70 - 130	98	%				
8625730	2,4,6-Tribromophenol	2023/04/25	78	10 - 130	86	10 - 130	49	%				
8625730	2-Fluorobiphenyl	2023/04/25	39	30 - 130	57	30 - 130	65	%				
8625730	2-Fluorophenol	2023/04/25	15	10 - 130	47	10 - 130	38	%				
8625730	D14-Terphenyl	2023/04/25	84	30 - 130	90	30 - 130	82	%				
8625730	D5-Nitrobenzene	2023/04/25	50	30 - 130	81	30 - 130	79	%				
8625730	D5-Phenol	2023/04/25	7.6 (10)	10 - 130	30	10 - 130	31	%				
8618226	Total BOD	2023/04/25					<2	mg/L	3.2 (1)	30	92	80 - 120
8618727	Nitrate (N)	2023/04/21	97	80 - 120	100	80 - 120	<0.10	mg/L	NC (1)	20		
8618727	Nitrite (N)	2023/04/21	99	80 - 120	102	80 - 120	<0.010	mg/L	NC (1)	20		
8618837	pH	2023/04/21			102	98 - 103			0.31 (1)	N/A		
8618844	Conductivity	2023/04/21			100	85 - 115	<1.0	umho/cm	0.22 (1)	25		
8618847	Alkalinity (Total as CaCO3)	2023/04/21			95	85 - 115	<1.0	mg/L	0.83 (1)	20		
8618853	Dissolved Chloride (Cl-)	2023/04/21	NC (2)	80 - 120	96	80 - 120	<1.0	mg/L	1.1 (3)	20		
8618856	Dissolved Sulphate (SO4)	2023/04/21	NC (2)	75 - 125	97	80 - 120	<1.0	mg/L	3.6 (3)	20		
8618954	1,4-Dichlorobenzene	2023/04/21	97 (4)	70 - 130	107	70 - 130	<0.40	ug/L	NC (5)	30		
8618954	Benzene	2023/04/21	97 (4)	70 - 130	87	70 - 130	<0.20	ug/L	NC (5)	30		
8618954	Ethylbenzene	2023/04/21	86 (4)	70 - 130	87	70 - 130	<0.20	ug/L	NC (5)	30		
8618954	Methylene Chloride(Dichloromethane)	2023/04/21	99 (4)	70 - 130	86	70 - 130	<2.0	ug/L	NC (5)	30		
8618954	o-Xylene	2023/04/21	87 (4)	70 - 130	89	70 - 130	<0.20	ug/L	NC (5)	30		
8618954	p+m-Xylene	2023/04/21	93 (4)	70 - 130	93	70 - 130	<0.20	ug/L	NC (5)	30		
8618954	Toluene	2023/04/21	89 (4)	70 - 130	89	70 - 130	<0.20	ug/L	NC (5)	30		
8618954	Total Xylenes	2023/04/21					<0.20	ug/L	NC (5)	30		
8618954	Vinyl Chloride	2023/04/21	88 (4)	70 - 130	81	70 - 130	<0.20	ug/L	NC (5)	30		
8620766	Total Arsenic (As)	2023/04/21	107	80 - 120	103	80 - 120	<0.001	mg/L	4.6 (1)	20		
8620766	Total Barium (Ba)	2023/04/21	102	80 - 120	99	80 - 120	<0.005	mg/L	5.2 (1)	20		
8620766	Total Boron (B)	2023/04/21	98	80 - 120	96	80 - 120	<0.02	mg/L	1.2 (1)	20		

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

Bureau Veritas Job #: C3A9051
Report Date: 2023/04/26

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8620766	Total Cadmium (Cd)	2023/04/21	104	80 - 120	102	80 - 120	<0.0001	mg/L	NC (1)	20		
8620766	Total Calcium (Ca)	2023/04/21	NC	80 - 120	104	80 - 120	<0.2	mg/L				
8620766	Total Chromium (Cr)	2023/04/21	99	80 - 120	98	80 - 120	<0.005	mg/L	NC (1)	20		
8620766	Total Copper (Cu)	2023/04/21	104	80 - 120	103	80 - 120	<0.002	mg/L	4.5 (1)	20		
8620766	Total Iron (Fe)	2023/04/21	109	80 - 120	103	80 - 120	<0.1	mg/L	4.9 (1)	20		
8620766	Total Lead (Pb)	2023/04/21	102	80 - 120	102	80 - 120	<0.0005	mg/L				
8620766	Total Magnesium (Mg)	2023/04/21	NC	80 - 120	103	80 - 120	<0.05	mg/L				
8620766	Total Nickel (Ni)	2023/04/21	99	80 - 120	100	80 - 120	<0.001	mg/L	1.8 (1)	20		
8620766	Total Potassium (K)	2023/04/21	110	80 - 120	106	80 - 120	<0.2	mg/L	0.56 (1)	20		
8620766	Total Sodium (Na)	2023/04/21	NC	80 - 120	105	80 - 120	<0.1	mg/L	4.6 (1)	20		
8620766	Total Zinc (Zn)	2023/04/21	106	80 - 120	105	80 - 120	<0.01	mg/L	NC (1)	20		
8621182	Total Kjeldahl Nitrogen (TKN)	2023/04/25	109	80 - 120	97	80 - 120	<0.7	mg/L	6.1 (1)	20	98	80 - 120
8621187	Total Phosphorus	2023/04/21	95	80 - 120	100	80 - 120	<0.030	mg/L	8.2 (1)	25	100	80 - 120
8621209	Dissolved Mercury (Hg)	2023/04/21	100 (6)	75 - 125	100	80 - 120	<0.10	ug/L	NC (7)	20		
8621219	Total Suspended Solids	2023/04/24					<10	mg/L	14 (1)	20	99	85 - 115
8621301	Phenols-4AAP	2023/04/21	104	80 - 120	99	80 - 120	<0.0010	mg/L	NC (1)	20		
8621314	Total Chemical Oxygen Demand (COD)	2023/04/21	96 (8)	80 - 120	103	80 - 120	<4.0	mg/L	11 (9)	20		
8621336	Total Ammonia-N	2023/04/24	98	75 - 125	95	80 - 120	<0.15	mg/L	NC (1)	20		
8622308	Total Dissolved Solids	2023/04/24					<10	mg/L	0.34 (1)	20	100	90 - 110
8625730	1,2,4-Trichlorobenzene	2023/04/25	30 (10)	30 - 130	40	30 - 130	<0.50	ug/L	NC (1)	40		
8625730	1,2-Dichlorobenzene	2023/04/25	31	30 - 130	42	30 - 130	<0.50	ug/L	NC (1)	40		
8625730	1,3-Dichlorobenzene	2023/04/25	28 (10)	30 - 130	36	30 - 130	<0.50	ug/L	NC (1)	40		
8625730	1,4-Dichlorobenzene	2023/04/25	29 (10)	30 - 130	38	30 - 130	<0.50	ug/L	NC (1)	40		
8625730	2,4,6-Trichlorophenol	2023/04/25	74	10 - 130	95	10 - 130	<0.50	ug/L	NC (1)	40		
8625730	2,4-Dichlorophenol	2023/04/25	57	10 - 130	86	10 - 130	<0.30	ug/L	NC (1)	40		
8625730	Benzo(a)pyrene	2023/04/25	94	30 - 130	102	30 - 130	<0.20	ug/L	NC (1)	40		
8625730	Diethyl phthalate	2023/04/25	84	30 - 130	90	30 - 130	<1.0	ug/L	NC (1)	40		
8625730	Dimethyl phthalate	2023/04/25	79	30 - 130	96	30 - 130	<1.0	ug/L	NC (1)	40		
8625730	Di-N-butyl phthalate	2023/04/25	95	30 - 130	101	30 - 130	<2.0	ug/L	NC (1)	40		
8625730	Hexachlorobenzene	2023/04/25	84	30 - 130	91	30 - 130	<0.50	ug/L	NC (1)	40		

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Bureau Veritas Job #: C3A9051
Report Date: 2023/04/26

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
8625730	Pentachlorophenol	2023/04/25	57	10 - 130	59	10 - 130	<1.0	ug/L	NC (1)	40		
8625730	Phenol	2023/04/25	9.1 (10)	10 - 130	36	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 [VOV868-04]

(3) Duplicate Parent ID [VOV868-04]

(4) Matrix Spike Parent ID [VOV868-10]

(5) Duplicate Parent ID [VOV868-10]

(6) Matrix Spike Parent ID [VOV868-07]

(7) Duplicate Parent ID [VOV868-07]

(8) Matrix Spike Parent ID [VOV868-08]

(9) Duplicate Parent ID [VOV868-08]

(10) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Bureau Veritas Job #: C3A9051
Report Date: 2023/04/26

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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.

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

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SP2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
041723	7.7	492	10.2	75.0	10.5		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent

Odor: N/O

Color: N/C

Other: —

Weather Conditions (required daily, or as conditions change): 3°C

Direction/Speed: 23 km/hr SW

Outlook: Rain

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

water 1m

depth: 0.2m

time elm 1: 6s

2. 6s

3. 7s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
04/17/23	Jake Arbiello		RWDF
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0711

MAXXAM IMMEDIATE

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459-1000
				Project Name:	Twin Creeks SW
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	JRA

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-SWCM-APR

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 27-Apr-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZL-ON-WLF-2023 TCLS - SW (POND OUTLETS) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SP2	17-Apr-23	AM	SW	N	N	X	13	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									All samples for Hg field filtered @ 45um
12									See lab addendum for lab group coding

19-Apr-23 09:26
Patricia Legette
C3A9051
MUM ENV-943

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA-17-Apr-23 /AM	M JMUSFAM	2023/04/19	0926	Temperature (°C) on Receipt 3/3/6	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Custody seal present but not intact

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/11
Report #: R7625047
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6238
Received: 2023/05/04, 09:00

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	2023/05/05	2023/05/09	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2023/05/06	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2023/05/06	2023/05/11	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2023/05/08	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2023/05/09	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2023/05/09		
Conductivity	1	N/A	2023/05/08	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2023/05/09		
Dissolved Mercury in Water by CVAA	1	2023/05/08	2023/05/08	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2023/05/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/05/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/05/05	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/05/05	2023/05/06	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/05/09	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2023/05/09		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/05/08	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/05/08	2023/05/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2023/05/09		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/05/05	2023/05/09	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/05/05	2023/05/10	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	1	2023/05/09	2023/05/09	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2023/05/09		
Un-ionized Ammonia (3)	1	2023/05/04	2023/05/11	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2023/05/08	CAM SOP-00228	EPA 8260D

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

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-MAY

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/05/11
Report #: R7625047
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6238
Received: 2023/05/04, 09:00

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.

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Bureau Veritas Job #: C3C6238
Report Date: 2023/05/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		VSJ975		
Sampling Date		2023/05/03		
COC Number		TCEC-SWCM-MAY		
	UNITS	**SS1**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.0016	0.0016	8645912
Field Measurements				
Field Conductivity	uS/cm	635	N/A	ONSITE
Field Dissolved Oxygen	mg/L	10.97	N/A	ONSITE
Field Temperature	Celsius	6.7	N/A	ONSITE
Field Turbidity	NTU	>1000	N/A	ONSITE
Field Measured pH	pH	7.8		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8653597
Total BOD	mg/L	<2	2	8650167
Total Chemical Oxygen Demand (COD)	mg/L	6.8	4.0	8649738
Conductivity	umho/cm	630	1.0	8648644
Total Dissolved Solids	mg/L	420	10	8651798
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8649424
pH	pH	8.03		8648642
Phenols-4AAP	mg/L	<0.0010	0.0010	8655339
Total Phosphorus	mg/L	1.2	0.030	8649952
Total Suspended Solids	mg/L	2700	100	8652778
Dissolved Sulphate (SO4)	mg/L	35	1.0	8649175
Alkalinity (Total as CaCO3)	mg/L	93	1.0	8648631
Dissolved Chloride (Cl-)	mg/L	1.2	1.0	8649172
Nitrite (N)	mg/L	<0.010	0.010	8648593
Nitrate (N)	mg/L	0.56	0.10	8648593

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

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Bureau Veritas Job #: C3C6238
Report Date: 2023/05/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		VSJ975		
Sampling Date		2023/05/03		
COC Number		TCEC-SWCM-MAY		
	UNITS	**SS1**	**RDL**	**QC Batch**
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8651667
Total Arsenic (As)	mg/L	0.03	0.01	8652592
Total Barium (Ba)	mg/L	0.33	0.05	8652592
Total Boron (B)	mg/L	0.3	0.2	8652592
Total Cadmium (Cd)	mg/L	<0.001	0.001	8652592
Total Calcium (Ca)	mg/L	270	2	8652592
Total Chromium (Cr)	mg/L	0.11	0.05	8652592
Total Copper (Cu)	mg/L	0.08	0.02	8652592
Total Iron (Fe)	mg/L	100	1	8652592
Total Lead (Pb)	mg/L	0.066	0.005	8652592
Total Magnesium (Mg)	mg/L	77	0.5	8652592
Total Nickel (Ni)	mg/L	0.15	0.01	8652592
Total Potassium (K)	mg/L	25	2	8652592
Total Sodium (Na)	mg/L	14	1	8652592
Total Zinc (Zn)	mg/L	0.3	0.1	8652592

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3C6238
Report Date: 2023/05/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		VSJ975		
Sampling Date		2023/05/03		
COC Number		TCEC-SWCM-MAY		
	UNITS	**SS1**	**RDL**	**QC Batch**
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.20	0.20	8649086
1,2-Dichlorobenzene	ug/L	<0.50	0.50	8649086
1,3-Dichlorobenzene	ug/L	<0.50	0.50	8649086
1,4-Dichlorobenzene	ug/L	<0.50	0.50	8649086
Hexachlorobenzene	ug/L	<0.50	0.50	8649086
1,2,4-Trichlorobenzene	ug/L	<0.50	0.50	8649086
2,4-Dichlorophenol	ug/L	<0.30	0.30	8649086
Pentachlorophenol	ug/L	<1.0	1.0	8649086
Phenol	ug/L	<0.50	0.50	8649086
2,4,6-Trichlorophenol	ug/L	<0.50	0.50	8649086
Di-N-butyl phthalate	ug/L	<2.0	2.0	8649086
Diethyl phthalate	ug/L	<1.0	1.0	8649086
Dimethyl phthalate	ug/L	<1.0	1.0	8649086
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	54		8649086
2-Fluorobiphenyl	%	75		8649086
2-Fluorophenol	%	26		8649086
D14-Terphenyl	%	88		8649086
D5-Nitrobenzene	%	75		8649086
D5-Phenol	%	22		8649086

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3C6238
Report Date: 2023/05/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		VSJ975		
Sampling Date		2023/05/03		
COC Number		TCEC-SWCM-MAY		
	UNITS	**SS1**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8650459
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8650459
Ethylbenzene	ug/L	<0.20	0.20	8650459
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8650459
Toluene	ug/L	<0.20	0.20	8650459
Vinyl Chloride	ug/L	<0.20	0.20	8650459
p+m-Xylene	ug/L	<0.20	0.20	8650459
o-Xylene	ug/L	<0.20	0.20	8650459
Total Xylenes	ug/L	<0.20	0.20	8650459
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	96		8650459
D4-1,2-Dichloroethane	%	117		8650459
D8-Toluene	%	87		8650459

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Sample VSJ975 [SS1] : Metals Analysis: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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

Bureau Veritas Job #: C3C6238
Report Date: 2023/05/11

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8649086	2,4,6-Tribromophenol	2023/05/08	87	10 - 130	79	10 - 130	57	%				
8649086	2-Fluorobiphenyl	2023/05/08	62	30 - 130	70	30 - 130	69	%				
8649086	2-Fluorophenol	2023/05/08	46	10 - 130	44	10 - 130	34	%				
8649086	D14-Terphenyl	2023/05/08	91	30 - 130	88	30 - 130	88	%				
8649086	D5-Nitrobenzene	2023/05/08	80	30 - 130	74	30 - 130	71	%				
8649086	D5-Phenol	2023/05/08	30	10 - 130	28	10 - 130	23	%				
8650459	4-Bromofluorobenzene	2023/05/08	101	70 - 130	101	70 - 130	101	%				
8650459	D4-1,2-Dichloroethane	2023/05/08	108	70 - 130	104	70 - 130	113	%				
8650459	D8-Toluene	2023/05/08	106	70 - 130	108	70 - 130	87	%				
8648593	Nitrate (N)	2023/05/05	93	80 - 120	92	80 - 120	<0.10	mg/L	NC (1)	20		
8648593	Nitrite (N)	2023/05/05	102	80 - 120	103	80 - 120	<0.010	mg/L	0.98 (1)	20		
8648631	Alkalinity (Total as CaCO3)	2023/05/06			97	85 - 115	<1.0	mg/L	0.52 (1)	20		
8648642	pH	2023/05/06			101	98 - 103			0.081 (1)	N/A		
8648644	Conductivity	2023/05/06			104	85 - 115	<1.0	umho/cm	1.4 (1)	25		
8649086	1,2,4-Trichlorobenzene	2023/05/08	36	30 - 130	31	30 - 130	<0.50	ug/L	NC (1)	40		
8649086	1,2-Dichlorobenzene	2023/05/08	37	30 - 130	33	30 - 130	<0.50	ug/L	NC (1)	40		
8649086	1,3-Dichlorobenzene	2023/05/08	30	30 - 130	26 (2)	30 - 130	<0.50	ug/L	NC (1)	40		
8649086	1,4-Dichlorobenzene	2023/05/08	32	30 - 130	28 (2)	30 - 130	<0.50	ug/L	NC (1)	40		
8649086	2,4,6-Trichlorophenol	2023/05/08	90	10 - 130	88	10 - 130	<0.50	ug/L	NC (1)	40		
8649086	2,4-Dichlorophenol	2023/05/08	79	10 - 130	75	10 - 130	<0.30	ug/L	NC (1)	40		
8649086	Benzo(a)pyrene	2023/05/08	99	30 - 130	95	30 - 130	<0.20	ug/L	NC (1)	40		
8649086	Diethyl phthalate	2023/05/08	88	30 - 130	85	30 - 130	<1.0	ug/L	NC (1)	40		
8649086	Dimethyl phthalate	2023/05/08	93	30 - 130	89	30 - 130	<1.0	ug/L	NC (1)	40		
8649086	Di-N-butyl phthalate	2023/05/08	96	30 - 130	94	30 - 130	<2.0	ug/L	NC (1)	40		
8649086	Hexachlorobenzene	2023/05/08	88	30 - 130	83	30 - 130	<0.50	ug/L	NC (1)	40		
8649086	Pentachlorophenol	2023/05/08	40	10 - 130	37	10 - 130	<1.0	ug/L	NC (1)	40		
8649086	Phenol	2023/05/08	31	10 - 130	30	10 - 130	<0.50	ug/L	NC (1)	40		
8649172	Dissolved Chloride (Cl-)	2023/05/08	NC	80 - 120	95	80 - 120	<1.0	mg/L	0.28 (1)	20		
8649175	Dissolved Sulphate (SO4)	2023/05/08	NC	75 - 125	94	80 - 120	<1.0	mg/L	0.39 (1)	20		

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

Bureau Veritas Job #: C3C6238
Report Date: 2023/05/11

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8649424	Total Kjeldahl Nitrogen (TKN)	2023/05/09	116	80 - 120	97	80 - 120	<0.7	mg/L	NC (1)	20	97	80 - 120
8649738	Total Chemical Oxygen Demand (COD)	2023/05/08	90	80 - 120	96	80 - 120	<4.0	mg/L	NC (1)	20		
8649952	Total Phosphorus	2023/05/10	100	80 - 120	99	80 - 120	<0.030	mg/L	NC (1)	25	101	80 - 120
8650167	Total BOD	2023/05/11					<2	mg/L	NC (1)	30	93	80 - 120
8650459	1,4-Dichlorobenzene	2023/05/08	110	70 - 130	112	70 - 130	<0.40	ug/L	NC (1)	30		
8650459	Benzene	2023/05/08	95	70 - 130	90	70 - 130	<0.20	ug/L	NC (1)	30		
8650459	Ethylbenzene	2023/05/08	92	70 - 130	89	70 - 130	<0.20	ug/L	NC (1)	30		
8650459	Methylene Chloride(Dichloromethane)	2023/05/08	104	70 - 130	98	70 - 130	<2.0	ug/L	NC (1)	30		
8650459	o-Xylene	2023/05/08	92	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
8650459	p+m-Xylene	2023/05/08	98	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
8650459	Toluene	2023/05/08	100	70 - 130	95	70 - 130	<0.20	ug/L	NC (1)	30		
8650459	Total Xylenes	2023/05/08					<0.20	ug/L	NC (1)	30		
8650459	Vinyl Chloride	2023/05/08	97	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
8651667	Dissolved Mercury (Hg)	2023/05/08	93 (3)	75 - 125	97	80 - 120	<0.10	ug/L	NC (4)	20		
8651798	Total Dissolved Solids	2023/05/09					<10	mg/L	1.2 (1)	20	102	90 - 110
8652592	Total Arsenic (As)	2023/05/10	NC (5)	80 - 120	100	80 - 120	<0.001	mg/L	5.0 (1)	20		
8652592	Total Barium (Ba)	2023/05/10	NC (5)	80 - 120	92	80 - 120	<0.005	mg/L	3.1 (1)	20		
8652592	Total Boron (B)	2023/05/10	NC (5)	80 - 120	100	80 - 120	<0.02	mg/L	1.4 (1)	20		
8652592	Total Cadmium (Cd)	2023/05/10	NC (5)	80 - 120	98	80 - 120	<0.0001	mg/L	NC (1)	20		
8652592	Total Calcium (Ca)	2023/05/10	NC (5)	80 - 120	99	80 - 120	<0.2	mg/L	3.7 (1)	20		
8652592	Total Chromium (Cr)	2023/05/10	NC (5)	80 - 120	98	80 - 120	<0.005	mg/L	NC (1)	20		
8652592	Total Copper (Cu)	2023/05/10	NC (5)	80 - 120	97	80 - 120	<0.002	mg/L	NC (1)	20		
8652592	Total Iron (Fe)	2023/05/10	NC (5)	80 - 120	100	80 - 120	<0.1	mg/L	5.2 (1)	20		
8652592	Total Lead (Pb)	2023/05/10	NC (5)	80 - 120	98	80 - 120	<0.0005	mg/L	NC (1)	20		
8652592	Total Magnesium (Mg)	2023/05/10	NC (5)	80 - 120	102	80 - 120	<0.05	mg/L	3.2 (1)	20		
8652592	Total Nickel (Ni)	2023/05/10	NC (5)	80 - 120	98	80 - 120	<0.001	mg/L	3.9 (1)	20		
8652592	Total Potassium (K)	2023/05/10	NC (5)	80 - 120	98	80 - 120	<0.2	mg/L	3.3 (1)	20		
8652592	Total Sodium (Na)	2023/05/10	NC (5)	80 - 120	104	80 - 120	<0.1	mg/L	4.0 (1)	20		
8652592	Total Zinc (Zn)	2023/05/10	NC (5)	80 - 120	105	80 - 120	<0.01	mg/L	NC (1)	20		
8652778	Total Suspended Solids	2023/05/09					<10	mg/L	NC (1)	20	96	85 - 115

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Bureau Veritas Job #: C3C6238
Report Date: 2023/05/11

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8653597	Total Ammonia-N	2023/05/10	100	75 - 125	100	80 - 120	<0.15	mg/L	NC (1)	20		
8655339	Phenols-4AAP	2023/05/09	103	80 - 120	98	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.

(3) Matrix Spike Parent ID [VSJ975-07]

(4) Duplicate Parent ID [VSJ975-07]

(5) Matrix Spike not calculated. Original sample and matrix spike sample were analyzed at a dilution, due to high target analytes, or sample matrix interference.

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Bureau Veritas Job #: C3C6238
Report Date: 2023/05/11

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

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FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SSi (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N ~~0.45 µ~~ or ____ µ (circle or fill in)

Filter Type: 1 — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
050323	7.8	635	6.7	21000	10.97		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Opaque

Odor: n/a

Color: brown

Other:

Weather Conditions (required daily, or as conditions change): 7°C

Direction/Speed: 19km/h NW

Outlook: cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

Width: 1m Streamflow: T1@10s

depth: 0.1m @ 1m T2@11s

T3@8.5s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
05/03/23	Brady Crubb	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0749

IMMEDIATE

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks SW
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Location:	Twin Creeks
				Sampled By:	AW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-SWCM-MAY

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 12-May-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZJ-ON-WLF-2023 TCLS - SW (COMPLIANCE POINT) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS1	3-May-23	AM	SW	N	N	X	12	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

04-May-23 09:00
Patricia Legette
C3C6238
AK0 ENV-1380

All samples for Hg field filtered @ 45um
See lab addendum for lab group coding

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
BEG-5/3/2023	[illegible]	2023/05/04	09:00

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
see ACTR	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/12
Report #: R7711326
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J6410
Received: 2023/07/05, 08:58

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	2023/07/06	2023/07/06	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2023/07/05	CAM SOP-00448	SM 23 2320 B m
Alkalinity	1	N/A	2023/07/06	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2023/07/06	2023/07/11	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	2	N/A	2023/07/06	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2023/07/06	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	2	N/A	2023/07/07		
Conductivity	1	N/A	2023/07/05	CAM SOP-00414	SM 23 2510 m
Conductivity	1	N/A	2023/07/06	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2023/07/07		
Dissolved Mercury in Water by CVAA	2	2023/07/10	2023/07/10	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	2	N/A	2023/07/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2023/07/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2023/07/06	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/07/05	2023/07/05	CAM SOP-00413	SM 4500H+ B m
pH	1	2023/07/05	2023/07/06	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/07/10	CAM SOP-00444	OMOE E3179 m
Phenols (4AAP)	1	N/A	2023/07/11	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2023/07/07		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/07/06	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	2	2023/07/05	2023/07/06	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2023/07/07		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/07/07	2023/07/11	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2023/07/07	2023/07/11	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	2	2023/07/05	2023/07/06	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	2	N/A	2023/07/07		
Un-ionized Ammonia (3)	2	2023/07/05	2023/07/11	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2023/07/10	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/12
Report #: R7711326
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J6410
Received: 2023/07/05, 08:58

Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, 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.

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.

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

Bureau Veritas Job #: C3J6410
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		WHE317		WHE319		
Sampling Date		2023/07/03		2023/07/03		
COC Number		N/A		N/A		
	UNITS	**SS1**	**QC Batch**	**SSDUP1**	**RDL**	**QC Batch**
Calculated Parameters						
Total Un-ionized Ammonia	mg/L	<0.0073	8769373	0.0074	0.0073	8769373
Field Measurements						
Field Conductivity	uS/cm	443	ONSITE	443	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.4	ONSITE	8.4	N/A	ONSITE
Field Temperature	Celsius	23.9	ONSITE	23.9	N/A	ONSITE
Field Turbidity	NTU	>1000	ONSITE	>1000	N/A	ONSITE
Field Measured pH	pH	7.9	ONSITE	7.9		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	8776482	0.15	0.15	8776482
Total BOD	mg/L	3	8771245	5	2	8771245
Total Chemical Oxygen Demand (COD)	mg/L	7.2	8772638	6.9	4.0	8772638
Conductivity	umho/cm	490	8770025	470	1.0	8770025
Total Dissolved Solids	mg/L	330	8768555	435	10	8768555
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	8775667	<0.7	0.7	8775667
pH	pH	8.05	8770026	8.06		8770026
Phenols-4AAP	mg/L	0.0012	8779751	0.0010	0.0010	8779974
Total Phosphorus	mg/L	1.9	8775684	1.9	0.030	8775684
Total Suspended Solids	mg/L	4300	8768553	4200	100	8768553
Dissolved Sulphate (SO4)	mg/L	140	8769820	140	1.0	8769820
Alkalinity (Total as CaCO3)	mg/L	77	8770017	74	1.0	8770017
Dissolved Chloride (Cl-)	mg/L	4.4	8769814	4.4	1.0	8769814
Nitrite (N)	mg/L	0.020	8769789	0.011	0.010	8769789
Nitrate (N)	mg/L	0.45	8769789	0.44	0.10	8769789

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

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

Bureau Veritas Job #: C3J6410
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		WHE317	WHE319		
Sampling Date		2023/07/03	2023/07/03		
COC Number		N/A	N/A		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Metals					
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	0.10	8778344
Total Arsenic (As)	mg/L	0.04	0.04	0.01	8774144
Total Barium (Ba)	mg/L	0.51	0.51	0.05	8774144
Total Boron (B)	mg/L	0.3	0.3	0.2	8774144
Total Cadmium (Cd)	mg/L	<0.001	<0.001	0.001	8774144
Total Calcium (Ca)	mg/L	370	380	2	8774144
Total Chromium (Cr)	mg/L	0.17	0.17	0.05	8774144
Total Copper (Cu)	mg/L	0.13	0.13	0.02	8774144
Total Iron (Fe)	mg/L	170	160	1	8774144
Total Lead (Pb)	mg/L	0.061	0.059	0.005	8774144
Total Magnesium (Mg)	mg/L	100	100	0.5	8774144
Total Nickel (Ni)	mg/L	0.25	0.24	0.01	8774144
Total Potassium (K)	mg/L	36	36	2	8774144
Total Sodium (Na)	mg/L	11	11	1	8774144
Total Zinc (Zn)	mg/L	0.4	0.4	0.1	8774144

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3J6410
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		WHE317	WHE319		
Sampling Date		2023/07/03	2023/07/03		
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	8771008
1,2-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	8771008
1,3-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	8771008
1,4-Dichlorobenzene	ug/L	<2.0	<2.0	2.0	8771008
Hexachlorobenzene	ug/L	<2.0	<2.0	2.0	8771008
1,2,4-Trichlorobenzene	ug/L	<2.0	<2.0	2.0	8771008
2,4-Dichlorophenol	ug/L	<1.2	<1.2	1.2	8771008
Pentachlorophenol	ug/L	<4.0	<4.0	4.0	8771008
Phenol	ug/L	<2.0	<2.0	2.0	8771008
2,4,6-Trichlorophenol	ug/L	<2.0	<2.0	2.0	8771008
Di-N-butyl phthalate	ug/L	<8.0	<8.0	8.0	8771008
Diethyl phthalate	ug/L	<4.0	<4.0	4.0	8771008
Dimethyl phthalate	ug/L	<4.0	<4.0	4.0	8771008
Surrogate Recovery (%)					
2,4,6-Tribromophenol	%	70	38		8771008
2-Fluorobiphenyl	%	66	69		8771008
2-Fluorophenol	%	35	16		8771008
D14-Terphenyl	%	87	88		8771008
D5-Nitrobenzene	%	65	68		8771008
D5-Phenol	%	24	13		8771008

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3J6410
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		WHE317	WHE319		
Sampling Date		2023/07/03	2023/07/03		
COC Number		N/A	N/A		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	8772884
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	8772884
Ethylbenzene	ug/L	<0.20	<0.20	0.20	8772884
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	8772884
Toluene	ug/L	<0.20	<0.20	0.20	8772884
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	8772884
p+m-Xylene	ug/L	<0.20	<0.20	0.20	8772884
o-Xylene	ug/L	<0.20	<0.20	0.20	8772884
Total Xylenes	ug/L	<0.20	<0.20	0.20	8772884
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	93	93		8772884
D4-1,2-Dichloroethane	%	118	122		8772884
D8-Toluene	%	104	104		8772884

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3J6410
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

GENERAL COMMENTS

ABN Analysis: Due to the sample matrix, a smaller amount was used for analysis. Detection limits were adjusted accordingly.

Sample WHE317 [SS1] : Metals: Due to the sample matrix, the sample required dilution. Detection limits were adjusted accordingly.

Sample WHE319 [SSDUP1] : Metals: Due to the sample matrix, the 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.

Bureau Veritas Job #: C3J6410
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8771008	2,4,6-Tribromophenol	2023/07/06	62	10 - 130	73	10 - 130	76	%				
8771008	2-Fluorobiphenyl	2023/07/06	53	30 - 130	56	30 - 130	70	%				
8771008	2-Fluorophenol	2023/07/06	32	10 - 130	36	10 - 130	36	%				
8771008	D14-Terphenyl	2023/07/06	76	30 - 130	83	30 - 130	89	%				
8771008	D5-Nitrobenzene	2023/07/06	57	30 - 130	64	30 - 130	74	%				
8771008	D5-Phenol	2023/07/06	22	10 - 130	24	10 - 130	25	%				
8772884	4-Bromofluorobenzene	2023/07/10	92 (5)	70 - 130	93	70 - 130	94	%				
8772884	D4-1,2-Dichloroethane	2023/07/10	121 (5)	70 - 130	118	70 - 130	119	%				
8772884	D8-Toluene	2023/07/10	103 (5)	70 - 130	107	70 - 130	106	%				
8768553	Total Suspended Solids	2023/07/06			101	85 - 115	<10	mg/L	15 (1)	20		
8768555	Total Dissolved Solids	2023/07/06			97	90 - 110	<10	mg/L	1.5 (1)	20		
8769789	Nitrate (N)	2023/07/06	86	80 - 120	98	80 - 120	<0.10	mg/L	0.18 (1)	20		
8769789	Nitrite (N)	2023/07/06	104	80 - 120	104	80 - 120	<0.010	mg/L	NC (1)	20		
8769814	Dissolved Chloride (Cl-)	2023/07/06	NC	80 - 120	95	80 - 120	<1.0	mg/L	0.24 (1)	20		
8769820	Dissolved Sulphate (SO4)	2023/07/06	NC	75 - 125	94	80 - 120	<1.0	mg/L	0.78 (1)	20		
8770017	Alkalinity (Total as CaCO3)	2023/07/05			96	85 - 115	<1.0	mg/L	2.2 (1)	20		
8770025	Conductivity	2023/07/05			100	85 - 115	<1.0	umho/cm	0.27 (1)	10		
8770026	pH	2023/07/05			102	98 - 103			0.54 (1)	N/A		
8771008	1,2,4-Trichlorobenzene	2023/07/06	35	30 - 130	35	30 - 130	<0.50	ug/L	NC (2)	40		
8771008	1,2-Dichlorobenzene	2023/07/06	36	30 - 130	35	30 - 130	<0.50	ug/L	NC (2)	40		
8771008	1,3-Dichlorobenzene	2023/07/06	31	30 - 130	32	30 - 130	<0.50	ug/L	NC (2)	40		
8771008	1,4-Dichlorobenzene	2023/07/06	32	30 - 130	33	30 - 130	<0.50	ug/L	NC (2)	40		
8771008	2,4,6-Trichlorophenol	2023/07/06	76	10 - 130	80	10 - 130	<0.50	ug/L	NC (2)	40		
8771008	2,4-Dichlorophenol	2023/07/06	65	10 - 130	71	10 - 130	<0.30	ug/L	NC (2)	40		
8771008	Benzo(a)pyrene	2023/07/06	69	30 - 130	88	30 - 130	<0.20	ug/L	NC (2)	40		
8771008	Diethyl phthalate	2023/07/06	61	30 - 130	68	30 - 130	<1.0	ug/L	NC (2)	40		
8771008	Dimethyl phthalate	2023/07/06	66	30 - 130	70	30 - 130	<1.0	ug/L	NC (2)	40		
8771008	Di-N-butyl phthalate	2023/07/06	67	30 - 130	76	30 - 130	<2.0	ug/L	NC (2)	40		
8771008	Hexachlorobenzene	2023/07/06	60	30 - 130	65	30 - 130	<0.50	ug/L	NC (2)	40		

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

Bureau Veritas Job #: C3J6410
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8771008	Pentachlorophenol	2023/07/06	54	10 - 130	57	10 - 130	<1.0	ug/L	NC (2)	40		
8771008	Phenol	2023/07/06	22	10 - 130	25	10 - 130	<0.50	ug/L	NC (2)	40		
8771245	Total BOD	2023/07/11					<2	mg/L	2.0 (1)	30	98	80 - 120
8772638	Total Chemical Oxygen Demand (COD)	2023/07/06	100 (3)	80 - 120	99	80 - 120	<4.0	mg/L	NC (4)	20		
8772884	1,4-Dichlorobenzene	2023/07/10	117 (5)	70 - 130	117	70 - 130	<0.40	ug/L	NC (6)	30		
8772884	Benzene	2023/07/10	107 (5)	70 - 130	102	70 - 130	<0.20	ug/L	NC (6)	30		
8772884	Ethylbenzene	2023/07/10	102 (5)	70 - 130	103	70 - 130	<0.20	ug/L	NC (6)	30		
8772884	Methylene Chloride(Dichloromethane)	2023/07/10	117 (5)	70 - 130	111	70 - 130	<2.0	ug/L	NC (6)	30		
8772884	o-Xylene	2023/07/10	102 (5)	70 - 130	103	70 - 130	<0.20	ug/L	NC (6)	30		
8772884	p+m-Xylene	2023/07/10	106 (5)	70 - 130	108	70 - 130	<0.20	ug/L	NC (6)	30		
8772884	Toluene	2023/07/10	105 (5)	70 - 130	105	70 - 130	<0.20	ug/L	NC (6)	30		
8772884	Total Xylenes	2023/07/10					<0.20	ug/L	NC (6)	30		
8772884	Vinyl Chloride	2023/07/10	117 (5)	70 - 130	112	70 - 130	<0.20	ug/L	NC (6)	30		
8774144	Total Arsenic (As)	2023/07/11	102	80 - 120	99	80 - 120	<0.001	mg/L				
8774144	Total Barium (Ba)	2023/07/11	97	80 - 120	95	80 - 120	<0.005	mg/L				
8774144	Total Boron (B)	2023/07/11	99	80 - 120	99	80 - 120	<0.02	mg/L				
8774144	Total Cadmium (Cd)	2023/07/11	97	80 - 120	97	80 - 120	<0.0001	mg/L				
8774144	Total Calcium (Ca)	2023/07/11	NC	80 - 120	95	80 - 120	<0.2	mg/L				
8774144	Total Chromium (Cr)	2023/07/11	97	80 - 120	94	80 - 120	<0.005	mg/L	0.67 (1)	20		
8774144	Total Copper (Cu)	2023/07/11	101	80 - 120	97	80 - 120	<0.002	mg/L	0.92 (1)	20		
8774144	Total Iron (Fe)	2023/07/11	95	80 - 120	94	80 - 120	<0.1	mg/L				
8774144	Total Lead (Pb)	2023/07/11	92	80 - 120	93	80 - 120	<0.0005	mg/L				
8774144	Total Magnesium (Mg)	2023/07/11	97	80 - 120	96	80 - 120	<0.05	mg/L				
8774144	Total Nickel (Ni)	2023/07/11	94	80 - 120	94	80 - 120	<0.001	mg/L	1.2 (1)	20		
8774144	Total Potassium (K)	2023/07/11	NC	80 - 120	94	80 - 120	<0.2	mg/L				
8774144	Total Sodium (Na)	2023/07/11	NC	80 - 120	98	80 - 120	<0.1	mg/L				
8774144	Total Zinc (Zn)	2023/07/11	95	80 - 120	99	80 - 120	<0.01	mg/L	0.44 (1)	20		
8775667	Total Kjeldahl Nitrogen (TKN)	2023/07/11	87	80 - 120	98	80 - 120	<0.7	mg/L	NC (1)	20	106	80 - 120
8775684	Total Phosphorus	2023/07/11	95	80 - 120	98	80 - 120	<0.030	mg/L	3.4 (1)	25	105	80 - 120
8776482	Total Ammonia-N	2023/07/10	102	75 - 125	100	80 - 120	<0.15	mg/L	NC (1)	20		

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

Bureau Veritas Job #: C3J6410
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8778344	Dissolved Mercury (Hg)	2023/07/10	97 (7)	75 - 125	99	80 - 120	<0.10	ug/L	NC (8)	20		
8779751	Phenols-4AAP	2023/07/10	101 (9)	80 - 120	100	80 - 120	<0.0010	mg/L	0 (10)	20		
8779974	Phenols-4AAP	2023/07/11	101	80 - 120	100	80 - 120	<0.0010	mg/L	8.2 (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 [WHE319-01]

(3) Matrix Spike Parent ID [WHE319-06]

(4) Duplicate Parent ID [WHE319-06]

(5) Matrix Spike Parent ID [WHE317-10]

(6) Duplicate Parent ID [WHE317-10]

(7) Matrix Spike Parent ID [WHE317-07]

(8) Duplicate Parent ID [WHE317-07]

(9) Matrix Spike Parent ID [WHE317-08]

(10) Duplicate Parent ID [WHE317-08]

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

Bureau Veritas Job #: C3J6410
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

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FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: S S 1 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
07 03 23	7.9	443	23.9	>1000	8.4		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: opaque

Odor: no

Color: brown

Other:

Weather Conditions (required daily, or as conditions change): 70°C

Direction/Speed: 10 km/h NE

Outlook: Overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

* SS DUPlicate *

Area flooded

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/03/23	Brady Gubbs	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form w-3.1 06/20

0796

Maxxam IMMEDIATE 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks SW	TCEC-SWCM-JUL
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Location:	Twin Creeks	
				Sampled By:	BG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ Reg. 558 ☒ PWQO

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☐ Other _____ specify

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 13-Jul-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZJ-ON-WLF-2023 TCLS - SW (COMPLIANCE POINT) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS1	3-Jul-23	PM	SW	N	N	X	12	SSDUP1 taken
2	SSDUP1	3-Jul-23	PM	SW	N	N	X	12	
3									
4									
5									
6									
7									
8									
9									
10									
11									All samples for Hg field filtered @ 45um
12									See lab addendum for lab group coding

05-Jul-23 08:58
Patricia Legette
C3J6410
AJH ENV-603

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BG-7/4/2023	AMS	04/07/23	0858	Temperature (°C) on Receipt 14/12/16	Condition of Sample on Receipt ☐ OK ☐ SIF

* MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

ice pack melted

White: Maxxam Yellow: Mail Pink: Client

T-73

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/12
Report #: R7711279
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J6425
Received: 2023/07/05, 08:53

Sample Matrix: Surface Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2023/07/07	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	3	N/A	2023/07/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	3	N/A	2023/07/07		
Field Measured Dissolved Oxygen in Water	3	N/A	2023/07/07		
Total Metals by ICPMS	3	N/A	2023/07/11	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	3	N/A	2023/07/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	3	N/A	2023/07/06	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Phenols (4AAP)	3	N/A	2023/07/10	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	3	N/A	2023/07/07		Field pH Meter
Sulphate by Automated Turbidimetry	3	N/A	2023/07/06	CAM SOP-00464	SM 23 4500-SO42- E m
Field Temperature (2)	3	N/A	2023/07/07		Field Thermometer
Total Organic Carbon (TOC) (3)	1	N/A	2023/07/07	CAM SOP-00446	SM 23 5310B m
Total Organic Carbon (TOC) (3)	2	N/A	2023/07/08	CAM SOP-00446	SM 23 5310B m
Turbidity - On-site	3	N/A	2023/07/07		
Un-ionized Ammonia (4)	2	2023/07/05	2023/07/10	Auto Calc.	PWQO
Un-ionized Ammonia (4)	1	2023/07/05	2023/07/11	Auto Calc.	PWQO
Volatile Organic Compounds in Water	3	N/A	2023/07/07	CAM SOP-00226	EPA 8260D 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, MELCCFP, 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

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: N/A

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/12
Report #: R7711279
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J6425
Received: 2023/07/05, 08:53
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) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.
(4) 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.

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

Bureau Veritas Job #: C3J6425
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		WHE369			WHE370		WHE371		
Sampling Date		2023/07/03			2023/07/03		2023/07/03		
COC Number		N/A			N/A		N/A		
	UNITS	**SS14B**	**RDL**	**QC Batch**	**SS15A**	**QC Batch**	**PSSWDUP**	**RDL**	**QC Batch**
Calculated Parameters									
Total Un-ionized Ammonia	mg/L	<0.009	0.009	8769373	<0.0049	8769373	<0.0049	0.0049	8769373
Field Measurements									
Field Conductivity	uS/cm	690	N/A	ONSITE	452	ONSITE	452	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.27	N/A	ONSITE	7.27	ONSITE	7.27	N/A	ONSITE
Field Temperature	Celsius	32.5	N/A	ONSITE	27.3	ONSITE	27.3	N/A	ONSITE
Field Turbidity	NTU	>1000	N/A	ONSITE	426	ONSITE	426	N/A	ONSITE
Field Measured pH	pH	8.26		ONSITE	8.12	ONSITE	8.12		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.050	0.050	8775935	<0.050	8774707	<0.050	0.050	8775935
Total Organic Carbon (TOC)	mg/L	4.6	0.40	8776241	8.7	8776241	8.5	0.40	8774869
Phenols-4AAP	mg/L	0.0013	0.0010	8779751	0.0014	8779751	0.0010	0.0010	8779751
Dissolved Sulphate (SO4)	mg/L	140	1.0	8769820	100	8769820	100	1.0	8769820
Alkalinity (Total as CaCO3)	mg/L	32	1.0	8772781	130	8772781	130	1.0	8772781
Dissolved Chloride (Cl-)	mg/L	16	1.0	8769814	11	8769814	11	1.0	8769814
Nitrate (N)	mg/L	1.11	0.10	8769789	0.26	8769789	0.30	0.10	8769789

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

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

Bureau Veritas Job #: C3J6425
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		WHE369	WHE370	WHE371		
Sampling Date		2023/07/03	2023/07/03	2023/07/03		
COC Number		N/A	N/A	N/A		
	UNITS	**SS14B**	**SS15A**	**PSSWDUP**	**RDL**	**QC Batch**
Metals						
Total Boron (B)	mg/L	0.14	0.42	0.42	0.02	8774144
Total Calcium (Ca)	mg/L	79	110	98	0.2	8774144
Total Chromium (Cr)	mg/L	<0.005	0.021	0.017	0.005	8774144
Total Iron (Fe)	mg/L	2.5	21	17	0.1	8774144
Total Magnesium (Mg)	mg/L	31	26	24	0.05	8774144
Total Nickel (Ni)	mg/L	0.005	0.030	0.025	0.001	8774144
Total Potassium (K)	mg/L	3.1	8.1	7.6	0.2	8774144
Total Sodium (Na)	mg/L	22	14	15	0.1	8774144
Total Zinc (Zn)	mg/L	<0.01	0.06	0.05	0.01	8774144

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3J6425
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		WHE369	WHE370	WHE371		
Sampling Date		2023/07/03	2023/07/03	2023/07/03		
COC Number		N/A	N/A	N/A		
	UNITS	**SS14B**	**SS15A**	**PSSWDUP**	**RDL**	**QC Batch**
Volatile Organics						
Benzene	ug/L	<0.10	<0.10	<0.10	0.10	8768734
Ethylbenzene	ug/L	<0.10	<0.10	<0.10	0.10	8768734
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	8768734
p+m-Xylene	ug/L	<0.10	<0.10	<0.10	0.10	8768734
o-Xylene	ug/L	<0.10	<0.10	<0.10	0.10	8768734
Total Xylenes	ug/L	<0.10	<0.10	<0.10	0.10	8768734
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	98	96	97		8768734
D4-1,2-Dichloroethane	%	102	103	101		8768734
D8-Toluene	%	100	98	99		8768734

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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.

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

Bureau Veritas Job #: C3J6425
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8768734	4-Bromofluorobenzene	2023/07/07	101	70 - 130	102	70 - 130	95	%		
8768734	D4-1,2-Dichloroethane	2023/07/07	98	70 - 130	99	70 - 130	98	%		
8768734	D8-Toluene	2023/07/07	100	70 - 130	99	70 - 130	100	%		
8768734	Benzene	2023/07/07	100	70 - 130	90	70 - 130	<0.10	ug/L	NC (1)	30
8768734	Ethylbenzene	2023/07/07	97	70 - 130	88	70 - 130	<0.10	ug/L	NC (1)	30
8768734	o-Xylene	2023/07/07	98	70 - 130	90	70 - 130	<0.10	ug/L	NC (1)	30
8768734	p+m-Xylene	2023/07/07	103	70 - 130	94	70 - 130	<0.10	ug/L	NC (1)	30
8768734	Toluene	2023/07/07	101	70 - 130	90	70 - 130	<0.20	ug/L	NC (1)	30
8768734	Total Xylenes	2023/07/07					<0.10	ug/L	NC (1)	30
8769789	Nitrate (N)	2023/07/06	86	80 - 120	98	80 - 120	<0.10	mg/L	0.18 (1)	20
8769814	Dissolved Chloride (Cl-)	2023/07/06	NC	80 - 120	95	80 - 120	<1.0	mg/L	0.24 (1)	20
8769820	Dissolved Sulphate (SO4)	2023/07/06	NC	75 - 125	94	80 - 120	<1.0	mg/L	0.78 (1)	20
8772781	Alkalinity (Total as CaCO3)	2023/07/06			95	85 - 115	<1.0	mg/L	2.4 (1)	20
8774144	Total Boron (B)	2023/07/11	99	80 - 120	99	80 - 120	<0.02	mg/L		
8774144	Total Calcium (Ca)	2023/07/11	NC	80 - 120	95	80 - 120	<0.2	mg/L		
8774144	Total Chromium (Cr)	2023/07/11	97	80 - 120	94	80 - 120	<0.005	mg/L	0.67 (1)	20
8774144	Total Iron (Fe)	2023/07/11	95	80 - 120	94	80 - 120	<0.1	mg/L		
8774144	Total Magnesium (Mg)	2023/07/11	97	80 - 120	96	80 - 120	<0.05	mg/L		
8774144	Total Nickel (Ni)	2023/07/11	94	80 - 120	94	80 - 120	<0.001	mg/L	1.2 (1)	20
8774144	Total Potassium (K)	2023/07/11	NC	80 - 120	94	80 - 120	<0.2	mg/L		
8774144	Total Sodium (Na)	2023/07/11	NC	80 - 120	98	80 - 120	<0.1	mg/L		
8774144	Total Zinc (Zn)	2023/07/11	95	80 - 120	99	80 - 120	<0.01	mg/L	0.44 (1)	20
8774707	Total Ammonia-N	2023/07/10	102	75 - 125	98	80 - 120	<0.050	mg/L	NC (1)	20
8774869	Total Organic Carbon (TOC)	2023/07/07	101	80 - 120	103	80 - 120	<0.40	mg/L	0.073 (1)	20
8775935	Total Ammonia-N	2023/07/10	94	75 - 125	101	80 - 120	<0.050	mg/L	NC (1)	20
8776241	Total Organic Carbon (TOC)	2023/07/08	96 (2)	80 - 120	97	80 - 120	<0.40	mg/L	3.5 (3)	20

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

Bureau Veritas Job #: C3J6425
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8779751	Phenols-4AAP	2023/07/10	101	80 - 120	100	80 - 120	<0.0010	mg/L	0 (1)	20

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.

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 [WHE369-03]

(3) Duplicate Parent ID [WHE369-03]

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

Bureau Veritas Job #: C3J6425
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

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FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC Pooler

Site No.:

Sample: 55MB
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vol Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) • (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
07 03 23	8.26	690	32.5	>1000	8.27		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: opaque

Odor: N/A

Color: brown

Other:

Weather Conditions (required daily, or as conditions change): 24°C

Direction/Speed: 10 km/h NE

Outlook: overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

Wt 1.50 m
D: 0.10 m
80c
85s
88s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/03/23	Brady Lubbs	Brady Lubbs	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0799

S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WM WASTE MANAGEMENT

Site Name: TCEL

Site No.:

Sample: PSA SS154 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N µ or µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit		pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st							
		2nd							
		3rd							
		4th							
Input Range for 3 consec. readings or Permit/State requirements:			+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
07 03 23	8.12	452	27.3	426	7.27		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: opaque

Odor: n/a

Color: brown

Other:

Weather Conditions (required daily, or as conditions change): 24°C

Direction/Speed: 10 km/h NE

Outlook: Overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

W: 0.80m

D: 0.15m

95s

98s

50s

PSSWDUP TAKEN

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/03/23	Brady Gulb	[signature]	RWDI

Maxxam IMMEDIATE 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks SW	TCEC-SWCM-JUL
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Location:	Twin Creeks	
				Sampled By:	BG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ Reg. 153 ☐ Table 1 ☐ Table 2 ☐ Table 3 Sewer Use ☐ Sanitary ☐ Storm Region _____ ☐ Other _____ specify

☒ PWQO

☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZP-ON-WLF-2023 TCLS - SW (POPLAR) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS14B	3-Jul-23	PM	SW	N	N	X	7	
2	SS15A	3-Jul-23	PM	SW	N	N	X	7	PSSWDUP taken
3	PSSWDUP	3-Jul-23	PM	SW	N	N	X	7	
4									
5									
6									
7									
8									
9									
10									
11									
12									See lab addendum for lab group coding

05-Jul-23 08:53
Patricia Legette
C3J6425
AJH ENV-603

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 13-Jul-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BG-7/4/2023	[signature]	04/07/23	08:53	Temperature (°C) on Receipt 18/20/12	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.**

7-23 [signature]

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-JUL

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/12
Report #: R7711194
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J7155
Received: 2023/07/05, 12:20

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/07/07	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/07/07	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2023/07/07		
Conductivity	1	N/A	2023/07/07	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2023/07/07		
Total Metals by ICPMS	1	N/A	2023/07/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/07/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/07/07	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/07/06	2023/07/07	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/07/10	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2023/07/07		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/07/07	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/07/08	2023/07/10	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2023/07/07		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/07/07	2023/07/11	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/07/07	2023/07/11	CAM SOP-00407	SM 23 4500-P I
Turbidity - On-site	1	N/A	2023/07/07		
Un-ionized Ammonia (3)	1	2023/07/05	2023/07/11	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, MELCCFP, 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

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-JUL

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/12
Report #: R7711194
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J7155
Received: 2023/07/05, 12:20

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.

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

Bureau Veritas Job #: C3J7155
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		WHI080		
Sampling Date		2023/07/03		
COC Number		TCEC-SWCM-JUL		
	UNITS	**SS10**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.015	0.015	8769373
Field Measurements				
Field Conductivity	uS/cm	919	N/A	ONSITE
Field Dissolved Oxygen	mg/L	6.97	N/A	ONSITE
Field Temperature	Celsius	28.1	N/A	ONSITE
Field Turbidity	NTU	2.76	N/A	ONSITE
Field Measured pH	pH	8.10		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8776482
Conductivity	umho/cm	1000	1.0	8773283
Total Dissolved Solids	mg/L	745	10	8775404
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8775667
pH	pH	8.01		8773279
Phenols-4AAP	mg/L	0.0014	0.0010	8779751
Total Phosphorus	mg/L	0.083	0.030	8775684
Dissolved Sulphate (SO4)	mg/L	290	1.0	8773464
Alkalinity (Total as CaCO3)	mg/L	150	1.0	8773272
Dissolved Chloride (Cl-)	mg/L	7.3	1.0	8773455
Nitrite (N)	mg/L	0.062	0.010	8773230
Nitrate (N)	mg/L	21.7	0.50	8773230

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 #: C3J7155
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		WHI080		
Sampling Date		2023/07/03		
COC Number		TCEC-SWCM-JUL		
	UNITS	**SS10**	**RDL**	**QC Batch**
Metals				
Total Boron (B)	mg/L	0.19	0.02	8774144
Total Calcium (Ca)	mg/L	150	0.2	8774144
Total Chromium (Cr)	mg/L	<0.005	0.005	8774144
Total Iron (Fe)	mg/L	1.4	0.1	8774144
Total Magnesium (Mg)	mg/L	32	0.05	8774144
Total Nickel (Ni)	mg/L	0.003	0.001	8774144
Total Potassium (K)	mg/L	2.7	0.2	8774144
Total Sodium (Na)	mg/L	9.7	0.1	8774144
Total Zinc (Zn)	mg/L	<0.01	0.01	8774144

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Job #: C3J7155
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8773230	Nitrate (N)	2023/07/07	98	80 - 120	94	80 - 120	<0.10	mg/L	NC (1)	20		
8773230	Nitrite (N)	2023/07/07	104	80 - 120	104	80 - 120	<0.010	mg/L	NC (1)	20		
8773272	Alkalinity (Total as CaCO3)	2023/07/07			95	85 - 115	<1.0	mg/L	4.7 (2)	20		
8773279	pH	2023/07/07			102	98 - 103			0.51 (2)	N/A		
8773283	Conductivity	2023/07/07			101	85 - 115	<1.0	umho/cm	0.30 (2)	10		
8773455	Dissolved Chloride (Cl-)	2023/07/07	101	80 - 120	91	80 - 120	<1.0	mg/L	NC (1)	20		
8773464	Dissolved Sulphate (SO4)	2023/07/07	84	75 - 125	93	80 - 120	<1.0	mg/L	13 (1)	20		
8774144	Total Boron (B)	2023/07/11	99	80 - 120	99	80 - 120	<0.02	mg/L				
8774144	Total Calcium (Ca)	2023/07/11	NC	80 - 120	95	80 - 120	<0.2	mg/L				
8774144	Total Chromium (Cr)	2023/07/11	97	80 - 120	94	80 - 120	<0.005	mg/L	0.67 (1)	20		
8774144	Total Iron (Fe)	2023/07/11	95	80 - 120	94	80 - 120	<0.1	mg/L				
8774144	Total Magnesium (Mg)	2023/07/11	97	80 - 120	96	80 - 120	<0.05	mg/L				
8774144	Total Nickel (Ni)	2023/07/11	94	80 - 120	94	80 - 120	<0.001	mg/L	1.2 (1)	20		
8774144	Total Potassium (K)	2023/07/11	NC	80 - 120	94	80 - 120	<0.2	mg/L				
8774144	Total Sodium (Na)	2023/07/11	NC	80 - 120	98	80 - 120	<0.1	mg/L				
8774144	Total Zinc (Zn)	2023/07/11	95	80 - 120	99	80 - 120	<0.01	mg/L	0.44 (1)	20		
8775404	Total Dissolved Solids	2023/07/10			102	90 - 110	<10	mg/L	1.2 (1)	20		
8775667	Total Kjeldahl Nitrogen (TKN)	2023/07/11	87	80 - 120	98	80 - 120	<0.7	mg/L	NC (1)	20	106	80 - 120
8775684	Total Phosphorus	2023/07/11	95	80 - 120	98	80 - 120	<0.030	mg/L	3.4 (1)	25	105	80 - 120
8776482	Total Ammonia-N	2023/07/10	102 (3)	75 - 125	100	80 - 120	<0.15	mg/L	NC (4)	20		

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Bureau Veritas Job #: C3J7155
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8779751	Phenols-4AAP	2023/07/10	101	80 - 120	100	80 - 120	<0.0010	mg/L	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.

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 [WHI080-01]

(3) Matrix Spike Parent ID [WHI080-06]

(4) Duplicate Parent ID [WHI080-06]

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

Bureau Veritas Job #: C3J7155
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

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S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WM WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SS10 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, D-Bailer, E-Piston Pump

Sampling Device: C-QED Bladder Pump, F-Dipper/Bottle

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
07 03 23	8.10	919	28.1	276	0.97		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: translucent Odor: no Color: light brown Other:

Weather Conditions (required daily, or as conditions change): 24°C Direction/Speed: 10 km/h NE Outlook: overcast Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

W: 0.30
O: 0.05
95,
50,
48,

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/03/23	Brad Gubb	Brad Gubb	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0800

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

IMMEDIATE

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks SW	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-JUL
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	BG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA Reg. 153 Sewer Use [ ] Other
[x] PWQO [ ] Table 1 [ ] Table 2 [ ] Table 3 [ ] Sanitary [ ] Storm Region _____ specify
[ ] Reg. 558

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZH-ON-WLF-2023 TCLS - SW (BKGRND STATION) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS10	3-Jul-23	PM	SW	N	N	X	6	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
[x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
[ ] 1 day [ ] 2 days [ ] 3 days
DATE Required: 13-Jul-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

05-Jul-23 12:20
Patricia Legette
C3J7155
LIRF ENV-1996

See lab addendum for lab group coding

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
BG-7/4/2023	[signature]	2023/07/05	1200	Temperature (°C) on Receipt: 19/18/17 19/18/20	Condition of Sample on Receipt: melted ice [ ] OK [ ] SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SMCM-JUL

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/12
Report #: R7711222
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J7161
Received: 2023/07/05, 12:20

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	4	2023/07/10	2023/07/10	CAM SOP-00301	EPA 8270 m
Alkalinity	3	N/A	2023/07/07	CAM SOP-00448	SM 23 2320 B m
Alkalinity	1	N/A	2023/07/08	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	4	2023/07/06	2023/07/11	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	4	N/A	2023/07/07	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	4	N/A	2023/07/07	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	4	N/A	2023/07/10		
Conductivity	3	N/A	2023/07/07	CAM SOP-00414	SM 23 2510 m
Conductivity	1	N/A	2023/07/08	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	4	N/A	2023/07/10		
Dissolved Mercury in Water by CVAA	4	2023/07/10	2023/07/10	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	4	N/A	2023/07/11	CAM SOP-00447	EPA 6020B m
Ammonia-N	4	N/A	2023/07/10	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	4	N/A	2023/07/07	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	3	2023/07/06	2023/07/07	CAM SOP-00413	SM 4500H+ B m
pH	1	2023/07/06	2023/07/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	4	N/A	2023/07/10	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	4	N/A	2023/07/10		Field pH Meter
Sulphate by Automated Turbidimetry	4	N/A	2023/07/07	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/07/07	2023/07/10	CAM SOP-00428	SM 23 2540C m
Total Dissolved Solids	3	2023/07/08	2023/07/10	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	4	N/A	2023/07/10		Field Thermometer
Total Kjeldahl Nitrogen in Water	4	2023/07/07	2023/07/11	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	4	2023/07/07	2023/07/11	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	4	2023/07/07	2023/07/10	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	4	N/A	2023/07/10		
Un-ionized Ammonia (3)	4	2023/07/05	2023/07/11	Auto Calc.	PWQO
Volatile Organic Compounds in Water	4	N/A	2023/07/11	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau

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Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SMCM-JUL

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/12
Report #: R7711222
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J7161
Received: 2023/07/05, 12:20

Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, 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.

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.

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Bureau Veritas Job #: C3J7161
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		WHI093			WHI094		WHI095		
Sampling Date		2023/07/03			2023/07/03		2023/07/03		
COC Number		TCEC-SMCM-JUL			TCEC-SMCM-JUL		TCEC-SMCM-JUL		
	UNITS	**SP1**	**RDL**	**QC Batch**	**SP2**	**RDL**	**SP3**	**RDL**	**QC Batch**
Calculated Parameters									
Total Un-ionized Ammonia	mg/L	<0.11	0.11	8769373	<0.13	0.13	<0.16	0.16	8769373
Field Measurements									
Field Conductivity	uS/cm	334	N/A	ONSITE	478	N/A	617	N/A	ONSITE
Field Dissolved Oxygen	mg/L	9.01	N/A	ONSITE	9.35	N/A	14.14	N/A	ONSITE
Field Temperature	Celsius	25.9	N/A	ONSITE	27.4	N/A	28.7	N/A	ONSITE
Field Turbidity	NTU	184.0	N/A	ONSITE	58.1	N/A	12.3	N/A	ONSITE
Field Measured pH	pH	9.4		ONSITE	9.6		10.0		ONSITE
Inorganics									
Total Ammonia-N	mg/L	<0.15	0.15	8776482	<0.15	0.15	<0.15	0.15	8776482
Total BOD	mg/L	<2	2	8771244	<2	2	<2	2	8771244
Total Chemical Oxygen Demand (COD)	mg/L	16	4.0	8775590	24	4.0	27	4.0	8775590
Conductivity	umho/cm	310	1.0	8773283	500	1.0	660	1.0	8773283
Total Dissolved Solids	mg/L	195	10	8775362	310	10	435	10	8775404
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8775667	<0.7	0.7	0.9	0.7	8775667
pH	pH	8.96		8773279	8.73		8.94		8773279
Phenols-4AAP	mg/L	0.0015	0.0010	8779751	0.0011	0.0010	<0.0010	0.0010	8779751
Total Phosphorus	mg/L	0.086	0.030	8775684	0.063	0.030	<0.030	0.030	8775684
Total Suspended Solids	mg/L	140	10	8774160	13	10	<10	10	8774148
Dissolved Sulphate (SO4)	mg/L	73	1.0	8773464	140	1.0	240	1.0	8773464
Alkalinity (Total as CaCO3)	mg/L	60	1.0	8773272	47	1.0	54	1.0	8773272
Dissolved Chloride (Cl-)	mg/L	9.6	1.0	8773455	30	1.0	21	1.0	8773455
Nitrite (N)	mg/L	<0.010	0.010	8773230	<0.010	0.010	<0.010	0.010	8773230
Nitrate (N)	mg/L	<0.10	0.10	8773230	<0.10	0.10	<0.10	0.10	8773230

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

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

Bureau Veritas Job #: C3J7161
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		WHI096		
Sampling Date		2023/07/03		
COC Number		TCEC-SMCM-JUL		
	UNITS	**SPDUP**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.13	0.13	8769373
Field Measurements				
Field Conductivity	uS/cm	478	N/A	ONSITE
Field Dissolved Oxygen	mg/L	9.35	N/A	ONSITE
Field Temperature	Celsius	27.4	N/A	ONSITE
Field Turbidity	NTU	58.1	N/A	ONSITE
Field Measured pH	pH	9.6		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8776482
Total BOD	mg/L	<2	2	8771244
Total Chemical Oxygen Demand (COD)	mg/L	23	4.0	8775590
Conductivity	umho/cm	500	1.0	8773283
Total Dissolved Solids	mg/L	315	10	8775404
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8775667
pH	pH	8.69		8773279
Phenols-4AAP	mg/L	0.0012	0.0010	8779751
Total Phosphorus	mg/L	0.061	0.030	8775684
Total Suspended Solids	mg/L	14	10	8774148
Dissolved Sulphate (SO4)	mg/L	140	1.0	8773464
Alkalinity (Total as CaCO3)	mg/L	46	1.0	8773272
Dissolved Chloride (Cl-)	mg/L	30	1.0	8773455
Nitrite (N)	mg/L	<0.010	0.010	8773230
Nitrate (N)	mg/L	<0.10	0.10	8773230

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

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Bureau Veritas Job #: C3J7161
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		WHI093	WHI094	WHI095	WHI096		
Sampling Date		2023/07/03	2023/07/03	2023/07/03	2023/07/03		
COC Number		TCEC-SMCM-JUL	TCEC-SMCM-JUL	TCEC-SMCM-JUL	TCEC-SMCM-JUL		
	UNITS	**SP1**	**SP2**	**SP3**	**SPDUP**	**RDL**	**QC Batch**
Metals							
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	8778344
Total Arsenic (As)	mg/L	0.005	0.003	0.005	0.003	0.001	8774144
Total Barium (Ba)	mg/L	0.024	0.020	0.018	0.020	0.005	8774144
Total Boron (B)	mg/L	0.31	0.26	0.17	0.27	0.02	8774144
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	8774144
Total Calcium (Ca)	mg/L	27	32	40	34	0.2	8774144
Total Chromium (Cr)	mg/L	<0.005	<0.005	<0.005	<0.005	0.005	8774144
Total Copper (Cu)	mg/L	0.004	0.002	<0.002	0.002	0.002	8774144
Total Iron (Fe)	mg/L	3.4	0.6	0.3	0.6	0.1	8774144
Total Lead (Pb)	mg/L	0.0018	0.0007	<0.0005	<0.0005	0.0005	8774144
Total Magnesium (Mg)	mg/L	19	20	39	21	0.05	8774144
Total Nickel (Ni)	mg/L	0.006	0.003	0.003	0.003	0.001	8774144
Total Potassium (K)	mg/L	2.4	1.4	4.0	1.4	0.2	8774144
Total Sodium (Na)	mg/L	16	30	31	31	0.1	8774144
Total Zinc (Zn)	mg/L	0.01	<0.01	<0.01	<0.01	0.01	8774144

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3J7161
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		WHI093	WHI094	WHI095	WHI096		
Sampling Date		2023/07/03	2023/07/03	2023/07/03	2023/07/03		
COC Number		TCEC-SMCM-JUL	TCEC-SMCM-JUL	TCEC-SMCM-JUL	TCEC-SMCM-JUL		
	UNITS	**SP1**	**SP2**	**SP3**	**SPDUP**	**RDL**	**QC Batch**
Semivolatile Organics							
Benzo(a)pyrene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8777983
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8777983
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8777983
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8777983
Hexachlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8777983
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8777983
2,4-Dichlorophenol	ug/L	<0.30	<0.30	<0.30	<0.30	0.30	8777983
Pentachlorophenol	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8777983
Phenol	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8777983
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	8777983
Di-N-butyl phthalate	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8777983
Diethyl phthalate	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8777983
Dimethyl phthalate	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	8777983
Surrogate Recovery (%)							
2,4,6-Tribromophenol	%	84	79	78	76		8777983
2-Fluorobiphenyl	%	84	78	75	70		8777983
2-Fluorophenol	%	31	30	29	28		8777983
D14-Terphenyl	%	114	113	108	105		8777983
D5-Nitrobenzene	%	80	75	74	66		8777983
D5-Phenol	%	23	22	21	20		8777983

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3J7161
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		WHI093	WHI094	WHI095	WHI096		
Sampling Date		2023/07/03	2023/07/03	2023/07/03	2023/07/03		
COC Number		TCEC-SMCM-JUL	TCEC-SMCM-JUL	TCEC-SMCM-JUL	TCEC-SMCM-JUL		
	UNITS	**SP1**	**SP2**	**SP3**	**SPDUP**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8774965
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	8774965
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8774965
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	8774965
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8774965
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8774965
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8774965
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8774965
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	8774965
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	105	105	105	103		8774965
D4-1,2-Dichloroethane	%	104	106	105	106		8774965
D8-Toluene	%	84	84	84	83		8774965

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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.

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

Bureau Veritas Job #: C3J7161
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8774965	4-Bromofluorobenzene	2023/07/11	107 (2)	70 - 130	108	70 - 130	108	%				
8774965	D4-1,2-Dichloroethane	2023/07/11	98 (2)	70 - 130	97	70 - 130	104	%				
8774965	D8-Toluene	2023/07/11	101 (2)	70 - 130	101	70 - 130	83	%				
8777983	2,4,6-Tribromophenol	2023/07/10	93	10 - 130	91	10 - 130	70	%				
8777983	2-Fluorobiphenyl	2023/07/10	89	30 - 130	73	30 - 130	82	%				
8777983	2-Fluorophenol	2023/07/10	43	10 - 130	45	10 - 130	38	%				
8777983	D14-Terphenyl	2023/07/10	124	30 - 130	116	30 - 130	116	%				
8777983	D5-Nitrobenzene	2023/07/10	88	30 - 130	85	30 - 130	83	%				
8777983	D5-Phenol	2023/07/10	30	10 - 130	29	10 - 130	26	%				
8771244	Total BOD	2023/07/11					<2	mg/L	2.7 (1)	30	99	80 - 120
8773230	Nitrate (N)	2023/07/07	98	80 - 120	94	80 - 120	<0.10	mg/L	NC (1)	20		
8773230	Nitrite (N)	2023/07/07	104	80 - 120	104	80 - 120	<0.010	mg/L	NC (1)	20		
8773272	Alkalinity (Total as CaCO3)	2023/07/07			95	85 - 115	<1.0	mg/L	4.7 (1)	20		
8773279	pH	2023/07/07			102	98 - 103			0.51 (1)	N/A		
8773283	Conductivity	2023/07/07			101	85 - 115	<1.0	umho/cm	0.30 (1)	10		
8773455	Dissolved Chloride (Cl-)	2023/07/07	101	80 - 120	91	80 - 120	<1.0	mg/L	NC (1)	20		
8773464	Dissolved Sulphate (SO4)	2023/07/07	84	75 - 125	93	80 - 120	<1.0	mg/L	13 (1)	20		
8774144	Total Arsenic (As)	2023/07/11	102	80 - 120	99	80 - 120	<0.001	mg/L				
8774144	Total Barium (Ba)	2023/07/11	97	80 - 120	95	80 - 120	<0.005	mg/L				
8774144	Total Boron (B)	2023/07/11	99	80 - 120	99	80 - 120	<0.02	mg/L				
8774144	Total Cadmium (Cd)	2023/07/11	97	80 - 120	97	80 - 120	<0.0001	mg/L				
8774144	Total Calcium (Ca)	2023/07/11	NC	80 - 120	95	80 - 120	<0.2	mg/L				
8774144	Total Chromium (Cr)	2023/07/11	97	80 - 120	94	80 - 120	<0.005	mg/L	0.67 (1)	20		
8774144	Total Copper (Cu)	2023/07/11	101	80 - 120	97	80 - 120	<0.002	mg/L	0.92 (1)	20		
8774144	Total Iron (Fe)	2023/07/11	95	80 - 120	94	80 - 120	<0.1	mg/L				
8774144	Total Lead (Pb)	2023/07/11	92	80 - 120	93	80 - 120	<0.0005	mg/L				
8774144	Total Magnesium (Mg)	2023/07/11	97	80 - 120	96	80 - 120	<0.05	mg/L				
8774144	Total Nickel (Ni)	2023/07/11	94	80 - 120	94	80 - 120	<0.001	mg/L	1.2 (1)	20		
8774144	Total Potassium (K)	2023/07/11	NC	80 - 120	94	80 - 120	<0.2	mg/L				

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

Bureau Veritas Job #: C3J7161
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8774144	Total Sodium (Na)	2023/07/11	NC	80 - 120	98	80 - 120	<0.1	mg/L				
8774144	Total Zinc (Zn)	2023/07/11	95	80 - 120	99	80 - 120	<0.01	mg/L	0.44 (1)	20		
8774148	Total Suspended Solids	2023/07/10			95	85 - 115	<10	mg/L	5.4 (1)	20		
8774160	Total Suspended Solids	2023/07/10			100	85 - 115	<10	mg/L	NC (1)	20		
8774965	1,4-Dichlorobenzene	2023/07/11	105 (2)	70 - 130	101	70 - 130	<0.40	ug/L	NC (3)	30		
8774965	Benzene	2023/07/11	92 (2)	70 - 130	89	70 - 130	<0.20	ug/L	NC (3)	30		
8774965	Ethylbenzene	2023/07/11	85 (2)	70 - 130	83	70 - 130	<0.20	ug/L	NC (3)	30		
8774965	Methylene Chloride(Dichloromethane)	2023/07/11	100 (2)	70 - 130	96	70 - 130	<2.0	ug/L	NC (3)	30		
8774965	o-Xylene	2023/07/11	84 (2)	70 - 130	87	70 - 130	<0.20	ug/L	NC (3)	30		
8774965	p+m-Xylene	2023/07/11	89 (2)	70 - 130	87	70 - 130	<0.20	ug/L	NC (3)	30		
8774965	Toluene	2023/07/11	94 (2)	70 - 130	91	70 - 130	<0.20	ug/L	NC (3)	30		
8774965	Total Xylenes	2023/07/11					<0.20	ug/L	NC (3)	30		
8774965	Vinyl Chloride	2023/07/11	89 (2)	70 - 130	86	70 - 130	<0.20	ug/L	NC (3)	30		
8775362	Total Dissolved Solids	2023/07/10			98	90 - 110	<10	mg/L	2.5 (1)	20		
8775404	Total Dissolved Solids	2023/07/10			102	90 - 110	<10	mg/L	1.2 (1)	20		
8775590	Total Chemical Oxygen Demand (COD)	2023/07/07	92	80 - 120	98	80 - 120	<4.0	mg/L	0 (1)	20		
8775667	Total Kjeldahl Nitrogen (TKN)	2023/07/11	87	80 - 120	98	80 - 120	<0.7	mg/L	NC (1)	20	106	80 - 120
8775684	Total Phosphorus	2023/07/11	95	80 - 120	98	80 - 120	<0.030	mg/L	3.4 (1)	25	105	80 - 120
8776482	Total Ammonia-N	2023/07/10	102	75 - 125	100	80 - 120	<0.15	mg/L	NC (1)	20		
8777983	1,2,4-Trichlorobenzene	2023/07/10	61	30 - 130	54	30 - 130	<0.50	ug/L	NC (4)	40		
8777983	1,2-Dichlorobenzene	2023/07/10	62	30 - 130	55	30 - 130	<0.50	ug/L	NC (4)	40		
8777983	1,3-Dichlorobenzene	2023/07/10	54	30 - 130	48	30 - 130	<0.50	ug/L	NC (4)	40		
8777983	1,4-Dichlorobenzene	2023/07/10	55	30 - 130	50	30 - 130	<0.50	ug/L	NC (4)	40		
8777983	2,4,6-Trichlorophenol	2023/07/10	98	10 - 130	99	10 - 130	<0.50	ug/L	NC (4)	40		
8777983	2,4-Dichlorophenol	2023/07/10	91	10 - 130	82	10 - 130	<0.30	ug/L	NC (4)	40		
8777983	Benzo(a)pyrene	2023/07/10	104	30 - 130	100	30 - 130	<0.20	ug/L	NC (4)	40		
8777983	Diethyl phthalate	2023/07/10	99	30 - 130	97	30 - 130	<1.0	ug/L	NC (4)	40		
8777983	Dimethyl phthalate	2023/07/10	107	30 - 130	103	30 - 130	<1.0	ug/L	NC (4)	40		
8777983	Di-N-butyl phthalate	2023/07/10	106	30 - 130	107	30 - 130	<2.0	ug/L	NC (4)	40		
8777983	Hexachlorobenzene	2023/07/10	103	30 - 130	94	30 - 130	<0.50	ug/L	NC (4)	40		

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Bureau Veritas Job #: C3J7161
Report Date: 2023/07/12

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8777983	Pentachlorophenol	2023/07/10	75	10 - 130	68	10 - 130	<1.0	ug/L	NC (4)	40		
8777983	Phenol	2023/07/10	33	10 - 130	32	10 - 130	<0.50	ug/L	NC (4)	40		
8778344	Dissolved Mercury (Hg)	2023/07/10	97	75 - 125	99	80 - 120	<0.10	ug/L	NC (1)	20		
8779751	Phenols-4AAP	2023/07/10	101	80 - 120	100	80 - 120	<0.0010	mg/L	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) Matrix Spike Parent ID [WHI093-08]

(3) Duplicate Parent ID [WHI093-08]

(4) Duplicate Parent ID [WHI094-01]

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

Bureau Veritas Job #: C3J7161
Report Date: 2023/07/12

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

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

S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: S P 1 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: ~~Y~~ or N ~~0.45~~ μ or ____ μ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, D-Bailer, E-Piston Pump

Sampling Device: C-QED Bladder Pump, F-Dipper/Bottle

Filter Type: 4 — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (μmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (μmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
0 7 0 3 2 3	9.4	3 3 4	2 5.9	1 8 4 9	0.1		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear Odor: n/a Color: n/c Other:

Weather Conditions (required daily, or as conditions change): 24°C Direction/Speed: 10 km/h NE Outlook: overcast Precipitation: Y or ~~N~~

Specific Comments (including purge/well volume calculations if required):

Width: 1.2m
depth: 0.3m
Time @ 1m: T_1: 35s
T_2: 31s
T_3: 36s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/03/23	Brady Gruss	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL : Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

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S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SP2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
07 03 23	9.6	478	27.4	58.1	9.35		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: clear Odor: n/a Color: n/a Other:

Weather Conditions (required daily, or as conditions change): 24°C Direction/Speed: 10km/h NE Outlook: overcast Precipitation: Y or O

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Width: 1.cm * SEDUP turbidity *

Depth: 0.25 m

60s

68s

65s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/03/23	[illegible]	[illegible]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

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S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 5 e 3 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, D-Bailer, E-Piston Pump

Sampling Device: C-QED Bladder Pump, F-Dipper/Bottle

X-Other:

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
07 03 23	10.0	617	28.7	12.3	14.14		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear Odor: N/O Color: N/O Other:

Weather Conditions (required daily, or as conditions change): 24°C Direction/Speed: 10km/h NE Outlook: overcast Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

W: 1.0 m

D: 0.30 m

7s

8s

7s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/03/23	Brady Gubbs	[signature]	RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0801

Maxxam Analytics IMMEDIATE 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks SW	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-JUL
Email: lmertick@wm.com		Email: BJL@RWDI.com, JCL@RWDI.com		Sampled By:	BG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 13-Jul-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZL-ON-WLF-2023 TCLS - SW (POND OUTLETS) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SP1	3-Jul-23	PM	SW	N	N	X	12	
2	SP2	3-Jul-23	PM	SW	N	N	X	12	SPDUP Taken
3	SP3	3-Jul-23	PM	SW	N	N	X	12	
4	SPDUP	3-Jul-23	PM	SW	N	N	X	12	
5									
6									
7									
8									
9									
10									
11									All samples for Hg field filtered @ 45um
12									See lab addendum for lab group coding

05-Jul-23 12:20
Patricia Legette
C3J7161
LIRE ENV-1996

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only
BG-7/4/2023	[illegible]	2023/07/05	1110	Temperature (°C) on Receipt: 19/18/17 19/18/20 — Condition of Sample on Receipt: melted ice ☐ OK ☐ SIF

* MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

custody seal intact White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/17
Report #: R7720667
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K1644
Received: 2023/07/08, 12:29

Sample Matrix: Surface Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2023/07/13	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	1	N/A	2023/07/13	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	1	N/A	2023/07/12		
Field Measured Dissolved Oxygen in Water	1	N/A	2023/07/12		
Total Metals by ICPMS	1	N/A	2023/07/13	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	1	N/A	2023/07/13	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/07/13	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Phenols (4AAP)	1	N/A	2023/07/11	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2023/07/12		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/07/13	CAM SOP-00464	SM 23 4500-SO42- E m
Field Temperature (2)	1	N/A	2023/07/12		Field Thermometer
Total Organic Carbon (TOC) (3)	1	N/A	2023/07/13	CAM SOP-00446	SM 23 5310B m
Turbidity - On-site	1	N/A	2023/07/12		
Un-ionized Ammonia (4)	1	2023/07/10	2023/07/13	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2023/07/11	CAM SOP-00226	EPA 8260D 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, MELCCFP, 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.

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

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/17
Report #: R7720667
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K1644
Received: 2023/07/08, 12:29

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) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.
(4) 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.

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

Bureau Veritas Job #: C3K1644
Report Date: 2023/07/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		WIF648		
Sampling Date		2023/07/07		
COC Number		n/a		
	UNITS	**SS14A**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.0035	0.0035	8778915
Field Measurements				
Field Conductivity	uS/cm	520	N/A	ONSITE
Field Dissolved Oxygen	mg/L	5.95	N/A	ONSITE
Field Temperature	Celsius	25.8	N/A	ONSITE
Field Turbidity	NTU	29.0	N/A	ONSITE
Field Measured pH	pH	8.0		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.050	0.050	8781030
Total Organic Carbon (TOC)	mg/L	13	0.40	8783728
Phenols-4AAP	mg/L	0.0012	0.0010	8782515
Dissolved Sulphate (SO4)	mg/L	110	1.0	8780075
Alkalinity (Total as CaCO3)	mg/L	160	1.0	8779281
Dissolved Chloride (Cl-)	mg/L	5.0	1.0	8780070
Nitrate (N)	mg/L	<0.10	0.10	8779183

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 #: C3K1644
Report Date: 2023/07/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		WIF648		
Sampling Date		2023/07/07		
COC Number		n/a		
	UNITS	**SS14A**	**RDL**	**QC Batch**
Metals				
Total Boron (B)	mg/L	0.10	0.02	8783356
Total Calcium (Ca)	mg/L	79	0.2	8783356
Total Chromium (Cr)	mg/L	<0.005	0.005	8783356
Total Iron (Fe)	mg/L	0.8	0.1	8783356
Total Magnesium (Mg)	mg/L	22	0.05	8783356
Total Nickel (Ni)	mg/L	0.003	0.001	8783356
Total Potassium (K)	mg/L	6.4	0.2	8783356
Total Sodium (Na)	mg/L	7.7	0.1	8783356
Total Zinc (Zn)	mg/L	<0.01	0.01	8783356

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3K1644
Report Date: 2023/07/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		WIF648		
Sampling Date		2023/07/07		
COC Number		n/a		
	UNITS	**SS14A**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.50	0.50	8778716
Ethylbenzene	ug/L	<0.50	0.50	8778716
Toluene	ug/L	<1.0	1.0	8778716
p+m-Xylene	ug/L	<0.50	0.50	8778716
o-Xylene	ug/L	<0.50	0.50	8778716
Total Xylenes	ug/L	<0.50	0.50	8778716
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	100		8778716
D4-1,2-Dichloroethane	%	105		8778716
D8-Toluene	%	98		8778716

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

GENERAL COMMENTS

Sample WIF648 [SS14A] : VOC Water Analysis: Due to foaming, sample required dilution. The 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 #: C3K1644
Report Date: 2023/07/17

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8778716	4-Bromofluorobenzene	2023/07/11	103 (1)	70 - 130	104	70 - 130	98	%		
8778716	D4-1,2-Dichloroethane	2023/07/11	103 (1)	70 - 130	107	70 - 130	102	%		
8778716	D8-Toluene	2023/07/11	98 (1)	70 - 130	97	70 - 130	97	%		
8778716	Benzene	2023/07/11	94 (1)	70 - 130	97	70 - 130	<0.10	ug/L	NC (2)	30
8778716	Ethylbenzene	2023/07/11	91 (1)	70 - 130	92	70 - 130	<0.10	ug/L	NC (2)	30
8778716	o-Xylene	2023/07/11	94 (1)	70 - 130	96	70 - 130	<0.10	ug/L	NC (2)	30
8778716	p+m-Xylene	2023/07/11	98 (1)	70 - 130	99	70 - 130	<0.10	ug/L	NC (2)	30
8778716	Toluene	2023/07/11	95 (1)	70 - 130	95	70 - 130	<0.20	ug/L	NC (2)	30
8778716	Total Xylenes	2023/07/11					<0.10	ug/L	NC (2)	30
8779183	Nitrate (N)	2023/07/13	99	80 - 120	98	80 - 120	<0.10	mg/L	NC (3)	20
8779281	Alkalinity (Total as CaCO3)	2023/07/13			99	85 - 115	<1.0	mg/L	8.4 (3)	20
8780070	Dissolved Chloride (Cl-)	2023/07/13	86 (4)	80 - 120	93	80 - 120	<1.0	mg/L	17 (5)	20
8780075	Dissolved Sulphate (SO4)	2023/07/13	NC (4)	75 - 125	97	80 - 120	<1.0	mg/L	2.2 (5)	20
8781030	Total Ammonia-N	2023/07/13	98	75 - 125	102	80 - 120	<0.050	mg/L	4.4 (3)	20
8782515	Phenols-4AAP	2023/07/11	99	80 - 120	101	80 - 120	<0.0010	mg/L	NC (3)	20
8783356	Total Boron (B)	2023/07/13	NC	80 - 120	102	80 - 120	<0.02	mg/L		
8783356	Total Calcium (Ca)	2023/07/13	NC	80 - 120	100	80 - 120	<0.2	mg/L		
8783356	Total Chromium (Cr)	2023/07/13	98	80 - 120	96	80 - 120	<0.005	mg/L	0.55 (3)	20
8783356	Total Iron (Fe)	2023/07/13	100	80 - 120	98	80 - 120	<0.1	mg/L		
8783356	Total Magnesium (Mg)	2023/07/13	NC	80 - 120	99	80 - 120	<0.05	mg/L		
8783356	Total Nickel (Ni)	2023/07/13	95	80 - 120	97	80 - 120	<0.001	mg/L	1.2 (3)	20
8783356	Total Potassium (K)	2023/07/13	98	80 - 120	99	80 - 120	<0.2	mg/L		
8783356	Total Sodium (Na)	2023/07/13	NC	80 - 120	99	80 - 120	<0.1	mg/L		
8783356	Total Zinc (Zn)	2023/07/13	100	80 - 120	102	80 - 120	<0.01	mg/L	1.4 (3)	20

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

Bureau Veritas Job #: C3K1644
Report Date: 2023/07/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: BG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8783728	Total Organic Carbon (TOC)	2023/07/12	96	80 - 120	98	80 - 120	<0.40	mg/L	NC (3)	20

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.

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 [WIF648-05]

(2) Duplicate Parent ID [WIF648-05]

(3) Duplicate Parent ID

(4) Matrix Spike Parent ID [WIF648-01]

(5) Duplicate Parent ID [WIF648-01]

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

Bureau Veritas Job #: C3K1644
Report Date: 2023/07/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

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BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 5514A
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
07 07 23	8.0	560	25.8	29.0	5.95		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: Transparent

Odor: N/O

Color: Yellow/brown

Other:

Weather Conditions (required daily, or as conditions change): 20°C

Direction/Speed: N 14 km/h

Outlook: Clear

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

flow 1m: 120s Width: 1m Quarterly

110s Depth: 8cm

115s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/07/23	Alex Waterson	Alex Waterson	RWDZ

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0824

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	Twin Creeks SW
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	AW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-SWCM-JUL

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ Reg. 153 ☐ Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 18-Jul-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZP-ON-WLF-2023 TCLS - SW (POPLAR) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS14A	7-Jul-23	PM	SW	N	N	X	7	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

08-Jul-23 12:29
Patricia Legette
C3K1644
ENV 868

See lab addendum for lab group coding

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
AW ~~7/7/2023~~ 8-Jul-2023	Patricia Legette	2023/07/08	12:29

Laboratory Use Only

Temperature (°C) on Receipt: 13/12/11 ice

Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/17
Report #: R7720613
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K1651
Received: 2023/07/08, 12:29

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	2023/07/11	2023/07/11	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2023/07/12	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2023/07/10	2023/07/15	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2023/07/13	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2023/07/11	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2023/07/12		
Conductivity	1	N/A	2023/07/12	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2023/07/12		
Dissolved Mercury in Water by CVAA	1	2023/07/12	2023/07/12	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2023/07/13	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/07/12	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/07/13	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/07/10	2023/07/12	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/07/10	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2023/07/12		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/07/13	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/07/13	2023/07/14	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2023/07/12		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/07/11	2023/07/13	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/07/11	2023/07/12	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	1	2023/07/13	2023/07/14	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2023/07/12		
Un-ionized Ammonia (3)	1	2023/07/10	2023/07/12	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2023/07/13	CAM SOP-00228	EPA 8260D

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, MELCCFP, 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

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/17
Report #: R7720613
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K1651
Received: 2023/07/08, 12:29

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
==========
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Bureau Veritas Job #: C3K1651
Report Date: 2023/07/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		WIF655		
Sampling Date		2023/07/07		
COC Number		n/a		
	UNITS	**SP4**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.042	0.042	8778915
Field Measurements				
Field Conductivity	uS/cm	586	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.59	N/A	ONSITE
Field Temperature	Celsius	28.8	N/A	ONSITE
Field Turbidity	NTU	49.7	N/A	ONSITE
Field Measured pH	pH	8.6		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8781046
Total BOD	mg/L	3	2	8778977
Total Chemical Oxygen Demand (COD)	mg/L	17	4.0	8780823
Conductivity	umho/cm	640	1.0	8780042
Total Dissolved Solids	mg/L	440	10	8786523
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8780987
pH	pH	7.94		8780044
Phenols-4AAP	mg/L	<0.0010	0.0010	8780135
Total Phosphorus	mg/L	0.043	0.030	8780980
Total Suspended Solids	mg/L	50	10	8786465
Dissolved Sulphate (SO4)	mg/L	170	1.0	8780075
Alkalinity (Total as CaCO3)	mg/L	90	1.0	8780038
Dissolved Chloride (Cl-)	mg/L	32	1.0	8780070
Nitrite (N)	mg/L	<0.010	0.010	8780037
Nitrate (N)	mg/L	<0.10	0.10	8780037

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

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Bureau Veritas Job #: C3K1651
Report Date: 2023/07/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		WIF655		
Sampling Date		2023/07/07		
COC Number		n/a		
	UNITS	**SP4**	**RDL**	**QC Batch**
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8783420
Total Arsenic (As)	mg/L	0.003	0.001	8783356
Total Barium (Ba)	mg/L	0.036	0.005	8783356
Total Boron (B)	mg/L	0.07	0.02	8783356
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8783356
Total Calcium (Ca)	mg/L	70	0.2	8783356
Total Chromium (Cr)	mg/L	<0.005	0.005	8783356
Total Copper (Cu)	mg/L	0.002	0.002	8783356
Total Iron (Fe)	mg/L	1.7	0.1	8783356
Total Lead (Pb)	mg/L	0.0008	0.0005	8783356
Total Magnesium (Mg)	mg/L	26	0.05	8783356
Total Nickel (Ni)	mg/L	0.003	0.001	8783356
Total Potassium (K)	mg/L	2.9	0.2	8783356
Total Sodium (Na)	mg/L	23	0.1	8783356
Total Zinc (Zn)	mg/L	<0.01	0.01	8783356

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3K1651
Report Date: 2023/07/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		WIF655		
Sampling Date		2023/07/07		
COC Number		n/a		
	UNITS	**SP4**	**RDL**	**QC Batch**
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.80	0.80	8780444
1,2-Dichlorobenzene	ug/L	<2.0	2.0	8780444
1,3-Dichlorobenzene	ug/L	<2.0	2.0	8780444
1,4-Dichlorobenzene	ug/L	<2.0	2.0	8780444
Hexachlorobenzene	ug/L	<2.0	2.0	8780444
1,2,4-Trichlorobenzene	ug/L	<2.0	2.0	8780444
2,4-Dichlorophenol	ug/L	<1.2	1.2	8780444
Pentachlorophenol	ug/L	<4.0	4.0	8780444
Phenol	ug/L	<2.0	2.0	8780444
2,4,6-Trichlorophenol	ug/L	<2.0	2.0	8780444
Di-N-butyl phthalate	ug/L	<8.0	8.0	8780444
Diethyl phthalate	ug/L	<4.0	4.0	8780444
Dimethyl phthalate	ug/L	<4.0	4.0	8780444
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	77		8780444
2-Fluorobiphenyl	%	79		8780444
2-Fluorophenol	%	39		8780444
D14-Terphenyl	%	128		8780444
D5-Nitrobenzene	%	81		8780444
D5-Phenol	%	25		8780444

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3K1651
Report Date: 2023/07/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		WIF655		
Sampling Date		2023/07/07		
COC Number		n/a		
	UNITS	**SP4**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8781728
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8781728
Ethylbenzene	ug/L	<0.20	0.20	8781728
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8781728
Toluene	ug/L	<0.20	0.20	8781728
Vinyl Chloride	ug/L	<0.20	0.20	8781728
p+m-Xylene	ug/L	<0.20	0.20	8781728
o-Xylene	ug/L	<0.20	0.20	8781728
Total Xylenes	ug/L	<0.20	0.20	8781728
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	99		8781728
D4-1,2-Dichloroethane	%	110		8781728
D8-Toluene	%	99		8781728

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Sample WIF655 [SP4] : ABN Analysis: Due to 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.

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Bureau Veritas Job #: C3K1651
Report Date: 2023/07/17

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8780444	2,4,6-Tribromophenol	2023/07/11			83	10 - 130	67	%				
8780444	2-Fluorobiphenyl	2023/07/11			73	30 - 130	79	%				
8780444	2-Fluorophenol	2023/07/11			44	10 - 130	39	%				
8780444	D14-Terphenyl	2023/07/11			124	30 - 130	124	%				
8780444	D5-Nitrobenzene	2023/07/11			80	30 - 130	83	%				
8780444	D5-Phenol	2023/07/11			29	10 - 130	25	%				
8781728	4-Bromofluorobenzene	2023/07/13	99	70 - 130	98	70 - 130	100	%				
8781728	D4-1,2-Dichloroethane	2023/07/13	109	70 - 130	101	70 - 130	107	%				
8781728	D8-Toluene	2023/07/13	99	70 - 130	100	70 - 130	99	%				
8778977	Total BOD	2023/07/15					<2	mg/L	18 (1)	30	96	80 - 120
8780037	Nitrate (N)	2023/07/13	100	80 - 120	97	80 - 120	<0.10	mg/L	NC (2)	20		
8780037	Nitrite (N)	2023/07/13	86	80 - 120	105	80 - 120	<0.010	mg/L	NC (2)	20		
8780038	Alkalinity (Total as CaCO3)	2023/07/12			96	85 - 115	<1.0	mg/L	0.58 (3)	20		
8780042	Conductivity	2023/07/12			101	85 - 115	<1.0	umho/cm	0.31 (3)	10		
8780044	pH	2023/07/12			102	98 - 103			1.3 (3)	N/A		
8780070	Dissolved Chloride (Cl-)	2023/07/13	86	80 - 120	93	80 - 120	<1.0	mg/L	17 (2)	20		
8780075	Dissolved Sulphate (SO4)	2023/07/13	NC	75 - 125	97	80 - 120	<1.0	mg/L	2.2 (2)	20		
8780135	Phenols-4AAP	2023/07/10	102	80 - 120	101	80 - 120	<0.0010	mg/L	0 (2)	20		
8780444	1,2,4-Trichlorobenzene	2023/07/11			41	30 - 130	<0.50	ug/L	13 (2)	40		
8780444	1,2-Dichlorobenzene	2023/07/11			41	30 - 130	<0.50	ug/L	13 (2)	40		
8780444	1,3-Dichlorobenzene	2023/07/11			37	30 - 130	<0.50	ug/L	12 (2)	40		
8780444	1,4-Dichlorobenzene	2023/07/11			38	30 - 130	<0.50	ug/L	12 (2)	40		
8780444	2,4,6-Trichlorophenol	2023/07/11			91	10 - 130	<0.50	ug/L	0.50 (2)	40		
8780444	2,4-Dichlorophenol	2023/07/11			75	10 - 130	<0.30	ug/L	0.78 (2)	40		
8780444	Benzo(a)pyrene	2023/07/11			94	30 - 130	<0.20	ug/L	5.5 (2)	40		
8780444	Diethyl phthalate	2023/07/11			90	30 - 130	<1.0	ug/L	2.7 (2)	40		
8780444	Dimethyl phthalate	2023/07/11			96	30 - 130	<1.0	ug/L	2.9 (2)	40		
8780444	Di-N-butyl phthalate	2023/07/11			95	30 - 130	<2.0	ug/L	3.0 (2)	40		
8780444	Hexachlorobenzene	2023/07/11			87	30 - 130	<0.50	ug/L	3.9 (2)	40		

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

Bureau Veritas Job #: C3K1651
Report Date: 2023/07/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8780444	Pentachlorophenol	2023/07/11			63	10 - 130	<1.0	ug/L	3.3 (2)	40		
8780444	Phenol	2023/07/11			29	10 - 130	<0.50	ug/L	1.7 (2)	40		
8780823	Total Chemical Oxygen Demand (COD)	2023/07/11	93	80 - 120	98	80 - 120	<4.0	mg/L	4.5 (2)	20		
8780980	Total Phosphorus	2023/07/12	97 (4)	80 - 120	100	80 - 120	<0.030	mg/L	3.6 (5)	25	104	80 - 120
8780987	Total Kjeldahl Nitrogen (TKN)	2023/07/13	97 (4)	80 - 120	95	80 - 120	<0.7	mg/L	NC (5)	20	94	80 - 120
8781046	Total Ammonia-N	2023/07/12	101 (6)	75 - 125	99	80 - 120	<0.15	mg/L	NC (7)	20		
8781728	1,4-Dichlorobenzene	2023/07/13	106	70 - 130	106	70 - 130	<0.40	ug/L	NC (2)	30		
8781728	Benzene	2023/07/13	92	70 - 130	89	70 - 130	<0.20	ug/L	NC (2)	30		
8781728	Ethylbenzene	2023/07/13	90	70 - 130	92	70 - 130	<0.20	ug/L	NC (2)	30		
8781728	Methylene Chloride(Dichloromethane)	2023/07/13	101	70 - 130	95	70 - 130	<2.0	ug/L	NC (2)	30		
8781728	o-Xylene	2023/07/13	89	70 - 130	91	70 - 130	<0.20	ug/L	NC (2)	30		
8781728	p+m-Xylene	2023/07/13	94	70 - 130	96	70 - 130	<0.20	ug/L	NC (2)	30		
8781728	Toluene	2023/07/13	91	70 - 130	91	70 - 130	<0.20	ug/L	NC (2)	30		
8781728	Total Xylenes	2023/07/13					<0.20	ug/L	NC (2)	30		
8781728	Vinyl Chloride	2023/07/13	88	70 - 130	92	70 - 130	<0.20	ug/L				
8783356	Total Arsenic (As)	2023/07/13	103	80 - 120	100	80 - 120	<0.001	mg/L				
8783356	Total Barium (Ba)	2023/07/13	98	80 - 120	95	80 - 120	<0.005	mg/L				
8783356	Total Boron (B)	2023/07/13	NC	80 - 120	102	80 - 120	<0.02	mg/L				
8783356	Total Cadmium (Cd)	2023/07/13	99	80 - 120	98	80 - 120	<0.0001	mg/L				
8783356	Total Calcium (Ca)	2023/07/13	NC	80 - 120	100	80 - 120	<0.2	mg/L				
8783356	Total Chromium (Cr)	2023/07/13	98	80 - 120	96	80 - 120	<0.005	mg/L	0.55 (2)	20		
8783356	Total Copper (Cu)	2023/07/13	105	80 - 120	100	80 - 120	<0.002	mg/L	0.19 (2)	20		
8783356	Total Iron (Fe)	2023/07/13	100	80 - 120	98	80 - 120	<0.1	mg/L				
8783356	Total Lead (Pb)	2023/07/13	98	80 - 120	100	80 - 120	<0.0005	mg/L				
8783356	Total Magnesium (Mg)	2023/07/13	NC	80 - 120	99	80 - 120	<0.05	mg/L				
8783356	Total Nickel (Ni)	2023/07/13	95	80 - 120	97	80 - 120	<0.001	mg/L	1.2 (2)	20		
8783356	Total Potassium (K)	2023/07/13	98	80 - 120	99	80 - 120	<0.2	mg/L				
8783356	Total Sodium (Na)	2023/07/13	NC	80 - 120	99	80 - 120	<0.1	mg/L				
8783356	Total Zinc (Zn)	2023/07/13	100	80 - 120	102	80 - 120	<0.01	mg/L	1.4 (2)	20		
8783420	Dissolved Mercury (Hg)	2023/07/12	99	75 - 125	103	80 - 120	<0.10	ug/L	NC (2)	20		

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

Bureau Veritas Job #: C3K1651
Report Date: 2023/07/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8786465	Total Suspended Solids	2023/07/14			101	85 - 115	<10	mg/L	2.2 (2)	20		
8786523	Total Dissolved Solids	2023/07/14			97	90 - 110	<10	mg/L	3.4 (2)	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 [WIF655-04]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [WIF655-02]

(4) Matrix Spike Parent ID [WIF655-05]

(5) Duplicate Parent ID [WIF655-05]

(6) Matrix Spike Parent ID [WIF655-10]

(7) Duplicate Parent ID [WIF655-10]

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

Bureau Veritas Job #: C3K1651
Report Date: 2023/07/17

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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.

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

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCET

Site No.:

Sample: SR4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
070723	8.6	586	28.8	49.7	8.59		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: Transluscent

Odor: NO

Color: brown

Other:

Weather Conditions (required daily, or as conditions change): 21°C

Direction/Speed: NW 16km/h

Outlook: fair

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

flow 1m : 20s
15s
16s

width : 1.5m
depth : 10cm

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/07/23	Alex Waterson	Alex Waterson	QWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0826

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	Twin Creeks SW
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	AW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-SWCM-JUL

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ Reg. 558 ☒ PWQO

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☐ Other _____ specify

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 18-Jul-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZL-ON-WLF-2023 TCLS - SW (POND OUTLETS) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SP4	7-Jul-23	PM	SW	N	N	X	12	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									All samples for Hg field filtered @ 45um
12									See lab addendum for lab group coding

08-Jul-23 12:29
Patricia Legette
C3K1651
IDK ENV-868

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
AW ~~7/7/2023~~ 8-Jul-2023	Legelle JAGDEEP KATR	2023/07/08	12:29	Temperature (°C) on Receipt 13/12/11 ice	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/24
Report #: R7732004
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K9585
Received: 2023/07/14, 09:00

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2023/07/19	2023/07/20	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2023/07/17	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2023/07/15	2023/07/20	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2023/07/17	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2023/07/19	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2023/07/20		
Conductivity	1	N/A	2023/07/17	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2023/07/20		
Dissolved Mercury in Water by CVAA	1	2023/07/18	2023/07/20	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2023/07/21	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/07/20	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/07/17	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/07/15	2023/07/17	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/07/18	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2023/07/20		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/07/17	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/07/18	2023/07/19	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2023/07/20		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/07/17	2023/07/18	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/07/18	2023/07/18	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	1	2023/07/18	2023/07/19	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2023/07/20		
Un-ionized Ammonia (3)	1	2023/07/14	2023/07/20	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2023/07/16	CAM SOP-00228	EPA 8260D

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, MELCCFP, 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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/24
Report #: R7732004
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K9585
Received: 2023/07/14, 09:00

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.

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

Bureau Veritas Job #: C3K9585
Report Date: 2023/07/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		WJW566		
Sampling Date		2023/07/13		
COC Number		n/a		
	UNITS	**SS1**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.0091	0.0091	8790373
Field Measurements				
Field Conductivity	uS/cm	398	N/A	ONSITE
Field Dissolved Oxygen	mg/L	8.95	N/A	ONSITE
Field Temperature	Celsius	20.6	N/A	ONSITE
Field Turbidity	NTU	356	N/A	ONSITE
Field Measured pH	pH	8.1		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8796490
Total BOD	mg/L	5	2	8791527
Total Chemical Oxygen Demand (COD)	mg/L	23	4.0	8793273
Conductivity	umho/cm	440	1.0	8791915
Total Dissolved Solids	mg/L	270	10	8795336
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8793374
pH	pH	7.98		8791929
Phenols-4AAP	mg/L	0.0015	0.0010	8796202
Total Phosphorus	mg/L	0.16	0.030	8795617
Total Suspended Solids	mg/L	170	10	8795300
Dissolved Sulphate (SO4)	mg/L	110	1.0	8791838
Alkalinity (Total as CaCO3)	mg/L	81	1.0	8791933
Dissolved Chloride (Cl-)	mg/L	11	1.0	8791832
Nitrite (N)	mg/L	0.017	0.010	8791793
Nitrate (N)	mg/L	0.18	0.10	8791793

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

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

Bureau Veritas Job #: C3K9585
Report Date: 2023/07/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		WJW566		
Sampling Date		2023/07/13		
COC Number		n/a		
	UNITS	**SS1**	**RDL**	**QC Batch**
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8795689
Total Arsenic (As)	mg/L	0.006	0.001	8795263
Total Barium (Ba)	mg/L	0.046	0.005	8795263
Total Boron (B)	mg/L	0.23	0.02	8795263
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8795263
Total Calcium (Ca)	mg/L	66	0.2	8795263
Total Chromium (Cr)	mg/L	0.010	0.005	8795263
Total Copper (Cu)	mg/L	0.009	0.002	8795263
Total Iron (Fe)	mg/L	9.8	0.1	8795263
Total Lead (Pb)	mg/L	0.0040	0.0005	8795263
Total Magnesium (Mg)	mg/L	26	0.05	8795263
Total Nickel (Ni)	mg/L	0.015	0.001	8795263
Total Potassium (K)	mg/L	4.4	0.2	8795263
Total Sodium (Na)	mg/L	15	0.1	8795263
Total Zinc (Zn)	mg/L	0.02	0.01	8795263

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3K9585
Report Date: 2023/07/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		WJW566		
Sampling Date		2023/07/13		
COC Number		n/a		
	UNITS	**SS1**	**RDL**	**QC Batch**
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.20	0.20	8799644
1,2-Dichlorobenzene	ug/L	<0.50	0.50	8799644
1,3-Dichlorobenzene	ug/L	<0.50	0.50	8799644
1,4-Dichlorobenzene	ug/L	<0.50	0.50	8799644
Hexachlorobenzene	ug/L	<0.50	0.50	8799644
1,2,4-Trichlorobenzene	ug/L	<0.50	0.50	8799644
2,4-Dichlorophenol	ug/L	<0.30	0.30	8799644
Pentachlorophenol	ug/L	<1.0	1.0	8799644
Phenol	ug/L	<0.50	0.50	8799644
2,4,6-Trichlorophenol	ug/L	<0.50	0.50	8799644
Di-N-butyl phthalate	ug/L	<2.0	2.0	8799644
Diethyl phthalate	ug/L	<1.0	1.0	8799644
Dimethyl phthalate	ug/L	<1.0	1.0	8799644
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	70		8799644
2-Fluorobiphenyl	%	65		8799644
2-Fluorophenol	%	36		8799644
D14-Terphenyl	%	89		8799644
D5-Nitrobenzene	%	74		8799644
D5-Phenol	%	27		8799644

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3K9585
Report Date: 2023/07/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		WJW566		
Sampling Date		2023/07/13		
COC Number		n/a		
	UNITS	**SS1**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8790526
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8790526
Ethylbenzene	ug/L	<0.20	0.20	8790526
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8790526
Toluene	ug/L	<0.20	0.20	8790526
Vinyl Chloride	ug/L	<0.20	0.20	8790526
p+m-Xylene	ug/L	<0.20	0.20	8790526
o-Xylene	ug/L	<0.20	0.20	8790526
Total Xylenes	ug/L	<0.20	0.20	8790526
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	94		8790526
D4-1,2-Dichloroethane	%	113		8790526
D8-Toluene	%	100		8790526

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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

Bureau Veritas Job #: C3K9585
Report Date: 2023/07/24

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8790526	4-Bromofluorobenzene	2023/07/15	95	70 - 130	94	70 - 130	95	%				
8790526	D4-1,2-Dichloroethane	2023/07/15	113	70 - 130	109	70 - 130	109	%				
8790526	D8-Toluene	2023/07/15	102	70 - 130	102	70 - 130	101	%				
8799644	2,4,6-Tribromophenol	2023/07/20	83	10 - 130	90	10 - 130	66	%				
8799644	2-Fluorobiphenyl	2023/07/20	36	30 - 130	67	30 - 130	60	%				
8799644	2-Fluorophenol	2023/07/20	19	10 - 130	50	10 - 130	39	%				
8799644	D14-Terphenyl	2023/07/20	85	30 - 130	98	30 - 130	83	%				
8799644	D5-Nitrobenzene	2023/07/20	39	30 - 130	82	30 - 130	66	%				
8799644	D5-Phenol	2023/07/20	15	10 - 130	32	10 - 130	25	%				
8790526	1,4-Dichlorobenzene	2023/07/16	101	70 - 130	110	70 - 130	<0.40	ug/L	NC (1)	30		
8790526	Benzene	2023/07/16	90	70 - 130	98	70 - 130	<0.20	ug/L	NC (1)	30		
8790526	Ethylbenzene	2023/07/16	87	70 - 130	96	70 - 130	<0.20	ug/L	NC (1)	30		
8790526	Methylene Chloride(Dichloromethane)	2023/07/16	93	70 - 130	99	70 - 130	<2.0	ug/L	NC (1)	30		
8790526	o-Xylene	2023/07/16	88	70 - 130	97	70 - 130	<0.20	ug/L	NC (1)	30		
8790526	p+m-Xylene	2023/07/16	88	70 - 130	98	70 - 130	<0.20	ug/L	5.7 (1)	30		
8790526	Toluene	2023/07/16	88	70 - 130	97	70 - 130	<0.20	ug/L	3.7 (1)	30		
8790526	Total Xylenes	2023/07/16					<0.20	ug/L	5.7 (1)	30		
8790526	Vinyl Chloride	2023/07/16	89	70 - 130	102	70 - 130	<0.20	ug/L	0.97 (1)	30		
8791527	Total BOD	2023/07/20					<2	mg/L	NC (1)	30	94	80 - 120
8791793	Nitrate (N)	2023/07/17	98	80 - 120	98	80 - 120	<0.10	mg/L	NC (1)	20		
8791793	Nitrite (N)	2023/07/17	107	80 - 120	106	80 - 120	<0.010	mg/L	1.4 (1)	20		
8791832	Dissolved Chloride (Cl-)	2023/07/17	86	80 - 120	98	80 - 120	<1.0	mg/L	7.6 (1)	20		
8791838	Dissolved Sulphate (SO4)	2023/07/17	89	75 - 125	96	80 - 120	<1.0	mg/L	7.3 (1)	20		
8791915	Conductivity	2023/07/17			103	85 - 115	<1.0	umho/cm	0.53 (1)	10		
8791929	pH	2023/07/17			102	98 - 103			1.4 (1)	N/A		
8791933	Alkalinity (Total as CaCO3)	2023/07/17			93	85 - 115	<1.0	mg/L	0.049 (1)	20		
8793273	Total Chemical Oxygen Demand (COD)	2023/07/19	99	80 - 120	106	80 - 120	<4.0	mg/L	NC (1)	20		
8793374	Total Kjeldahl Nitrogen (TKN)	2023/07/18	99	80 - 120	103	80 - 120	<0.7	mg/L	NC (1)	20	101	80 - 120
8795263	Total Arsenic (As)	2023/07/21	102 (2)	80 - 120	101	80 - 120	<0.001	mg/L	1.5 (3)	20		

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

Bureau Veritas Job #: C3K9585
Report Date: 2023/07/24

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8795263	Total Barium (Ba)	2023/07/21	100 (2)	80 - 120	99	80 - 120	<0.005	mg/L	1.7 (3)	20		
8795263	Total Boron (B)	2023/07/21	97 (2)	80 - 120	99	80 - 120	<0.02	mg/L	0.73 (3)	20		
8795263	Total Cadmium (Cd)	2023/07/21	101 (2)	80 - 120	100	80 - 120	<0.0001	mg/L	NC (3)	20		
8795263	Total Calcium (Ca)	2023/07/21	NC (2)	80 - 120	102	80 - 120	<0.2	mg/L	2.8 (3)	20		
8795263	Total Chromium (Cr)	2023/07/21	97 (2)	80 - 120	96	80 - 120	<0.005	mg/L	2.2 (3)	20		
8795263	Total Copper (Cu)	2023/07/21	98 (2)	80 - 120	100	80 - 120	<0.002	mg/L	1.8 (3)	20		
8795263	Total Iron (Fe)	2023/07/21	99 (2)	80 - 120	98	80 - 120	<0.1	mg/L	1.8 (3)	20		
8795263	Total Lead (Pb)	2023/07/21	99 (2)	80 - 120	95	80 - 120	<0.0005	mg/L	0.65 (3)	20		
8795263	Total Magnesium (Mg)	2023/07/21	NC (2)	80 - 120	98	80 - 120	<0.05	mg/L	0.87 (3)	20		
8795263	Total Nickel (Ni)	2023/07/21	94 (2)	80 - 120	95	80 - 120	<0.001	mg/L	2.0 (3)	20		
8795263	Total Potassium (K)	2023/07/21	102 (2)	80 - 120	101	80 - 120	<0.2	mg/L	1.1 (3)	20		
8795263	Total Sodium (Na)	2023/07/21	96 (2)	80 - 120	99	80 - 120	<0.1	mg/L	1.5 (3)	20		
8795263	Total Zinc (Zn)	2023/07/21	100 (2)	80 - 120	100	80 - 120	<0.01	mg/L	5.5 (3)	20		
8795300	Total Suspended Solids	2023/07/19			98	85 - 115	<10	mg/L	13 (1)	20		
8795336	Total Dissolved Solids	2023/07/19			95	90 - 110	<10	mg/L	1.2 (1)	20		
8795617	Total Phosphorus	2023/07/18	103	80 - 120	105	80 - 120	<0.030	mg/L	2.8 (1)	25	109	80 - 120
8795689	Dissolved Mercury (Hg)	2023/07/20	100	75 - 125	105	80 - 120	<0.10	ug/L	NC (1)	20		
8796202	Phenols-4AAP	2023/07/18	103 (4)	80 - 120	102	80 - 120	<0.0010	mg/L	14 (5)	20		
8796490	Total Ammonia-N	2023/07/20	101	75 - 125	101	80 - 120	<0.15	mg/L	17 (1)	20		
8799644	1,2,4-Trichlorobenzene	2023/07/20	24 (6)	30 - 130	43	30 - 130	<0.50	ug/L				
8799644	1,2-Dichlorobenzene	2023/07/20	24 (6)	30 - 130	46	30 - 130	<0.50	ug/L				
8799644	1,3-Dichlorobenzene	2023/07/20	22 (6)	30 - 130	40	30 - 130	<0.50	ug/L				
8799644	1,4-Dichlorobenzene	2023/07/20	22 (6)	30 - 130	41	30 - 130	<0.50	ug/L				
8799644	2,4,6-Trichlorophenol	2023/07/20	66	10 - 130	97	10 - 130	<0.50	ug/L				
8799644	2,4-Dichlorophenol	2023/07/20	47	10 - 130	80	10 - 130	<0.30	ug/L				
8799644	Benzo(a)pyrene	2023/07/20	99	30 - 130	105	30 - 130	<0.20	ug/L				
8799644	Diethyl phthalate	2023/07/20	80	30 - 130	97	30 - 130	<1.0	ug/L				
8799644	Dimethyl phthalate	2023/07/20	75	30 - 130	97	30 - 130	<1.0	ug/L				
8799644	Di-N-butyl phthalate	2023/07/20	95	30 - 130	106	30 - 130	<2.0	ug/L	NC (1)	40		
8799644	Hexachlorobenzene	2023/07/20	77	30 - 130	90	30 - 130	<0.50	ug/L				

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

Bureau Veritas Job #: C3K9585
Report Date: 2023/07/24

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8799644	Pentachlorophenol	2023/07/20	82	10 - 130	81	10 - 130	<1.0	ug/L				
8799644	Phenol	2023/07/20	16	10 - 130	34	10 - 130	<0.50	ug/L				

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 [WJW566-06]

(3) Duplicate Parent ID [WJW566-06]

(4) Matrix Spike Parent ID [WJW566-08]

(5) Duplicate Parent ID [WJW566-08]

(6) 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 #: C3K9585
Report Date: 2023/07/24

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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 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.

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

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 5011 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes. Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
07 13 23	8.1	398	20.6	356	8.95		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: clear

Odor: NFO

Color: light brown

Other:

Weather Conditions (required daily, or as conditions change): 18°C

Direction/Speed: NW 20 km/h

Outlook: Partly Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

Area Flooded

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/13/23	Alex Waterson	Alex Waterson	RWE

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0839

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/25
Report #: R7734215
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K9595
Received: 2023/07/14, 09:00

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2023/07/22	2023/07/24	CAM SOP-00301	EPA 8270 m
Alkalinity	1	N/A	2023/07/17	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	1	2023/07/15	2023/07/20	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	1	N/A	2023/07/17	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	1	N/A	2023/07/19	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	1	N/A	2023/07/20		
Conductivity	1	N/A	2023/07/17	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	1	N/A	2023/07/20		
Dissolved Mercury in Water by CVAA	1	2023/07/18	2023/07/20	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	1	N/A	2023/07/21	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/07/20	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/07/17	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2023/07/15	2023/07/17	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/07/18	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	1	N/A	2023/07/20		Field pH Meter
Sulphate by Automated Turbidimetry	1	N/A	2023/07/17	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	1	2023/07/18	2023/07/19	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	1	N/A	2023/07/20		Field Thermometer
Total Kjeldahl Nitrogen in Water	1	2023/07/17	2023/07/18	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	1	2023/07/18	2023/07/18	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	1	2023/07/18	2023/07/19	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	1	N/A	2023/07/20		
Un-ionized Ammonia (3)	1	2023/07/14	2023/07/20	Auto Calc.	PWQO
Volatile Organic Compounds in Water	1	N/A	2023/07/16	CAM SOP-00228	EPA 8260D

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, MELCCFP, 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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/07/25
Report #: R7734215
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K9595
Received: 2023/07/14, 09:00

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

Bureau Veritas Job #: C3K9595
Report Date: 2023/07/25

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		WJW595		
Sampling Date		2023/07/13		
COC Number		n/a		
	UNITS	**SP2**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.075	0.075	8790373
Field Measurements				
Field Conductivity	uS/cm	461	N/A	ONSITE
Field Dissolved Oxygen	mg/L	9.43	N/A	ONSITE
Field Temperature	Celsius	21.5	N/A	ONSITE
Field Turbidity	NTU	14.5	N/A	ONSITE
Field Measured pH	pH	9.2		ONSITE
Inorganics				
Total Ammonia-N	mg/L	<0.15	0.15	8796490
Total BOD	mg/L	<2	2	8791527
Total Chemical Oxygen Demand (COD)	mg/L	22	4.0	8793273
Conductivity	umho/cm	490	1.0	8791915
Total Dissolved Solids	mg/L	285	10	8795336
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	8793374
pH	pH	8.89		8791929
Phenols-4AAP	mg/L	<0.0010	0.0010	8796202
Total Phosphorus	mg/L	<0.030	0.030	8795617
Total Suspended Solids	mg/L	16	10	8795300
Dissolved Sulphate (SO4)	mg/L	130	1.0	8791838
Alkalinity (Total as CaCO3)	mg/L	48	1.0	8791933
Dissolved Chloride (Cl-)	mg/L	25	1.0	8791832
Nitrite (N)	mg/L	<0.010	0.010	8791793
Nitrate (N)	mg/L	<0.10	0.10	8791793

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

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

Bureau Veritas Job #: C3K9595
Report Date: 2023/07/25

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		WJW595		
Sampling Date		2023/07/13		
COC Number		n/a		
	UNITS	**SP2**	**RDL**	**QC Batch**
Metals				
Dissolved Mercury (Hg)	ug/L	<0.10	0.10	8795689
Total Arsenic (As)	mg/L	0.003	0.001	8795263
Total Barium (Ba)	mg/L	0.020	0.005	8795263
Total Boron (B)	mg/L	0.23	0.02	8795263
Total Cadmium (Cd)	mg/L	<0.0001	0.0001	8795263
Total Calcium (Ca)	mg/L	37	0.2	8795263
Total Chromium (Cr)	mg/L	<0.005	0.005	8795263
Total Copper (Cu)	mg/L	0.002	0.002	8795263
Total Iron (Fe)	mg/L	0.4	0.1	8795263
Total Lead (Pb)	mg/L	<0.0005	0.0005	8795263
Total Magnesium (Mg)	mg/L	20	0.05	8795263
Total Nickel (Ni)	mg/L	0.002	0.001	8795263
Total Potassium (K)	mg/L	2.0	0.2	8795263
Total Sodium (Na)	mg/L	29	0.1	8795263
Total Zinc (Zn)	mg/L	<0.01	0.01	8795263

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3K9595
Report Date: 2023/07/25

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		WJW595		
Sampling Date		2023/07/13		
COC Number		n/a		
	UNITS	**SP2**	**RDL**	**QC Batch**
Semivolatile Organics				
Benzo(a)pyrene	ug/L	<0.20	0.20	8806243
1,2-Dichlorobenzene	ug/L	<0.50	0.50	8806243
1,3-Dichlorobenzene	ug/L	<0.50	0.50	8806243
1,4-Dichlorobenzene	ug/L	<0.50	0.50	8806243
Hexachlorobenzene	ug/L	<0.50	0.50	8806243
1,2,4-Trichlorobenzene	ug/L	<0.50	0.50	8806243
2,4-Dichlorophenol	ug/L	<0.30	0.30	8806243
Pentachlorophenol	ug/L	<1.0	1.0	8806243
Phenol	ug/L	<0.50	0.50	8806243
2,4,6-Trichlorophenol	ug/L	<0.50	0.50	8806243
Di-N-butyl phthalate	ug/L	<2.0	2.0	8806243
Diethyl phthalate	ug/L	<1.0	1.0	8806243
Dimethyl phthalate	ug/L	<1.0	1.0	8806243
Surrogate Recovery (%)				
2,4,6-Tribromophenol	%	92		8806243
2-Fluorobiphenyl	%	79		8806243
2-Fluorophenol	%	31		8806243
D14-Terphenyl	%	101		8806243
D5-Nitrobenzene	%	86		8806243
D5-Phenol	%	26		8806243

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 #: C3K9595
Report Date: 2023/07/25

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: AW

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		WJW595		
Sampling Date		2023/07/13		
COC Number		n/a		
	UNITS	**SP2**	**RDL**	**QC Batch**
Volatile Organics				
Benzene	ug/L	<0.20	0.20	8790526
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8790526
Ethylbenzene	ug/L	<0.20	0.20	8790526
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8790526
Toluene	ug/L	<0.20	0.20	8790526
Vinyl Chloride	ug/L	<0.20	0.20	8790526
p+m-Xylene	ug/L	<0.20	0.20	8790526
o-Xylene	ug/L	<0.20	0.20	8790526
Total Xylenes	ug/L	<0.20	0.20	8790526
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	94		8790526
D4-1,2-Dichloroethane	%	114		8790526
D8-Toluene	%	100		8790526

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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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 #: C3K9595
Report Date: 2023/07/25

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8790526	4-Bromofluorobenzene	2023/07/15	95	70 - 130	94	70 - 130	95	%				
8790526	D4-1,2-Dichloroethane	2023/07/15	113	70 - 130	109	70 - 130	109	%				
8790526	D8-Toluene	2023/07/15	102	70 - 130	102	70 - 130	101	%				
8806243	2,4,6-Tribromophenol	2023/07/24	99	10 - 130	85	10 - 130	75	%				
8806243	2-Fluorobiphenyl	2023/07/24	73	30 - 130	59	30 - 130	69	%				
8806243	2-Fluorophenol	2023/07/24	45	10 - 130	43	10 - 130	43	%				
8806243	D14-Terphenyl	2023/07/24	103	30 - 130	89	30 - 130	91	%				
8806243	D5-Nitrobenzene	2023/07/24	97	30 - 130	79	30 - 130	82	%				
8806243	D5-Phenol	2023/07/24	34	10 - 130	29	10 - 130	29	%				
8790526	1,4-Dichlorobenzene	2023/07/16	101	70 - 130	110	70 - 130	<0.40	ug/L	NC (1)	30		
8790526	Benzene	2023/07/16	90	70 - 130	98	70 - 130	<0.20	ug/L	NC (1)	30		
8790526	Ethylbenzene	2023/07/16	87	70 - 130	96	70 - 130	<0.20	ug/L	NC (1)	30		
8790526	Methylene Chloride(Dichloromethane)	2023/07/16	93	70 - 130	99	70 - 130	<2.0	ug/L	NC (1)	30		
8790526	o-Xylene	2023/07/16	88	70 - 130	97	70 - 130	<0.20	ug/L	NC (1)	30		
8790526	p+m-Xylene	2023/07/16	88	70 - 130	98	70 - 130	<0.20	ug/L	5.7 (1)	30		
8790526	Toluene	2023/07/16	88	70 - 130	97	70 - 130	<0.20	ug/L	3.7 (1)	30		
8790526	Total Xylenes	2023/07/16					<0.20	ug/L	5.7 (1)	30		
8790526	Vinyl Chloride	2023/07/16	89	70 - 130	102	70 - 130	<0.20	ug/L	0.97 (1)	30		
8791527	Total BOD	2023/07/20					<2	mg/L	NC (1)	30	94	80 - 120
8791793	Nitrate (N)	2023/07/17	98	80 - 120	98	80 - 120	<0.10	mg/L	NC (1)	20		
8791793	Nitrite (N)	2023/07/17	107	80 - 120	106	80 - 120	<0.010	mg/L	1.4 (1)	20		
8791832	Dissolved Chloride (Cl-)	2023/07/17	86	80 - 120	98	80 - 120	<1.0	mg/L	7.6 (1)	20		
8791838	Dissolved Sulphate (SO4)	2023/07/17	89	75 - 125	96	80 - 120	<1.0	mg/L	7.3 (1)	20		
8791915	Conductivity	2023/07/17			103	85 - 115	<1.0	umho/cm	0.53 (1)	10		
8791929	pH	2023/07/17			102	98 - 103			1.4 (1)	N/A		
8791933	Alkalinity (Total as CaCO3)	2023/07/17			93	85 - 115	<1.0	mg/L	0.049 (1)	20		
8793273	Total Chemical Oxygen Demand (COD)	2023/07/19	99	80 - 120	106	80 - 120	<4.0	mg/L	NC (1)	20		
8793374	Total Kjeldahl Nitrogen (TKN)	2023/07/18	99	80 - 120	103	80 - 120	<0.7	mg/L	NC (1)	20	101	80 - 120
8795263	Total Arsenic (As)	2023/07/21	102	80 - 120	101	80 - 120	<0.001	mg/L	1.5 (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.

Bureau Veritas Job #: C3K9595
Report Date: 2023/07/25

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8795263	Total Barium (Ba)	2023/07/21	100	80 - 120	99	80 - 120	<0.005	mg/L	1.7 (1)	20		
8795263	Total Boron (B)	2023/07/21	97	80 - 120	99	80 - 120	<0.02	mg/L	0.73 (1)	20		
8795263	Total Cadmium (Cd)	2023/07/21	101	80 - 120	100	80 - 120	<0.0001	mg/L	NC (1)	20		
8795263	Total Calcium (Ca)	2023/07/21	NC	80 - 120	102	80 - 120	<0.2	mg/L	2.8 (1)	20		
8795263	Total Chromium (Cr)	2023/07/21	97	80 - 120	96	80 - 120	<0.005	mg/L	2.2 (1)	20		
8795263	Total Copper (Cu)	2023/07/21	98	80 - 120	100	80 - 120	<0.002	mg/L	1.8 (1)	20		
8795263	Total Iron (Fe)	2023/07/21	99	80 - 120	98	80 - 120	<0.1	mg/L	1.8 (1)	20		
8795263	Total Lead (Pb)	2023/07/21	99	80 - 120	95	80 - 120	<0.0005	mg/L	0.65 (1)	20		
8795263	Total Magnesium (Mg)	2023/07/21	NC	80 - 120	98	80 - 120	<0.05	mg/L	0.87 (1)	20		
8795263	Total Nickel (Ni)	2023/07/21	94	80 - 120	95	80 - 120	<0.001	mg/L	2.0 (1)	20		
8795263	Total Potassium (K)	2023/07/21	102	80 - 120	101	80 - 120	<0.2	mg/L	1.1 (1)	20		
8795263	Total Sodium (Na)	2023/07/21	96	80 - 120	99	80 - 120	<0.1	mg/L	1.5 (1)	20		
8795263	Total Zinc (Zn)	2023/07/21	100	80 - 120	100	80 - 120	<0.01	mg/L	5.5 (1)	20		
8795300	Total Suspended Solids	2023/07/19			98	85 - 115	<10	mg/L	13 (1)	20		
8795336	Total Dissolved Solids	2023/07/19			95	90 - 110	<10	mg/L	1.2 (1)	20		
8795617	Total Phosphorus	2023/07/18	103	80 - 120	105	80 - 120	<0.030	mg/L	2.8 (1)	25	109	80 - 120
8795689	Dissolved Mercury (Hg)	2023/07/20	100 (2)	75 - 125	105	80 - 120	<0.10	ug/L	NC (3)	20		
8796202	Phenols-4AAP	2023/07/18	103	80 - 120	102	80 - 120	<0.0010	mg/L	14 (1)	20		
8796490	Total Ammonia-N	2023/07/20	101	75 - 125	101	80 - 120	<0.15	mg/L	17 (1)	20		
8806243	1,2,4-Trichlorobenzene	2023/07/24	56	30 - 130	28 (4)	30 - 130	<0.50	ug/L				
8806243	1,2-Dichlorobenzene	2023/07/24	55	30 - 130	32	30 - 130	<0.50	ug/L				
8806243	1,3-Dichlorobenzene	2023/07/24	45	30 - 130	26 (4)	30 - 130	<0.50	ug/L				
8806243	1,4-Dichlorobenzene	2023/07/24	50	30 - 130	27 (4)	30 - 130	<0.50	ug/L				
8806243	2,4,6-Trichlorophenol	2023/07/24	89	10 - 130	92	10 - 130	<0.50	ug/L				
8806243	2,4-Dichlorophenol	2023/07/24	84	10 - 130	83	10 - 130	<0.30	ug/L				
8806243	Benzo(a)pyrene	2023/07/24	101	30 - 130	96	30 - 130	<0.20	ug/L				
8806243	Diethyl phthalate	2023/07/24	84	30 - 130	87	30 - 130	<1.0	ug/L				
8806243	Dimethyl phthalate	2023/07/24	91	30 - 130	90	30 - 130	<1.0	ug/L				
8806243	Di-N-butyl phthalate	2023/07/24	101	30 - 130	94	30 - 130	<2.0	ug/L	NC (1)	40		
8806243	Hexachlorobenzene	2023/07/24	90	30 - 130	88	30 - 130	<0.50	ug/L				

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

Bureau Veritas Job #: C3K9595
Report Date: 2023/07/25

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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
8806243	Pentachlorophenol	2023/07/24	86	10 - 130	73	10 - 130	<1.0	ug/L				
8806243	Phenol	2023/07/24	34	10 - 130	30	10 - 130	<0.50	ug/L				

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 [WJW595-05]

(3) Duplicate Parent ID [WJW595-05]

(4) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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

Bureau Veritas Job #: C3K9595
Report Date: 2023/07/25

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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 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.

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

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: JAR TCE C

Site No.:

Sample: SP2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO/

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N (0.45 µ) or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (~~µmhos~~ NS/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
07 13 23	9.2	461	21.5	14.5	9.43		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: Transparent clear

Odor: No

Color: Colorless/Clear

Other:

Weather Conditions (required daily, or as conditions change): 18°C

Direction/Speed: NW 24 km/h

Outlook: Overcast

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

flow 1m: 10s width 0.8m
10s depth 15cm
9s

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/13/23	Alex Watson	AW Watson	RWPZ
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0838

Maxxam IMMEDIATE

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:

Company Name: Waste Management of Canada Corporation
Contact Name: Lisa Mertick
Address: 5768 Nauvoo Rd, Watford, ON N0M 2S0
Phone: 519-849-5810 Fax: 519-849-5811
Email: lmertick@wm.com

REPORT INFORMATION (if differs from invoice):

Company Name: RWDI AIR Inc.
Contact Name: Brent Langille
Address: 4510 Rhodes Drive, Unit 530, Windsor, ON, N8W 5K5
Phone: 519-823-1311 x 2618 Fax: 519-823-1316
Email: BJL@RWDI.com, JCL@RWDI.com

PROJECT INFORMATION:

Quotation #
P.O. #: 12285756
Project #: 2303459.01
Project Name: Twin Creeks SW
Location: Twin Creeks
Sampled By: AW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCEC-SWCM-JUL

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA [x] PWQO [ ] Reg. 558

Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3

Sewer Use: [ ] Sanitary [ ] Storm Region _____

[ ] Other _____ specify

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZL-ON-WLF-2023 TCLS - SW (POND OUTLETS) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SP2	13-Jul-23	PM	SW	N	N	X	12	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

14-Jul-23 09:00
Patricia Legette
C3K9595
HPK ENV-713

cs intact

All samples for Hg field filtered @ 45um

See lab addendum for lab group coding

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: 24-Jul-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
AW- 13-Jul-23	J-M	023/07/14	09:00

Laboratory Use Only

Temperature (°C) on Receipt: 2/3/5 5/5/5

Condition of Sample on Receipt: [ ] OK [ ] SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912533
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5025
Received: 2023/11/03, 08:57

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	2023/11/10	2023/11/11	CAM SOP-00301	EPA 8270 m
Alkalinity	2	N/A	2023/11/04	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	2	2023/11/04	2023/11/09	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	2	N/A	2023/11/06	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	2	N/A	2023/11/07	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	2	N/A	2023/11/08		
Conductivity	2	N/A	2023/11/04	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2023/11/08		
Dissolved Mercury in Water by CVAA	2	2023/11/07	2023/11/07	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	2	N/A	2023/11/06	CAM SOP-00447	EPA 6020B m
Ammonia-N	1	N/A	2023/11/06	CAM SOP-00441	USGS I-2522-90 m
Ammonia-N	1	N/A	2023/11/07	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/11/13	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate & Nitrite as Nitrogen in Water (1)	1	N/A	2023/11/15	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2023/11/03	2023/11/04	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2023/11/08	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2023/11/08		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/11/06	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	2	2023/11/08	2023/11/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2023/11/08		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/11/06	2023/11/07	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2023/11/06	2023/11/07	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	2	2023/11/08	2023/11/08	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	2	N/A	2023/11/08		
Un-ionized Ammonia (3)	1	2023/11/03	2023/11/08	Auto Calc.	PWQO
Un-ionized Ammonia (3)	1	2023/11/03	2023/11/09	Auto Calc.	PWQO
Volatile Organic Compounds in Water	2	N/A	2023/11/07	CAM SOP-00228	EPA 8260D

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, MELCCFP, EPA, APHA.

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912533
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5025
Received: 2023/11/03, 08:57

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

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.

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

Bureau Veritas Job #: C3Y5025
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		XMP622		XMP623		
Sampling Date		2023/11/02		2023/11/02		
COC Number		TCEC-SWCM-NOV		TCEC-SWCM-NOV		
	UNITS	**SS1**	**QC Batch**	**SSDUP1**	**RDL**	**QC Batch**
Calculated Parameters						
Total Un-ionized Ammonia	mg/L	<0.00061	9027219	<0.00061	0.00061	9027219
Field Measurements						
Field Conductivity	uS/cm	655	ONSITE	655	N/A	ONSITE
Field Dissolved Oxygen	mg/L	12.91	ONSITE	12.91	N/A	ONSITE
Field Temperature	Celsius	6.2	ONSITE	6.2	N/A	ONSITE
Field Measured Field Turbidity	NTU	50.6	ONSITE	50.6	N/A	ONSITE
Field Measured pH	pH	6.5	ONSITE	6.5		ONSITE
Inorganics						
Total Ammonia-N	mg/L	<0.15	9032227	<0.15	0.15	9028493
Total BOD	mg/L	<2	9029003	<2	2	9029003
Total Chemical Oxygen Demand (COD)	mg/L	14	9032331	12	4.0	9032331
Conductivity	umho/cm	660	9028739	670	1.0	9028739
Total Dissolved Solids	mg/L	445	9036922	445	10	9036922
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	9030517	<0.7	0.7	9030517
pH	pH	8.00	9028263	8.02		9028263
Phenols-4AAP	mg/L	<0.0010	9036043	<0.0010	0.0010	9036043
Total Phosphorus	mg/L	0.036	9030499	0.036	0.030	9030499
Total Suspended Solids	mg/L	28	9029439	35	10	9029439
Dissolved Sulphate (SO4)	mg/L	180	9028232	180	1.0	9028232
Alkalinity (Total as CaCO3)	mg/L	130	9028738	130	1.0	9028738
Dissolved Chloride (Cl-)	mg/L	12	9028223	12	1.0	9028223
Nitrite (N)	mg/L	0.012	9028730	0.012	0.010	9028220
Nitrate (N)	mg/L	0.66	9028730	0.63	0.10	9028220

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

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

Bureau Veritas Job #: C3Y5025
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		XMP622	XMP623		
Sampling Date		2023/11/02	2023/11/02		
COC Number		TCEC-SWCM-NOV	TCEC-SWCM-NOV		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Metals					
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	0.10	9033697
Total Arsenic (As)	mg/L	0.001	0.001	0.001	9030359
Total Barium (Ba)	mg/L	0.031	0.030	0.005	9030359
Total Boron (B)	mg/L	0.15	0.15	0.02	9030359
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	0.0001	9030359
Total Calcium (Ca)	mg/L	81	78	0.2	9030359
Total Chromium (Cr)	mg/L	<0.005	<0.005	0.005	9030359
Total Copper (Cu)	mg/L	0.002	0.002	0.002	9030359
Total Iron (Fe)	mg/L	1.2	1.2	0.1	9030359
Total Lead (Pb)	mg/L	0.0005	0.0005	0.0005	9030359
Total Magnesium (Mg)	mg/L	30	29	0.05	9030359
Total Nickel (Ni)	mg/L	0.003	0.003	0.001	9030359
Total Potassium (K)	mg/L	4.8	4.7	0.2	9030359
Total Sodium (Na)	mg/L	15	15	0.1	9030359
Total Zinc (Zn)	mg/L	<0.01	<0.01	0.01	9030359

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3Y5025
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		XMP622	XMP623		
Sampling Date		2023/11/02	2023/11/02		
COC Number		TCEC-SWCM-NOV	TCEC-SWCM-NOV		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Semivolatile Organics					
Benzo(a)pyrene	ug/L	<0.20	<0.20	0.20	9041453
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	9041453
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	9041453
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	9041453
Hexachlorobenzene	ug/L	<0.50	<0.50	0.50	9041453
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	0.50	9041453
2,4-Dichlorophenol	ug/L	<0.30	<0.30	0.30	9041453
Pentachlorophenol	ug/L	<1.0	<1.0	1.0	9041453
Phenol	ug/L	<0.50	<0.50	0.50	9041453
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	0.50	9041453
Di-N-butyl phthalate	ug/L	<2.0	<2.0	2.0	9041453
Diethyl phthalate	ug/L	<1.0	<1.0	1.0	9041453
Dimethyl phthalate	ug/L	<1.0	<1.0	1.0	9041453
Surrogate Recovery (%)					
2,4,6-Tribromophenol	%	41	42		9041453
2-Fluorobiphenyl	%	83	72		9041453
2-Fluorophenol	%	19	19		9041453
D14-Terphenyl	%	91	88		9041453
D5-Nitrobenzene	%	86	79		9041453
D5-Phenol	%	19	17		9041453

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3Y5025
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		XMP622	XMP623		
Sampling Date		2023/11/02	2023/11/02		
COC Number		TCEC-SWCM-NOV	TCEC-SWCM-NOV		
	UNITS	**SS1**	**SSDUP1**	**RDL**	**QC Batch**
Volatile Organics					
Benzene	ug/L	<0.20	<0.20	0.20	9030036
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	0.40	9030036
Ethylbenzene	ug/L	<0.20	<0.20	0.20	9030036
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	9030036
Toluene	ug/L	<0.20	<0.20	0.20	9030036
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	9030036
p+m-Xylene	ug/L	<0.20	<0.20	0.20	9030036
o-Xylene	ug/L	<0.20	<0.20	0.20	9030036
Total Xylenes	ug/L	<0.20	<0.20	0.20	9030036
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	101	101		9030036
D4-1,2-Dichloroethane	%	103	100		9030036
D8-Toluene	%	96	97		9030036

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3Y5025
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
Package 2	6.7°C
Package 3	9.0°C
Package 4	7.3°C
Package 5	6.3°C
Package 6	5.0°C

Nitrate & Nitrite: Analysis was performed past sample holding time. This may increase the variability associated with these results.

Results relate only to the items tested.

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Bureau Veritas Job #: C3Y5025
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9030036	4-Bromofluorobenzene	2023/11/07	103	70 - 130	101	70 - 130	102	%				
9030036	D4-1,2-Dichloroethane	2023/11/07	102	70 - 130	98	70 - 130	101	%				
9030036	D8-Toluene	2023/11/07	101	70 - 130	102	70 - 130	96	%				
9041453	2,4,6-Tribromophenol	2023/11/10	80	10 - 130	73	10 - 130	51	%				
9041453	2-Fluorobiphenyl	2023/11/10	73	30 - 130	67	30 - 130	74	%				
9041453	2-Fluorophenol	2023/11/10	40	10 - 130	40	10 - 130	33	%				
9041453	D14-Terphenyl	2023/11/10	88	30 - 130	86	30 - 130	86	%				
9041453	D5-Nitrobenzene	2023/11/10	80	30 - 130	78	30 - 130	77	%				
9041453	D5-Phenol	2023/11/10	24	10 - 130	27	10 - 130	23	%				
9028220	Nitrate (N)	2023/11/15	96	80 - 120	95	80 - 120	<0.10	mg/L	NC (1)	20		
9028220	Nitrite (N)	2023/11/15	104	80 - 120	108	80 - 120	<0.010	mg/L				
9028223	Dissolved Chloride (Cl-)	2023/11/06	97	80 - 120	99	80 - 120	<1.0	mg/L	NC (1)	20		
9028232	Dissolved Sulphate (SO4)	2023/11/06	90	75 - 125	101	80 - 120	<1.0	mg/L	NC (1)	20		
9028263	pH	2023/11/04			102	98 - 103			1.4 (1)	N/A		
9028493	Total Ammonia-N	2023/11/07	NC	75 - 125	100	80 - 120	<0.15	mg/L	1.6 (1)	20		
9028730	Nitrate (N)	2023/11/13	90	80 - 120	101	80 - 120	<0.10	mg/L	NC (1)	20		
9028730	Nitrite (N)	2023/11/13	104	80 - 120	104	80 - 120	<0.010	mg/L	NC (1)	20		
9028738	Alkalinity (Total as CaCO3)	2023/11/04			95	85 - 115	<1.0	mg/L	0.55 (1)	20		
9028739	Conductivity	2023/11/04			100	85 - 115	<1.0	umho/cm	0.74 (1)	10		
9029003	Total BOD	2023/11/09					<2	mg/L	12 (1)	30	96	80 - 120
9029439	Total Suspended Solids	2023/11/08			98	85 - 115	<10	mg/L	6.1 (1)	20		
9030036	1,4-Dichlorobenzene	2023/11/07	106	70 - 130	108	70 - 130	<0.40	ug/L	NC (1)	30		
9030036	Benzene	2023/11/07	92	70 - 130	90	70 - 130	<0.20	ug/L	NC (1)	30		
9030036	Ethylbenzene	2023/11/07	93	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
9030036	Methylene Chloride(Dichloromethane)	2023/11/07	98	70 - 130	95	70 - 130	<2.0	ug/L	NC (1)	30		
9030036	o-Xylene	2023/11/07	84	70 - 130	84	70 - 130	<0.20	ug/L				
9030036	p+m-Xylene	2023/11/07	98	70 - 130	97	70 - 130	<0.20	ug/L				
9030036	Toluene	2023/11/07	93	70 - 130	92	70 - 130	<0.20	ug/L	NC (1)	30		
9030036	Total Xylenes	2023/11/07					<0.20	ug/L	NC (1)	30		

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

Bureau Veritas Job #: C3Y5025
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9030036	Vinyl Chloride	2023/11/07	95	70 - 130	93	70 - 130	<0.20	ug/L				
9030359	Total Arsenic (As)	2023/11/06	100	80 - 120	98	80 - 120	<0.001	mg/L				
9030359	Total Barium (Ba)	2023/11/06	96	80 - 120	95	80 - 120	<0.005	mg/L				
9030359	Total Boron (B)	2023/11/06	NC	80 - 120	101	80 - 120	<0.02	mg/L	6.4 (1)	20		
9030359	Total Cadmium (Cd)	2023/11/06	98	80 - 120	97	80 - 120	<0.0001	mg/L	NC (1)	20		
9030359	Total Calcium (Ca)	2023/11/06	NC	80 - 120	97	80 - 120	<0.2	mg/L	5.2 (1)	20		
9030359	Total Chromium (Cr)	2023/11/06	98	80 - 120	97	80 - 120	<0.005	mg/L	0 (1)	20		
9030359	Total Copper (Cu)	2023/11/06	101	80 - 120	98	80 - 120	<0.002	mg/L	17 (1)	20		
9030359	Total Iron (Fe)	2023/11/06	98	80 - 120	98	80 - 120	<0.1	mg/L				
9030359	Total Lead (Pb)	2023/11/06	94	80 - 120	96	80 - 120	<0.0005	mg/L	NC (1)	20		
9030359	Total Magnesium (Mg)	2023/11/06	NC	80 - 120	98	80 - 120	<0.05	mg/L	3.4 (1)	20		
9030359	Total Nickel (Ni)	2023/11/06	94	80 - 120	96	80 - 120	<0.001	mg/L	0.66 (1)	20		
9030359	Total Potassium (K)	2023/11/06	NC	80 - 120	99	80 - 120	<0.2	mg/L	3.5 (1)	20		
9030359	Total Sodium (Na)	2023/11/06	NC	80 - 120	99	80 - 120	<0.1	mg/L	3.4 (1)	20		
9030359	Total Zinc (Zn)	2023/11/06	95	80 - 120	97	80 - 120	<0.01	mg/L	6.8 (1)	20		
9030499	Total Phosphorus	2023/11/07	114	80 - 120	109	80 - 120	<0.030	mg/L	12 (1)	25	103	80 - 120
9030517	Total Kjeldahl Nitrogen (TKN)	2023/11/07	NC	80 - 120	105	80 - 120	<0.7	mg/L	1.3 (1)	20	98	80 - 120
9032227	Total Ammonia-N	2023/11/07	101 (2)	75 - 125	102	80 - 120	<0.15	mg/L	NC (3)	20		
9032331	Total Chemical Oxygen Demand (COD)	2023/11/07	88	80 - 120	100	80 - 120	<4.0	mg/L	9.1 (1)	20		
9033697	Dissolved Mercury (Hg)	2023/11/07	101 (4)	75 - 125	103	80 - 120	<0.10	ug/L	NC (5)	20		
9036043	Phenols-4AAP	2023/11/08	103	80 - 120	102	80 - 120	<0.0010	mg/L	NC (1)	20		
9036922	Total Dissolved Solids	2023/11/09			100	90 - 110	<10	mg/L	3.5 (1)	20		
9041453	1,2,4-Trichlorobenzene	2023/11/10	47	30 - 130	49	30 - 130	<0.50	ug/L	NC (1)	40		
9041453	1,2-Dichlorobenzene	2023/11/10	47	30 - 130	49	30 - 130	<0.50	ug/L	NC (1)	40		
9041453	1,3-Dichlorobenzene	2023/11/10	43	30 - 130	44	30 - 130	<0.50	ug/L	NC (1)	40		
9041453	1,4-Dichlorobenzene	2023/11/10	44	30 - 130	46	30 - 130	<0.50	ug/L	NC (1)	40		
9041453	2,4,6-Trichlorophenol	2023/11/10	78	10 - 130	74	10 - 130	<0.50	ug/L	NC (1)	40		
9041453	2,4-Dichlorophenol	2023/11/10	75	10 - 130	63	10 - 130	<0.30	ug/L	NC (1)	40		
9041453	Benzo(a)pyrene	2023/11/10	89	30 - 130	92	30 - 130	<0.20	ug/L	NC (1)	40		
9041453	Diethyl phthalate	2023/11/10	74	30 - 130	74	30 - 130	<1.0	ug/L	NC (1)	40		

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Bureau Veritas Job #: C3Y5025
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9041453	Dimethyl phthalate	2023/11/10	80	30 - 130	76	30 - 130	<1.0	ug/L	NC (1)	40		
9041453	Di-N-butyl phthalate	2023/11/10	78	30 - 130	77	30 - 130	<2.0	ug/L	NC (1)	40		
9041453	Hexachlorobenzene	2023/11/10	75	30 - 130	75	30 - 130	<0.50	ug/L	NC (1)	40		
9041453	Pentachlorophenol	2023/11/10	58	10 - 130	47	10 - 130	<1.0	ug/L	NC (1)	40		
9041453	Phenol	2023/11/10	26	10 - 130	27	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 [XMP622-08]

(3) Duplicate Parent ID [XMP622-08]

(4) Matrix Spike Parent ID [XMP623-04]

(5) Duplicate Parent ID [XMP623-04]

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

Bureau Veritas Job #: C3Y5025
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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 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.

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S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCC

Site No.:

Sample: SS11 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Total Well Depth (from TOC) (ft)

Depth to Water (DTW) (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 02 23	6.5	655	6.2	50.6	12.91		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent

Odor: N/A

Color: N/C

Other:

Weather Conditions (required daily, or as conditions change): 5°C

Direction/Speed: 27 km/hr SW

Outlook: Mostly Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required): SS1 Dupl taken

FIELD COMMENTS:

WSD 0.7 A

Rep 1 0.25 A

time @ 1 1:15

2:15

3:16

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Jake Arbell	[signature]	RWBS

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0815

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks SW	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-NOV
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 13-Nov-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZJ-ON-WLF-2023 TCLS - SW (COMPLIANCE POINT) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS1	2-Nov-23	AM	SW	N	N	X	12	SSDUP1 taken
2	SSDUP1	2-Nov-23	AM	SW	N	N	X	12	
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

03-Nov-23 08:57
Patricia Legette
C3Y5025
AJH FNV-1723

All samples for Hg field filtered @ 45um
See lab addendum for lab group coding

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA-2-Nov-23/PM	Ravneet RAVNEET KAUR GRAR	2023/11/03	08:57	Temperature (°C) on Receipt ~~5/4/9~~ RKG	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

Refer to ACTR 2023/11/03

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/14
Report #: R7911665
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5314
Received: 2023/11/03, 08:57

Sample Matrix: Surface Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	2	N/A	2023/11/04	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	2	N/A	2023/11/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	2	N/A	2023/11/09		
Conductivity	2	N/A	2023/11/04	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen in Water	2	N/A	2023/11/09		
Total Metals by ICPMS	2	N/A	2023/11/06	CAM SOP-00447	EPA 6020B m
Ammonia-N	2	N/A	2023/11/06	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2023/11/13	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	2	2023/11/03	2023/11/04	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	2	N/A	2023/11/08	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	2	N/A	2023/11/09		Field pH Meter
Sulphate by Automated Turbidimetry	2	N/A	2023/11/06	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	2	2023/11/08	2023/11/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (2)	2	N/A	2023/11/09		Field Thermometer
Total Kjeldahl Nitrogen in Water	2	2023/11/06	2023/11/07	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	2	2023/11/06	2023/11/07	CAM SOP-00407	SM 23 4500-P I
Turbidity - On-site	2	N/A	2023/11/09		
Un-ionized Ammonia (3)	2	2023/11/03	2023/11/09	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, MELCCFP, 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

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: TCEC-SWCM-NOV

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/14
Report #: R7911665
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5314
Received: 2023/11/03, 08:57

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.

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

Bureau Veritas Job #: C3Y5314
Report Date: 2023/11/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		XMR657			XMR658		
Sampling Date		2023/11/02			2023/11/02		
COC Number		TCEC-SWCM-NOV			TCEC-SWCM-NOV		
	UNITS	**SS10**	**RDL**	**QC Batch**	**SS16**	**RDL**	**QC Batch**
Calculated Parameters							
Total Un-ionized Ammonia	mg/L	<0.00061	0.00061	9027219	<0.0015	0.0015	9027219
Field Measurements							
Field Conductivity	uS/cm	360	N/A	ONSITE	627	N/A	ONSITE
Field Dissolved Oxygen	mg/L	11.74	N/A	ONSITE	11.38	N/A	ONSITE
Field Temperature	Celsius	4.4	N/A	ONSITE	5.8	N/A	ONSITE
Field Measured Field Turbidity	NTU	46.6	N/A	ONSITE	31.6	N/A	ONSITE
Field Measured pH	pH	6.4		ONSITE	7.8		ONSITE
Inorganics							
Total Ammonia-N	mg/L	<0.15	0.15	9028493	<0.15	0.15	9028493
Conductivity	umho/cm	340	1.0	9028739	590	1.0	9028739
Total Dissolved Solids	mg/L	220	10	9034008	405	10	9034008
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	0.7	9030517	<0.7	0.7	9030517
pH	pH	7.81		9028263	7.90		9028263
Phenols-4AAP	mg/L	<0.0010	0.0010	9036043	0.0014	0.0010	9036043
Total Phosphorus	mg/L	0.25	0.030	9030499	0.17	0.030	9030499
Dissolved Sulphate (SO4)	mg/L	32	1.0	9029629	77	1.0	9028232
Alkalinity (Total as CaCO3)	mg/L	130	1.0	9028738	230	1.0	9028738
Dissolved Chloride (Cl-)	mg/L	2.7	1.0	9029619	4.4	1.0	9028223
Nitrite (N)	mg/L	<0.010	0.010	9028730	<0.010	0.010	9028730
Nitrate (N)	mg/L	<0.10	0.10	9028730	<0.10	0.10	9028730

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

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

Bureau Veritas Job #: C3Y5314
Report Date: 2023/11/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		XMR657	XMR658		
Sampling Date		2023/11/02	2023/11/02		
COC Number		TCEC-SWCM-NOV	TCEC-SWCM-NOV		
	UNITS	**SS10**	**SS16**	**RDL**	**QC Batch**
Metals					
Total Boron (B)	mg/L	0.05	0.04	0.02	9030359
Total Calcium (Ca)	mg/L	47	88	0.2	9030359
Total Chromium (Cr)	mg/L	<0.005	<0.005	0.005	9030359
Total Iron (Fe)	mg/L	2.0	1.8	0.1	9030359
Total Magnesium (Mg)	mg/L	11	21	0.05	9030359
Total Nickel (Ni)	mg/L	0.003	0.004	0.001	9030359
Total Potassium (K)	mg/L	3.6	8.8	0.2	9030359
Total Sodium (Na)	mg/L	3.5	4.2	0.1	9030359
Total Zinc (Zn)	mg/L	<0.01	<0.01	0.01	9030359

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3Y5314
Report Date: 2023/11/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
Package 2	6.7°C
Package 3	9.0°C
Package 4	7.3°C
Package 5	6.3°C
Package 6	5.0°C

Nitrate & Nitrite: Analysis was performed past sample holding time. This may increase the variability associated with these results.

Results relate only to the items tested.

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Bureau Veritas Job #: C3Y5314
Report Date: 2023/11/14

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9028223	Dissolved Chloride (Cl-)	2023/11/06	97	80 - 120	99	80 - 120	<1.0	mg/L	NC (1)	20		
9028232	Dissolved Sulphate (SO4)	2023/11/06	90	75 - 125	101	80 - 120	<1.0	mg/L	NC (1)	20		
9028263	pH	2023/11/04			102	98 - 103			1.4 (1)	N/A		
9028493	Total Ammonia-N	2023/11/07	NC	75 - 125	100	80 - 120	<0.15	mg/L	1.6 (1)	20		
9028730	Nitrate (N)	2023/11/13	90	80 - 120	101	80 - 120	<0.10	mg/L	NC (1)	20		
9028730	Nitrite (N)	2023/11/13	104	80 - 120	104	80 - 120	<0.010	mg/L	NC (1)	20		
9028738	Alkalinity (Total as CaCO3)	2023/11/04			95	85 - 115	<1.0	mg/L	0.55 (1)	20		
9028739	Conductivity	2023/11/04			100	85 - 115	<1.0	umho/cm	0.74 (1)	10		
9029619	Dissolved Chloride (Cl-)	2023/11/06	NC	80 - 120	95	80 - 120	<1.0	mg/L	1.7 (1)	20		
9029629	Dissolved Sulphate (SO4)	2023/11/06	NC	75 - 125	94	80 - 120	<1.0	mg/L	0.64 (1)	20		
9030359	Total Boron (B)	2023/11/06	NC	80 - 120	101	80 - 120	<0.02	mg/L	6.4 (1)	20		
9030359	Total Calcium (Ca)	2023/11/06	NC	80 - 120	97	80 - 120	<0.2	mg/L	5.2 (1)	20		
9030359	Total Chromium (Cr)	2023/11/06	98	80 - 120	97	80 - 120	<0.005	mg/L	0 (1)	20		
9030359	Total Iron (Fe)	2023/11/06	98	80 - 120	98	80 - 120	<0.1	mg/L				
9030359	Total Magnesium (Mg)	2023/11/06	NC	80 - 120	98	80 - 120	<0.05	mg/L	3.4 (1)	20		
9030359	Total Nickel (Ni)	2023/11/06	94	80 - 120	96	80 - 120	<0.001	mg/L	0.66 (1)	20		
9030359	Total Potassium (K)	2023/11/06	NC	80 - 120	99	80 - 120	<0.2	mg/L	3.5 (1)	20		
9030359	Total Sodium (Na)	2023/11/06	NC	80 - 120	99	80 - 120	<0.1	mg/L	3.4 (1)	20		
9030359	Total Zinc (Zn)	2023/11/06	95	80 - 120	97	80 - 120	<0.01	mg/L	6.8 (1)	20		
9030499	Total Phosphorus	2023/11/07	114	80 - 120	109	80 - 120	<0.030	mg/L	12 (1)	25	103	80 - 120
9030517	Total Kjeldahl Nitrogen (TKN)	2023/11/07	NC	80 - 120	105	80 - 120	<0.7	mg/L	1.3 (1)	20	98	80 - 120
9034008	Total Dissolved Solids	2023/11/09			97	90 - 110	<10	mg/L	5.0 (1)	20		

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

Bureau Veritas Job #: C3Y5314
Report Date: 2023/11/14

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9036043	Phenols-4AAP	2023/11/08	103	80 - 120	102	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.

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

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

Bureau Veritas Job #: C3Y5314
Report Date: 2023/11/14

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

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

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 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.

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BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCC

Site No.: Sample: SS10 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 06 23	6.4	366	4.4	46.6	11.74		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent Odor: N/O Color: N/C Other:

Weather Conditions (required daily, or as conditions change): UC Direction/Speed: 2 km/hr Outlook: mostly cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

width: 0.2m
Depth: 0.15m
time lm 1: 15
2: 14
3: 14

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/06/23	Jake Arkell		RWPI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0902

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC SSTL

Site No.:

Sample: 3316 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLS PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device:

Sampling Device:

X-Other:

A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110623	7.8	627	5.8	31.6	11.31		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent

Odor: N/O

Color: N/C

Other:

Weather Conditions (required daily, or as conditions change): 4°C

Direction/Speed: 20km/h SW

Outlook: partly cloudy

Precipitation: Y or (N)

FIELD COMMENTS

Specific Comments (including purge/well volume calculations if required):

WL(t): 0.60m

Depth(t): 0.15m

time elm: 4 sec

i: 42sec

2: 45sec

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Jake Arbuckle	[signature]	RWPI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v.3.1 06/20

0811

Maxxam Analytics Inc

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY #:
				Project Name:	Twin Creeks SW	
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-NOV
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

- [ ] MISA
- [x] PWQO
- [ ] Reg. 558

Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3

Sewer Use: [ ] Sanitary [ ] Storm Region _____

[ ] Other _____ specify

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZH-ON-WLF-2023 TCLS - SW (BKGRND STATION) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS10	2-Nov-23	AM	SW	N	N	X	6	
2	SS16	2-Nov-23	AM	SW	N	N	X	6	
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

03-Nov-23 08:57
Patricia Legette
C3Y5314
AIH FNV-1322

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
[x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: 13-Nov-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

See lab addendum for lab group coding

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA-2-Nov-23/PM	Ramit RAVNEET KAUR BRAR	2023/11/03	08:57	Temperature (°C) on Receipt ~~5/9/9~~ RKB	Condition of Sample on Receipt [ ] OK [ ] SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

Refer to ACTK 2023/11/03

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912525
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5345
Received: 2023/11/03, 08:57

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	4	N/A	2023/11/05	CAM SOP-00448	SM 23 2320 B m
Chloride by Automated Colourimetry	4	N/A	2023/11/06	CAM SOP-00463	SM 23 4500-Cl E m
Conductance in Water - On-site	4	N/A	2023/11/10		
Field Measured Dissolved Oxygen in Water	4	N/A	2023/11/10		
Total Metals by ICPMS	4	N/A	2023/11/06	CAM SOP-00447	EPA 6020B m
Total Ammonia-N	3	N/A	2023/11/06	CAM SOP-00441	USGS I-2522-90 m
Total Ammonia-N	1	N/A	2023/11/07	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2023/11/13	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate & Nitrite as Nitrogen in Water (1)	2	N/A	2023/11/15	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Phenols (4AAP)	4	N/A	2023/11/08	CAM SOP-00444	OMOE E3179 m
Field Measured pH (2)	4	N/A	2023/11/10		Field pH Meter
Sulphate by Automated Turbidimetry	4	N/A	2023/11/06	CAM SOP-00464	SM 23 4500-SO42- E m
Field Temperature (2)	4	N/A	2023/11/10		Field Thermometer
Total Organic Carbon (TOC) (3)	4	N/A	2023/11/07	CAM SOP-00446	SM 23 5310B m
Turbidity - On-site	4	N/A	2023/11/10		
Un-ionized Ammonia (4)	4	2023/11/03	2023/11/10	Auto Calc.	PWQO
Volatile Organic Compounds in Water	4	N/A	2023/11/06	CAM SOP-00226	EPA 8260D 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, MELCCFP, 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

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. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912525
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5345
Received: 2023/11/03, 08:57
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) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.
(4) 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.

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

Bureau Veritas Job #: C3Y5345
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMR924		XMR925		XMR926		
Sampling Date		2023/11/02		2023/11/02		2023/11/02		
COC Number		n/a		n/a		n/a		
	UNITS	**SS14A**	**QC Batch**	**SS14B**	**QC Batch**	**SS15A**	**RDL**	**QC Batch**
Calculated Parameters								
Total Un-ionized Ammonia	mg/L	<0.00061	9027219	<0.00061	9027219	<0.00061	0.00061	9027219
Field Measurements								
Field Conductivity	uS/cm	818	ONSITE	1218	ONSITE	852	N/A	ONSITE
Field Dissolved Oxygen	mg/L	12.6	ONSITE	13.31	ONSITE	12.54	N/A	ONSITE
Field Temperature	Celsius	4.3	ONSITE	4.5	ONSITE	4.5	N/A	ONSITE
Field Measured Field Turbidity	NTU	13.0	ONSITE	31.1	ONSITE	54.4	N/A	ONSITE
Field Measured pH	pH	6.8	ONSITE	6.9	ONSITE	6.7		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.050	9032099	<0.050	9032099	<0.050	0.050	9032099
Total Organic Carbon (TOC)	mg/L	8.4	9031429	9.0	9031429	11	0.40	9031429
Phenols-4AAP	mg/L	<0.0010	9036043	<0.0010	9036043	<0.0010	0.0010	9036043
Dissolved Sulphate (SO4)	mg/L	210	9028232	320	9028232	130	1.0	9028232
Alkalinity (Total as CaCO3)	mg/L	230	9028253	180	9028253	220	1.0	9028253
Dissolved Chloride (Cl-)	mg/L	12	9028223	110	9028223	63	1.0	9028223
Nitrate (N)	mg/L	<0.10	9028220	2.40	9028730	1.43	0.10	9028220

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

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

Bureau Veritas Job #: C3Y5345
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		XMR927		
Sampling Date		2023/11/02		
COC Number		n/a		
	UNITS	**PSSWDUP**	**RDL**	**QC Batch**
Calculated Parameters				
Total Un-ionized Ammonia	mg/L	<0.00061	0.00061	9027219
Field Measurements				
Field Conductivity	uS/cm	1218	N/A	ONSITE
Field Dissolved Oxygen	mg/L	13.1	N/A	ONSITE
Field Temperature	Celsius	4.5	N/A	ONSITE
Field Measured Field Turbidity	NTU	31.1	N/A	ONSITE
Field Measured pH	pH	6.9		ONSITE
Inorganics				
Total Ammonia-N	mg/L	0.061	0.050	9032099
Total Organic Carbon (TOC)	mg/L	9.2	0.40	9031429
Phenols-4AAP	mg/L	<0.0010	0.0010	9036043
Dissolved Sulphate (SO4)	mg/L	310	1.0	9028232
Alkalinity (Total as CaCO3)	mg/L	180	1.0	9028253
Dissolved Chloride (Cl-)	mg/L	110	1.0	9028223
Nitrate (N)	mg/L	2.40	0.10	9028730

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

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

Bureau Veritas Job #: C3Y5345
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		XMR924	XMR925	XMR926	XMR927		
Sampling Date		2023/11/02	2023/11/02	2023/11/02	2023/11/02		
COC Number		n/a	n/a	n/a	n/a		
	UNITS	**SS14A**	**SS14B**	**SS15A**	**PSSWDUP**	**RDL**	**QC Batch**
Metals							
Total Boron (B)	mg/L	0.18	0.45	1.4	0.47	0.02	9030359
Total Calcium (Ca)	mg/L	95	79	110	83	0.2	9030359
Total Chromium (Cr)	mg/L	<0.005	0.011	<0.005	0.011	0.005	9030359
Total Iron (Fe)	mg/L	1.8	10	0.9	10	0.1	9030359
Total Magnesium (Mg)	mg/L	29	31	35	32	0.05	9030359
Total Nickel (Ni)	mg/L	0.004	0.018	0.012	0.018	0.001	9030359
Total Potassium (K)	mg/L	6.8	6.5	13	6.8	0.2	9030359
Total Sodium (Na)	mg/L	20	42	100	43	0.1	9030359
Total Zinc (Zn)	mg/L	<0.01	0.03	0.07	0.03	0.01	9030359

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3Y5345
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID		XMR924	XMR925	XMR926	XMR927		
Sampling Date		2023/11/02	2023/11/02	2023/11/02	2023/11/02		
COC Number		n/a	n/a	n/a	n/a		
	UNITS	**SS14A**	**SS14B**	**SS15A**	**PSSWDUP**	**RDL**	**QC Batch**
Volatile Organics							
Benzene	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	9029684
Ethylbenzene	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	9029684
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9029684
p+m-Xylene	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	9029684
o-Xylene	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	9029684
Total Xylenes	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	9029684
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	103	103	103	103		9029684
D4-1,2-Dichloroethane	%	109	108	108	109		9029684
D8-Toluene	%	98	98	98	98		9029684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3Y5345
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
Package 2	6.7°C
Package 3	9.0°C
Package 4	7.3°C
Package 5	6.3°C
Package 6	5.0°C

Nitrate & Nitrite: Analysis was performed past sample holding time. This may increase the variability associated with these results.

Results relate only to the items tested.

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

Bureau Veritas Job #: C3Y5345
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9029684	4-Bromofluorobenzene	2023/11/06	104	70 - 130	105	70 - 130	100	%		
9029684	D4-1,2-Dichloroethane	2023/11/06	100	70 - 130	104	70 - 130	104	%		
9029684	D8-Toluene	2023/11/06	101	70 - 130	100	70 - 130	99	%		
9028220	Nitrate (N)	2023/11/15	96	80 - 120	95	80 - 120	<0.10	mg/L	NC (1)	20
9028223	Dissolved Chloride (Cl-)	2023/11/06	97	80 - 120	99	80 - 120	<1.0	mg/L	NC (1)	20
9028232	Dissolved Sulphate (SO4)	2023/11/06	90	75 - 125	101	80 - 120	<1.0	mg/L	NC (1)	20
9028253	Alkalinity (Total as CaCO3)	2023/11/05			96	85 - 115	<1.0	mg/L	1.1 (1)	20
9028730	Nitrate (N)	2023/11/13	90	80 - 120	101	80 - 120	<0.10	mg/L	NC (1)	20
9029684	Benzene	2023/11/06	95	70 - 130	95	70 - 130	<0.10	ug/L	NC (1)	30
9029684	Ethylbenzene	2023/11/06	97	70 - 130	96	70 - 130	<0.10	ug/L	NC (1)	30
9029684	o-Xylene	2023/11/06	87	70 - 130	89	70 - 130	<0.10	ug/L	NC (1)	30
9029684	p+m-Xylene	2023/11/06	102	70 - 130	101	70 - 130	<0.10	ug/L	NC (1)	30
9029684	Toluene	2023/11/06	95	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30
9029684	Total Xylenes	2023/11/06					<0.10	ug/L		
9030359	Total Boron (B)	2023/11/06	NC	80 - 120	101	80 - 120	<0.02	mg/L	6.4 (1)	20
9030359	Total Calcium (Ca)	2023/11/06	NC	80 - 120	97	80 - 120	<0.2	mg/L	5.2 (1)	20
9030359	Total Chromium (Cr)	2023/11/06	98	80 - 120	97	80 - 120	<0.005	mg/L	0 (1)	20
9030359	Total Iron (Fe)	2023/11/06	98	80 - 120	98	80 - 120	<0.1	mg/L		
9030359	Total Magnesium (Mg)	2023/11/06	NC	80 - 120	98	80 - 120	<0.05	mg/L	3.4 (1)	20
9030359	Total Nickel (Ni)	2023/11/06	94	80 - 120	96	80 - 120	<0.001	mg/L	0.66 (1)	20
9030359	Total Potassium (K)	2023/11/06	NC	80 - 120	99	80 - 120	<0.2	mg/L	3.5 (1)	20
9030359	Total Sodium (Na)	2023/11/06	NC	80 - 120	99	80 - 120	<0.1	mg/L	3.4 (1)	20
9030359	Total Zinc (Zn)	2023/11/06	95	80 - 120	97	80 - 120	<0.01	mg/L	6.8 (1)	20
9031429	Total Organic Carbon (TOC)	2023/11/07	94	80 - 120	99	80 - 120	<0.40	mg/L	2.5 (1)	20
9032099	Total Ammonia-N	2023/11/06	98	75 - 125	102	80 - 120	<0.050	mg/L	0.64 (1)	20

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

Bureau Veritas Job #: C3Y5345
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9036043	Phenols-4AAP	2023/11/08	103	80 - 120	102	80 - 120	<0.0010	mg/L	NC (1)	20

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.

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.bvna.com

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

Bureau Veritas Job #: C3Y5345
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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

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 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.

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

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SS14A (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 02 23	6.8	818	4.3	13.0	12.6		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

FIELD COMMENTS

Sample Appearance: transparent

Odor: N/O

Color: N/C

Other:

Weather Conditions (required daily, or as conditions change): 4°C

Direction/Speed: 20km/hSW

Outlook: partly cloud

Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

Depth : 0.40m
Depth 0.15m
time e 1m 1:33
2:35
3:35

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

11/02/23 Jake Arbiak KWPE

Date / Name / Signature / Company

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/2

0903

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: 531410 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 02 23	6.9	1218	4.5	31.1	13.31		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent

Odor: N/a

Color: N/c

Other:

Weather Conditions (required daily, or as conditions change): 4°C

Direction/Speed: 20km/hSW

Outlook: partly cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

water tm. 1m PSSWPVP take

Depth 0.2m

time @ 1m 1:26

2.25

3.25

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

11/02/23 Jake Arbelle [signature] RWDI

Date / / Name Signature Company

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3 1 06/20

0904

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SS11STA (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up/Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 02 23	6.7	982	4.5	54.4	12.59		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent Odor: None Color: None Other:

Weather Conditions (required daily, or as conditions change): 4°C Direction/Speed: 20km/h SW Outlook: partly cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Water: 1.2m
Bottom: 0.4m
time o/m 1:23
2:20
3:21

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Jake Arbitalk	[signature]	RWS

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0901

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks SW	
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-NOV
Email:	lmertick@wm.com	Email:	BJL@RWDI.com, JCL@RWDI.com	Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Other
☐ Table 1 ☐ Sanitary
☒ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 13-Nov-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZP-ON-WLF-2023 TCLS - SW (POPLAR) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SS14A	2-Nov-23	AM	SW	N	N	X	7	
2	SS14B	2-Nov-23	AM	SW	N	N	X	7	
3	SS15A	2-Nov-23	AM	SW	N	N	X	7	PSSWDUP taken
4	PSSWDUP	2-Nov-23	AM	SW	N	N	X	7	
5									
6									
7									
8									
9									
10									
11									
12									

03-Nov-23 08:57
Patricia Legette
C3Y5345
RUK ENV-1617

See lab addendum for lab group coding

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA-2-Nov-23/PM	Raunit RAUNEET KAUR BRAR	2023/11/03	08:57	Temperature (°C) on Receipt: Refer to ACTK	Condition of Sample on Receipt: ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912811
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5363
Received: 2023/11/03, 08:57

Sample Matrix: Surface Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2023/11/10	2023/11/10	CAM SOP-00301	EPA 8270 m
ABN Compounds in Water by GC/MS	4	2023/11/10	2023/11/11	CAM SOP-00301	EPA 8270 m
Alkalinity	5	N/A	2023/11/08	CAM SOP-00448	SM 23 2320 B m
Biochemical Oxygen Demand (BOD)	5	2023/11/06	2023/11/11	CAM SOP-00427	SM 23 5210B m
Chloride by Automated Colourimetry	5	N/A	2023/11/09	CAM SOP-00463	SM 23 4500-Cl E m
Chemical Oxygen Demand	5	N/A	2023/11/08	CAM SOP-00416	SM 23 5220 D m
Conductance in Water - On-site	5	N/A	2023/11/15		
Conductivity	5	N/A	2023/11/08	CAM SOP-00414	SM 23 2510 m
Field Measured Dissolved Oxygen (1)	5	N/A	2023/11/09		Field pH Meter
Dissolved Mercury in Water by CVAA	5	2023/11/08	2023/11/08	CAM SOP-00453	EPA 7470A m
Total Metals by ICPMS	5	N/A	2023/11/09	CAM SOP-00447	EPA 6020B m
Ammonia-N	5	N/A	2023/11/09	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	5	N/A	2023/11/14	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2023/11/06	2023/11/08	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	5	N/A	2023/11/08	CAM SOP-00444	OMOE E3179 m
Field Measured pH (1)	5	N/A	2023/11/09		Field pH Meter
Sulphate by Automated Turbidimetry	5	N/A	2023/11/09	CAM SOP-00464	SM 23 4500-SO42- E m
Total Dissolved Solids	5	2023/11/08	2023/11/09	CAM SOP-00428	SM 23 2540C m
Field Temperature (1)	5	N/A	2023/11/09		Field Thermometer
Total Kjeldahl Nitrogen in Water	5	2023/11/07	2023/11/09	CAM SOP-00938	OMOE E3516 m
Total Phosphorus (Colourimetric)	5	2023/11/06	2023/11/07	CAM SOP-00407	SM 23 4500-P I
Total Suspended Solids	5	2023/11/08	2023/11/09	CAM SOP-00428	SM 23 2540D m
Turbidity - On-site	5	N/A	2023/11/09		
Un-ionized Ammonia (3)	5	2023/11/06	2023/11/09	Auto Calc.	PWQO
Volatile Organic Compounds in Water	5	N/A	2023/11/08	CAM SOP-00228	EPA 8260D

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, MELCCFP, 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.bvna.com

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

Your P.O. #: 12285756
Your Project #: 2303459.01
Site#: 700
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

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

Report Date: 2023/11/15
Report #: R7912811
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Y5363
Received: 2023/11/03, 08:57

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) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(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 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 #: C3Y5363
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		XMS025	XMS026	XMS027	XMS028	XMS029		
Sampling Date		2023/11/02	2023/11/02	2023/11/02	2023/11/02	2023/11/02		
COC Number		n/a	n/a	n/a	n/a	n/a		
	UNITS	**SP1**	**SP2**	**SP3**	**SPDUP**	**SP4**	**RDL**	**QC Batch**
Calculated Parameters								
Total Un-ionized Ammonia	mg/L	<0.00061	<0.00061	0.00070	<0.00061	<0.00061	0.00061	9030770
Field Measurements								
Field Measured Dissolved oxygen	mg/L	12.06	12.47	11.75	12.47	11.8	N/A	ONSITE
Field Conductivity	uS/cm	4.98	3.71	6.77	3.71	7.04	N/A	ONSITE
Field Temperature	Celsius	5.9	7.6	5.9	7.6	5.6	N/A	ONSITE
Field Measured Field Turbidity	NTU	32.4	11.4	6.61	11.4	60.8	N/A	ONSITE
Field Measured pH	pH	7.2	7.2	6.8	7.2	6.7		ONSITE
Inorganics								
Total Ammonia-N	mg/L	<0.15	<0.15	0.68	<0.15	0.34	0.15	9034448
Total BOD	mg/L	<2	6	6	<2	3	2	9031078
Total Chemical Oxygen Demand (COD)	mg/L	20	17	22	16	15	4.0	9033097
Conductivity	umho/cm	510	380	720	380	760	1.0	9031425
Total Dissolved Solids	mg/L	315	235	490	235	545	10	9036922
Total Kjeldahl Nitrogen (TKN)	mg/L	<0.7	<0.7	1.3	<0.7	0.9	0.7	9034454
pH	pH	8.12	8.02	8.01	8.07	7.88		9031415
Phenols-4AAP	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	9037493
Total Phosphorus	mg/L	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	9030499
Total Suspended Solids	mg/L	27	<10	<10	11	33	10	9036167
Dissolved Sulphate (SO4)	mg/L	98	73	220	72	260	1.0	9031497
Alkalinity (Total as CaCO3)	mg/L	140	82	100	82	93	1.0	9031421
Dissolved Chloride (Cl-)	mg/L	8.4	13	14	13	8.4	1.0	9031491
Nitrite (N)	mg/L	0.012	<0.010	0.035	<0.010	0.038	0.010	9031515
Nitrate (N)	mg/L	0.14	<0.10	0.16	<0.10	0.45	0.10	9031515

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

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

Bureau Veritas Job #: C3Y5363
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (SURFACE WATER)

Bureau Veritas ID		XMS025	XMS026	XMS027	XMS028	XMS029		
Sampling Date		2023/11/02	2023/11/02	2023/11/02	2023/11/02	2023/11/02		
COC Number		n/a	n/a	n/a	n/a	n/a		
	UNITS	**SP1**	**SP2**	**SP3**	**SPDUP**	**SP4**	**RDL**	**QC Batch**
Metals								
Dissolved Mercury (Hg)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	9036956
Total Arsenic (As)	mg/L	0.001	0.002	0.001	0.001	<0.001	0.001	9038447
Total Barium (Ba)	mg/L	0.040	0.022	0.036	0.019	0.040	0.005	9038447
Total Boron (B)	mg/L	0.20	0.18	0.11	0.19	0.12	0.02	9038447
Total Cadmium (Cd)	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	9038447
Total Calcium (Ca)	mg/L	63	39	76	39	91	0.2	9038447
Total Chromium (Cr)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	9038447
Total Copper (Cu)	mg/L	0.002	<0.002	<0.002	<0.002	0.002	0.002	9038447
Total Iron (Fe)	mg/L	1.3	0.4	0.2	0.2	1.6	0.1	9038447
Total Lead (Pb)	mg/L	0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0005	9038447
Total Magnesium (Mg)	mg/L	20	13	29	13	32	0.05	9038447
Total Nickel (Ni)	mg/L	0.003	0.002	0.002	0.002	0.004	0.001	9038447
Total Potassium (K)	mg/L	4.6	3.1	3.7	3.1	3.9	0.2	9038447
Total Sodium (Na)	mg/L	11	14	19	15	15	0.1	9038447
Total Zinc (Zn)	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	9038447

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3Y5363
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (SURFACE WATER)

Bureau Veritas ID		XMS025	XMS026	XMS027	XMS028	XMS029		
Sampling Date		2023/11/02	2023/11/02	2023/11/02	2023/11/02	2023/11/02		
COC Number		n/a	n/a	n/a	n/a	n/a		
	UNITS	**SP1**	**SP2**	**SP3**	**SPDUP**	**SP4**	**RDL**	**QC Batch**
Semivolatile Organics								
Benzo(a)pyrene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	9041453
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	9041453
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	9041453
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	9041453
Hexachlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	9041453
1,2,4-Trichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	9041453
2,4-Dichlorophenol	ug/L	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	9041453
Pentachlorophenol	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	9041453
Phenol	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	9041453
2,4,6-Trichlorophenol	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	9041453
Di-N-butyl phthalate	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	9041453
Diethyl phthalate	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	9041453
Dimethyl phthalate	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	9041453
Surrogate Recovery (%)								
2,4,6-Tribromophenol	%	43	43	57	58	42		9041453
2-Fluorobiphenyl	%	78	76	71	86	74		9041453
2-Fluorophenol	%	20	18	24	26	17		9041453
D14-Terphenyl	%	90	87	88	89	91		9041453
D5-Nitrobenzene	%	82	76	70	87	78		9041453
D5-Phenol	%	19	16	18	21	17		9041453

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3Y5363
Report Date: 2023/11/15

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (SURFACE WATER)

Bureau Veritas ID		XMS025	XMS026	XMS027	XMS028	XMS029		
Sampling Date		2023/11/02	2023/11/02	2023/11/02	2023/11/02	2023/11/02		
COC Number		n/a	n/a	n/a	n/a	n/a		
	UNITS	**SP1**	**SP2**	**SP3**	**SPDUP**	**SP4**	**RDL**	**QC Batch**
Volatile Organics								
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	9033194
1,4-Dichlorobenzene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	9033194
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	9033194
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	9033194
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	9033194
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	9033194
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	9033194
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	9033194
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	9033194
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	102	102	102	101	102		9033194
D4-1,2-Dichloroethane	%	102	102	102	101	102		9033194
D8-Toluene	%	96	96	96	96	95		9033194

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

Bureau Veritas Job #: C3Y5363
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RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.7°C
Package 2	6.7°C
Package 3	9.0°C
Package 4	7.3°C
Package 5	6.3°C
Package 6	5.0°C

Nitrate & Nitrite: Analysis was performed past sample holding time. This may increase the variability associated with these results.

Results relate only to the items tested.

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

Bureau Veritas Job #: C3Y5363
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9033194	4-Bromofluorobenzene	2023/11/08	102	70 - 130	101	70 - 130	103	%				
9033194	D4-1,2-Dichloroethane	2023/11/08	101	70 - 130	99	70 - 130	100	%				
9033194	D8-Toluene	2023/11/08	102	70 - 130	101	70 - 130	96	%				
9041453	2,4,6-Tribromophenol	2023/11/10	80	10 - 130	73	10 - 130	51	%				
9041453	2-Fluorobiphenyl	2023/11/10	73	30 - 130	67	30 - 130	74	%				
9041453	2-Fluorophenol	2023/11/10	40	10 - 130	40	10 - 130	33	%				
9041453	D14-Terphenyl	2023/11/10	88	30 - 130	86	30 - 130	86	%				
9041453	D5-Nitrobenzene	2023/11/10	80	30 - 130	78	30 - 130	77	%				
9041453	D5-Phenol	2023/11/10	24	10 - 130	27	10 - 130	23	%				
9030499	Total Phosphorus	2023/11/07	114	80 - 120	109	80 - 120	<0.030	mg/L	12 (1)	25	103	80 - 120
9031078	Total BOD	2023/11/11					<2	mg/L	4.4 (1)	30	96	80 - 120
9031415	pH	2023/11/08			102	98 - 103			0.16 (1)	N/A		
9031421	Alkalinity (Total as CaCO3)	2023/11/08			97	85 - 115	<1.0	mg/L	0.10 (1)	20		
9031425	Conductivity	2023/11/08			101	85 - 115	<1.0	umho/cm	0.15 (1)	10		
9031491	Dissolved Chloride (Cl-)	2023/11/09	NC	80 - 120	94	80 - 120	<1.0	mg/L	7.1 (1)	20		
9031497	Dissolved Sulphate (SO4)	2023/11/09	NC	75 - 125	95	80 - 120	<1.0	mg/L	1.1 (1)	20		
9031515	Nitrate (N)	2023/11/14	97 (2)	80 - 120	106	80 - 120	<0.10	mg/L	NC (3)	20		
9031515	Nitrite (N)	2023/11/14	100 (2)	80 - 120	105	80 - 120	<0.010	mg/L	NC (3)	20		
9033097	Total Chemical Oxygen Demand (COD)	2023/11/08	96	80 - 120	96	80 - 120	<4.0	mg/L	NC (1)	20		
9033194	1,4-Dichlorobenzene	2023/11/08	106	70 - 130	108	70 - 130	<0.40	ug/L	NC (1)	30		
9033194	Benzene	2023/11/08	91	70 - 130	91	70 - 130	<0.20	ug/L	NC (1)	30		
9033194	Ethylbenzene	2023/11/08	93	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
9033194	Methylene Chloride(Dichloromethane)	2023/11/08	97	70 - 130	96	70 - 130	<2.0	ug/L	NC (1)	30		
9033194	o-Xylene	2023/11/08	84	70 - 130	87	70 - 130	<0.20	ug/L	NC (1)	30		
9033194	p+m-Xylene	2023/11/08	98	70 - 130	100	70 - 130	<0.20	ug/L	NC (1)	30		
9033194	Toluene	2023/11/08	93	70 - 130	94	70 - 130	<0.20	ug/L	NC (1)	30		
9033194	Total Xylenes	2023/11/08					<0.20	ug/L	NC (1)	30		
9033194	Vinyl Chloride	2023/11/08	87	70 - 130	90	70 - 130	<0.20	ug/L	NC (1)	30		
9034448	Total Ammonia-N	2023/11/09	101 (4)	75 - 125	102	80 - 120	<0.15	mg/L	NC (5)	20		

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Bureau Veritas Job #: C3Y5363
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9034454	Total Kjeldahl Nitrogen (TKN)	2023/11/09	102 (6)	80 - 120	99	80 - 120	<0.7	mg/L	6.4 (7)	20	117	80 - 120
9036167	Total Suspended Solids	2023/11/09			95	85 - 115	<10	mg/L	NC (1)	20		
9036922	Total Dissolved Solids	2023/11/09			100	90 - 110	<10	mg/L	3.5 (1)	20		
9036956	Dissolved Mercury (Hg)	2023/11/08	105	75 - 125	101	80 - 120	<0.10	ug/L	NC (1)	20		
9037493	Phenols-4AAP	2023/11/08	103 (8)	80 - 120	101	80 - 120	<0.0010	mg/L	NC (9)	20		
9038447	Total Arsenic (As)	2023/11/09	99 (10)	80 - 120	97	80 - 120	<0.001	mg/L	NC (11)	20		
9038447	Total Barium (Ba)	2023/11/09	101 (10)	80 - 120	100	80 - 120	<0.005	mg/L	0.96 (11)	20		
9038447	Total Boron (B)	2023/11/09	110 (10)	80 - 120	100	80 - 120	<0.02	mg/L	0.32 (11)	20		
9038447	Total Cadmium (Cd)	2023/11/09	101 (10)	80 - 120	98	80 - 120	<0.0001	mg/L	NC (11)	20		
9038447	Total Calcium (Ca)	2023/11/09	NC (10)	80 - 120	101	80 - 120	<0.2	mg/L	1.1 (11)	20		
9038447	Total Chromium (Cr)	2023/11/09	96 (10)	80 - 120	94	80 - 120	<0.005	mg/L	NC (11)	20		
9038447	Total Copper (Cu)	2023/11/09	98 (10)	80 - 120	94	80 - 120	<0.002	mg/L	3.2 (11)	20		
9038447	Total Iron (Fe)	2023/11/09	99 (10)	80 - 120	94	80 - 120	<0.1	mg/L	1.1 (11)	20		
9038447	Total Lead (Pb)	2023/11/09	97 (10)	80 - 120	94	80 - 120	<0.0005	mg/L	0.32 (11)	20		
9038447	Total Magnesium (Mg)	2023/11/09	NC (10)	80 - 120	98	80 - 120	<0.05	mg/L	1.6 (11)	20		
9038447	Total Nickel (Ni)	2023/11/09	96 (10)	80 - 120	95	80 - 120	<0.001	mg/L	8.0 (11)	20		
9038447	Total Potassium (K)	2023/11/09	104 (10)	80 - 120	101	80 - 120	<0.2	mg/L	1.3 (11)	20		
9038447	Total Sodium (Na)	2023/11/09	101 (10)	80 - 120	97	80 - 120	<0.1	mg/L	2.3 (11)	20		
9038447	Total Zinc (Zn)	2023/11/09	99 (10)	80 - 120	97	80 - 120	<0.01	mg/L	NC (11)	20		
9041453	1,2,4-Trichlorobenzene	2023/11/10	47	30 - 130	49	30 - 130	<0.50	ug/L	NC (12)	40		
9041453	1,2-Dichlorobenzene	2023/11/10	47	30 - 130	49	30 - 130	<0.50	ug/L	NC (12)	40		
9041453	1,3-Dichlorobenzene	2023/11/10	43	30 - 130	44	30 - 130	<0.50	ug/L	NC (12)	40		
9041453	1,4-Dichlorobenzene	2023/11/10	44	30 - 130	46	30 - 130	<0.50	ug/L	NC (12)	40		
9041453	2,4,6-Trichlorophenol	2023/11/10	78	10 - 130	74	10 - 130	<0.50	ug/L	NC (12)	40		
9041453	2,4-Dichlorophenol	2023/11/10	75	10 - 130	63	10 - 130	<0.30	ug/L	NC (12)	40		
9041453	Benzo(a)pyrene	2023/11/10	89	30 - 130	92	30 - 130	<0.20	ug/L	NC (12)	40		
9041453	Diethyl phthalate	2023/11/10	74	30 - 130	74	30 - 130	<1.0	ug/L	NC (12)	40		
9041453	Dimethyl phthalate	2023/11/10	80	30 - 130	76	30 - 130	<1.0	ug/L	NC (12)	40		
9041453	Di-N-butyl phthalate	2023/11/10	78	30 - 130	77	30 - 130	<2.0	ug/L	NC (12)	40		
9041453	Hexachlorobenzene	2023/11/10	75	30 - 130	75	30 - 130	<0.50	ug/L	NC (12)	40		

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Bureau Veritas Job #: C3Y5363
Report Date: 2023/11/15

QUALITY ASSURANCE REPORT(CONT'D)

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285756
Sampler Initials: JRA

			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
9041453	Pentachlorophenol	2023/11/10	58	10 - 130	47	10 - 130	<1.0	ug/L	NC (12)	40		
9041453	Phenol	2023/11/10	26	10 - 130	27	10 - 130	<0.50	ug/L	NC (12)	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 [XMS026-02]

(3) Duplicate Parent ID [XMS026-02]

(4) Matrix Spike Parent ID [XMS025-08]

(5) Duplicate Parent ID [XMS025-08]

(6) Matrix Spike Parent ID [XMS027-07]

(7) Duplicate Parent ID [XMS027-07]

(8) Matrix Spike Parent ID [XMS025-09]

(9) Duplicate Parent ID [XMS025-09]

(10) Matrix Spike Parent ID [XMS029-05]

(11) Duplicate Parent ID [XMS029-05]

(12) Duplicate Parent ID [XMS026-01]

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VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

Michael Damianidis, Project Manager Assistant

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.

S2437676

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCBC

Site No.:

Sample: SB11 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N 0.45 µ or µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 02 23	7.2	4.98	5.9	32.4	12.06		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent

Odor: NO

Color: Light Brown

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 27 kg/h

Outlook: Partly Cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

water : 1.2m

Rpt : 0.3m

time elap 1:21

1:21:15

3:19:15

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/01/23	Jake Arbell		RWS

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

BUREAU VERITAS

FIELD INFORMATION FORM

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SP2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Device: Y or N — 0.45 µ or ____ µ (circle or fill in)

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

	Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1st									
2nd									
3rd									
4th									
Input Range for 3 consec. readings or Permit/State requirements:			+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
11 02 23	7.2	371	7.6	11.4	12.47		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent

Odor: none

Color: none

Other:

Weather Conditions (required daily, or as conditions change): 6°C

Direction/Speed: 28 km/hr

Outlook: Mostly cloudy

Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

initial: 0.65m

SW Dup taken

Repeat: 0.40m

time @ in 1:25

2:26

3:27

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

11 02 23 — Date

Name

Signature

Company

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0602

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: SP4 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
		1st	1st					
		2nd	2nd					
		3rd	3rd					
		4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	6.7	704	5.6	60.8	11.80		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent Odor: No Color: NC Other:

Weather Conditions (required daily, or as conditions change): 6°C Direction/Speed: 25 km/hr Outlook: mostly cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Well: 1.0m
Depth: 0.20m
time @ 1m 1:44
2:44
3:46

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Jake Arbelle	[signature]	BWSE

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0601

FIELD INFORMATION FORM

BUREAU VERITAS

WASTE MANAGEMENT

Site Name: TCEC

Site No.:

Sample: S(P)3 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark Changes, Record field data below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: Y or N

Filter Device: Y or N 0.45 µ or ____ µ (circle or fill in)

Purging Device: A-Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Sampling Device:

X-Other:

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other:

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)

Depth to Water (DTW) (from TOC) (ft)

Groundwater Elevation (GWE) (Site Datum, from TOC) (ft msl)

Total Well Depth (from TOC) (ft)

Stick Up (from ground elevation) (ft)

Casing ID (in)

Casing Material

Note: Total Depth, Stick Up, Casing ID, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and GWE must be current, obtained from site.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th					
Input Range for 3 consec. readings or Permit/State requirements:		+/-	+/-	+/-	+/-	+/-	+/-	

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L - ppm)	eH/ORP (mV)	Other: Units
110223	6.8	677	5.9	6.61	1.75		

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.)*

Sample Appearance: transparent Odor: No Color: NC Other:

Weather Conditions (required daily, or as conditions change): 6°C Direction/Speed: 28 Km/hr SW Outlook: mostly cloudy Precipitation: Y or N

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

Invert 0.70m
Depth 0.20m
time @ 1m 1:22
2: 24
3: 22

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
11/02/23	Jake Abbott		RWDI

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Field Information Form v-3.1 06/20

0599

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285756	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks SW	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	TCEC-SWCM-NOV
Email: lmertick@wm.com		Email: BJL@RWDI.com, JCL@RWDI.com		Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ Reg. 153 ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Sewer Use ☐ Sanitary ☐ Storm Region ____ ☐ Other ____ specify

☒ PWQO

☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # ____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 13-Nov-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ZL-ON-WLF-2023 TCLS - SW (POND OUTLETS) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	SP1	2-Nov-23	PM	SW	N	N	X	12	
2	SP2	2-Nov-23	PM	SW	N	N	X	12	SPDUP Taken
3	SP3	2-Nov-23	PM	SW	N	N	X	12	
4	SPDUP	2-Nov-23	PM	SW	N	N	X	12	
5									
6									
7									
8									
9									
10									
11									
12									

03-Nov-23 08:57
Patricia Legette
C3Y5363
RUK ENV-1520

All samples for Hg field filtered @ 45um

See lab addendum for lab group coding

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA-2-Nov-23/PM	Ramnit RANJEET KAUR BRAR	2023/11/03	08:57	Temperature (°C) on Receipt ~~5/9/9~~ RKB	Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

Refer to ACTA 2023/11/03

White: Maxxam Yellow: Mail Pink: Client

APPENDIX I6:

Biological Laboratory Reports

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		Method: Composite Grab Other	Test Information	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-LF07122
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		16:15	11:50	09:50	10:18	11:45	Number of Control Fish Showing Atypical Behaviour: <24h: 0 24h: 0 48h: 0 72h: 0 96h: 0																		
Initials		KP	KP	KP	KP	KP																			

Percent Mortality 0 %	LENGTH (mm)	WEIGHT (g) Initials: KP	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 927
LC50 (Lower; Upper Limit) —	Mean (SD) 39.4 (2.6)	Mean (SD) 0.48 (0.10)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method —	Min/Max 35 / 43	Min/Max 0.31 / 0.66	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials) GD	Sample Size 10	Loading Density 0.14 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100) 0	

Observations and notes: DO @ 30mins: 11.5 / 115.8 KP
DO @ 60mins: 10.9 / 110 KP

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information	Sample Method: Composite Grab (Other)	Test Information	Test Type: (Single Concentration) LC50 TIE Screen	
Account Number 9830-001	Sample # 9830-001230i	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	/ ~~1~~ 14 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	~~2~~ 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) 0 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	9830-0012304	02-Apr-23	03-Apr-23	06-Apr-23 04-Apr-23	RBT DM	10% 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: 09-Feb-23 **Reference Chemical:** Phenol **Fish Lot #:** LF260123
96-Hour LC50: 10.00 mg/L **95% Confidence Limits:** 8.03 mg/L; 12.45 mg/L
Historic Geometric Mean LC50: 9.03 mg/L **Historic Warning Limits (± 2 SD):** 6.56 mg/L; 12.42 mg/L

Daphnia magna

Date Reference Test Initiated: 04-Apr-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.46 mg/L **95% Confidence Limits:** 1.09 mg/L; 1.95 mg/L
Historic Geometric Mean LC50: 1.01 mg/L **Historic Warning Limits (± 2 SD):** 0.40 mg/L; 2.60 mg/L

TEST RESULTS APPROVED BY:

Date: April 11, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

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NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information	
Sa/ Method: Composite Grab/Other		Type: Single Concentration LC50 TIE Screen	
Account 9830.001	Sample Number 9830.0012304	Date/Time Started 06.04.23 / 1240	Analyst Starting Test G
Client RWDI	Sample Name 551	Date/Time Ended 10.04.23 / 1240	Fish Lot # TL LF260123-1
Person Collecting Sample J.A.	Temperature Upon Receipt 15.5 °C	Test Volume 30 L Per Vessel / Number of Fish Per Vessel 10	Number of Vessels Per Conc. 1 2
Date/Time Collected 02.04.23 / AM		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 03.04.23 / 1400		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 surface water	Sample Point Description: MISA Other	Storage Temperature 4±2 °C

Initial Sample Measurements Before Aeration - Cond.: 399 µmhos D.O: 9.9 mg/L 99 % Temp: 15 °C pH: 7.9 Air Flow Meter Reading: 0.150 L/min.
Instrument Identification- M/P #: 7/8 M/P #: 7/5 M/P #: 13/91 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	1200	206	9.9	100	15	7.9	7/8	7/5	13/91	G	10.04.23	1240	15	9.5	96%	7.8	7/5	13/91	ET
1	100%		0	0	10	10	↓	396	9.8	98	15	7.9	1	1	1	G	↓	↓	15	7.5	75%	7.7	↓	↓	↓
Time Initials			1300 SO	1315 SO	1215 SO	1245 ET	Number of Control Fish Showing Atypical Behaviour: <24h: ____ 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	10 %	LENGTH (mm)		WEIGHT (g)	Initials: MC	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 466
LC50 (Lower; Upper Limit)	—	Mean (SD)	52.9 (4.2)	Mean (SD)	1.37 (0.37)	Number Dead (recorded daily for 7 days) 0 + 0 + 0 + 0 + 0 + 0 + 0	Total Number Dead for 7 days Preceding Test = 0
Method	—	Min/Max	47 / 60	Min/Max	0.94 / 2.06		
Verified By (initials)	CD	Sample Size	10	Loading Density	0.46 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100) 0	

Observations and notes: only 9 fish found within 100%, 1 presumed dead. ET

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 # 9830.0012304	Date Started/Time 04.04.23 / 1130	Analyst Starting Test ET
Client RWDI	Sample Name SS1	Date Ended/Time 06.04.23 / 1140	#Neonates/Vessel 10
Person Collecting Sample J. A	Temperature Upon Receipt ~~13.7~~ 15.5 °C ET	Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled 02.04.23 / AM		Pre-aeration no (yes)	Pre-aeration Duration 30 min
Date/Time Received 03.04.23 / 1400		Pre-aeration Rate 37 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes
Sample Description cloudy, light brown		Dilution H_2O # DW2326	Sample pH Adjustment (no) yes
Sample Type Description surface water		Sample Point Description: MISA (other)	Storage Temperature 4 ± 2 °C
LC50 Randomization Template: —		Test Row(s): 21	

Initial Sample Measurements: pH 7.9 Meter/Probe # 715 Dissolved O_2 10.1 mg/L 114 % Meter/Probe # 718 Conductivity 375 µmhos Meter/Probe # 718 Temperature 21 °C Meter/Probe # 715

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	8.1	8.1	14/90 ↓	7.9	90%	7.8	87%	6/4 ↓	~~500~~ 571	192	21	21	6/4 ↓
100%	8.0	8.3		10.1	115%	7.8	87%		317	168	21	21	
Initials	ET	ET		ET		ET			ET	ET	ET	ET	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	83 C B				
Culture age (days)					
Days to 1st Brood (≤12)					
Average # of Neonates/Brood (≥15)					
Previous 7 Days Mortality in Culture (≤25%)					

NEONATE SOURCE AND OBSERVATIONS OF NUMBER IMMOBILE AND DEAD

	Control																Init
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	
Brood culture #	83 C B →				83 C B →												ET
24-Hr. # Immobile	0	0	0		0	0	0										ET
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										ET
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:

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	9830-0012305	02-Apr-23	03-Apr-23	06-Apr-23 04-Apr-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: 09-Feb-23 **Reference Chemical:** Phenol **Fish Lot #:** LF260123
96-Hour LC50: 10.00 mg/L **95% Confidence Limits:** 8.03 mg/L; 12.45 mg/L
Historic Geometric Mean LC50: 9.03 mg/L **Historic Warning Limits (± 2 SD):** 6.56 mg/L; 12.42 mg/L

Daphnia magna

Date Reference Test Initiated: 04-Apr-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.46 mg/L **95% Confidence Limits:** 1.09 mg/L; 1.95 mg/L
Historic Geometric Mean LC50: 1.01 mg/L **Historic Warning Limits (± 2 SD):** 0.40 mg/L; 2.60 mg/L

TEST RESULTS APPROVED BY:

Date: April 11, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

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NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information				Test Information			
Sar	Method: Composite Grab Other			Type:	Single Concentration	LC50	TIE	Screen
Account 9830.001	Sample Number 9830.0012305			Date/Time Started	06-04.23 / 1240		Analyst Starting Test 9	
Client RWDI	Sample Name 5510			Date/Time Ended	10.04.23 / 1240		Fish Lot # T2 LF260123-1	
Person Collecting Sample J.A.	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 02.04.23 / 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 03.04.23 / 1400				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 surface water		Sample Point Description: MISA Other:			Storage Temperature 4±2 °C	

Initial Sample Measurements Before Aeration - Cond.: 131 µmhos D.O: 10.0 mg/L 100 % Temp: 15 °C pH: 7-8 Air Flow Meter Reading: 0.150 L/min.
Instrument Identification- M/P #: 718 M/P #: 715 M/P #: 13/91 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	1205	210	9.4	94	15	7.9	7/8	7/5	13/91	9	10.04.23	1240	15	8.4	83%	7.6	7/5	13/91	ET
1	100%		0	0	0	0	1	176	9.9	99	15	7.8	1	1	1	9	↓	↓	15	8.3	82%	7.5	↓	↓	↓
Time			1300	1315	1245	1240																			
Initials			50	50	50	ET																			

Number of Control Fish Showing Atypical Behaviour: <24h:____ 24h: 0 48h: 0 72h: 0 96h: 0

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g)	Initials: mc	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 466
LC50 (Lower, Upper Limit)	—	Mean (SD)	53 (3.9)	Mean (SD)	1.50 (0.34)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	50 / 61	Min/Max	1.20 / 2.18	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials)	aO	Sample Size	10	Loading Density	0.50 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 TIE Screen	
Account Number 9830.001	Sample # 9830.0012305	Date Started/Time 04.04.23 / 1120	Analyst Starting Test ET
Client RWDI	Sample Name SS10	Date Ended/Time 06.04.23 / 1125	#Neonates/Vessel 10
Person Collecting Sample J.A.	Temperature Upon Receipt 13.0 °C	Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled 02.04.23 / PM		Pre-aeration no (yes)	Pre-aeration Duration 30 min
Date/Time Received 03.04.23 / 1400		Pre-aeration Rate 42 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes
Sample Description cloudy, light brown		Dilution H_2O # DW2326	Sample pH Adjustment (no) yes
Sample Type Description surface water		Sample Point Description: MISA (other)	Storage Temperature 4±2 °C
LC50 Randomization Template: —		Test Row(s): 20	

Initial Sample Measurements: pH 7.7 Dissolved O_2 9.9 mg/L 112 % Conductivity 122 µmhos Temperature 20 °C

Instrument Identification: Meter/Probe # 13/91 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	8.1	8.1	14/90	7.9	90%	7.9	88%	6/4	~~501~~ 571	192	21	21	6/4
100%	7.9	8.0		9.9	112%	7.7	85%		ET ~~142~~ 112	142	21	21	
Initials	ET	ET		ET		ET			ET	ET	ET	ET	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	83 C/B				
Culture age (days)					
Days to 1st Brood (≤12)					
Average # of Neonates/Brood (≥15)					
Previous 7 Days Mortality in Culture (≤25%)					

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 #	83 C/B →				83 C/B →												ET
24-Hr. # Immobile	0	0	0		0	0	0										ET
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										ET
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) ET Notes

05.04.23 very difficult to make observations. Sample very

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
SS16	9830-0012306	02-Apr-23	03-Apr-23	06-Apr-23 04-Apr-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: 09-Feb-23 **Reference Chemical:** Phenol **Fish Lot #:** LF260123
96-Hour LC50: 10.00 mg/L **95% Confidence Limits:** 8.03 mg/L; 12.45 mg/L
Historic Geometric Mean LC50: 9.03 mg/L **Historic Warning Limits (± 2 SD):** 6.56 mg/L; 12.42 mg/L

Daphnia magna

Date Reference Test Initiated: 04-Apr-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.46 mg/L **95% Confidence Limits:** 1.09 mg/L; 1.95 mg/L
Historic Geometric Mean LC50: 1.01 mg/L **Historic Warning Limits (± 2 SD):** 0.40 mg/L; 2.60 mg/L

TEST RESULTS APPROVED BY:

Date: April 11, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

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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		Type: Single Concentration LC50 TIE Screen			
Account 9830.001	Sample Number 9830.0012306	Date/Time Started	06.04.23 / 1245	Analyst Starting Test	cs
Client RWDI	Sample Name SS16	Date/Time Ended	10.04.23 / 1245	Fish Lot #	R L#260123-1
Person Collecting Sample J.A.	Temperature Upon Receipt 13.0 °C	Test Volume	30 L PerVessel	Number of Fish Per Vessel 10	Number of Vessels Per Conc. (1) 2
Date/Time Collected	02.04.23 / AM	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	03.04.23 / 1400	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 surface water	Sample Point Description: MISA (Other)			Storage Temperature 4±2 °C

Initial Sample Measurements Before Aeration - Cond.: 400 µmhos D.O: 9.7 mg/L 96 % Temp: 14 °C pH: 7.6 Air Flow Meter Reading: 0.150 L/min.
Instrument Identification- M/P #: 7/8 M/P #: 7/5 M/P #: 13/91 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	1205	211	9.4	94	15	7.8	7/8	7/5	13/91	cs	10.04.23 ~~1245~~ ET	1245	15	9.3	93%	7.9	7/5	13/91	ET
(1)	100%		0	0	0	0	1	402	9.7	96	14	7.7	1	1	1		↓	↓	15	~~8~~ 7.0	70%	7.9	↓	↓	↓
Time Initials			1300 SO	1315 SO	1245 SO	1245 ET	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: cs	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 466
LC50 (Lower; Upper Limit)	—	Mean (SD)	52.4 (3.9)	Mean (SD)	1.41 (0.29)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	47 / 60	Min/Max	0.99 / 1.88	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials)	cs	Sample Size	10	Loading Density	0.47 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 TIE Screen	
Account Number 9830.001	Sample # 9830.0012306	Date Started/Time	04.04.23 / 1115	Analyst Starting Test ET
Client RWDI	Sample Name SS16	Date Ended/Time	06.04.23 / 1115	#Neonates/Vessel 10
Person Collecting Sample J.A.	Temperature Upon Receipt 13.0 °C	Test Volume	250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled	02.04.23 / AM	Pre-aeration	no (yes)	Pre-aeration Duration 30 min
Date/Time Received	03.04.23 / 1400	Pre-aeration Rate	43 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes
Sample Description	cloudy, light brown	Dilution H_2O #	DW2326	Sample pH Adjustment (no) yes
Sample Type Description	surface water	Sample Point Description: MISA (other)		Storage Temperature 4±2 °C
LC50 Randomization Template: —		Test Row(s): 19		

Initial Sample Measurements: pH 7.5 Dissolved O_2 9.8 mg/L 111 % Conductivity 431 µmhos Temperature 21 °C

Instrument Identification: Meter/Probe # 13/91 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	8.1	8.0	13/91 ↓	7.9	90%	7.9	88%	7/5 ↓	~~500~~ 571	192	21	21	7/5 ↓
100%	7.8	8.5		9.6	106%	7.8	87%		320	196	21	21	
Initials	ET	ET		ET		ET			ET	ET	ET	ET	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	83 C/B				
Culture age (days)					
Days to 1st Brood (≤12)					
Average # of Neonates/Brood (≥15)					
Previous 7 Days Mortality in Culture (≤25%)					

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 #	83 C/B →				83 C/B →												ET
24-Hr. # Immobile	0	0	0		0	0	0										ET
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										ET
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:

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	9830-0012307	02-Apr-23	03-Apr-23	06-Apr-23 04-Apr-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: 09-Feb-23 **Reference Chemical:** Phenol **Fish Lot #:** LF260123
96-Hour LC50: 10.00 mg/L **95% Confidence Limits:** 8.03 mg/L; 12.45 mg/L
Historic Geometric Mean LC50: 9.03 mg/L **Historic Warning Limits (± 2 SD):** 6.56 mg/L; 12.42 mg/L

Daphnia magna

Date Reference Test Initiated: 04-Apr-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.46 mg/L **95% Confidence Limits:** 1.09 mg/L; 1.95 mg/L
Historic Geometric Mean LC50: 1.01 mg/L **Historic Warning Limits (± 2 SD):** 0.40 mg/L; 2.60 mg/L

TEST RESULTS APPROVED BY:

Date: April 11, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2023\9000\9830-001\9830-0012307 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 9830.0012307	Method: Composite Grab Other	Type:	Single Concentration	LC50	TIE / Screen
Client RWDI	Sample Name SP 1		Date/Time Started	06.04.23 / 1245		Analyst Starting Test
Person Collecting Sample J.A.	Temperature Upon Receipt 13.4 °C		Date/Time Ended	10.04.23 / 1245		Fish Lot # T2 LF 260123-1
Date/Time Collected 02.04.23 / PM			Test Volume	30 L Per Vessel	Number of Fish Per Vessel 10	Number of Vessels Per Conc. 1 2
Date/Time Received in Lab 03.04.23 / 1400			Pre-Aeration	No Yes	Pre-Aeration Duration 30 min	Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹
Sample Description cloudy 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.: 402 µmhos D.O: 9.7 mg/L 97 % Temp: 15 °C pH: 7.8 Air Flow Meter Reading: 0.190 L/min.
Instrument Identification- M/P #: B 718 M/P #: 7/5 M/P #: 13/91 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	1210	212	94	94	15	7.9	7/8	7/5	13/91	✓	10.04.23	1245	16	8.3	85%	7.7	7/5	13/91	ET
1	100%		0	0	0	0	1	401	9.6	96	15	7.9	1	1	1	✓	↓	↓	16	8.1	82%	7.9	↓	↓	↓
Time			1300	1315	1245	1245																			
Initials			SO	SO	SO	ET																			

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: ME	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 466
LC50 (Lower, Upper Limit)	—	Mean (SD)	52.5 (4.0)	Mean (SD)	1.47 (0.43)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	46 / 58	Min/Max	0.81 / 2.02	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials)	GO	Sample Size	10	Loading Density	0.49 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 TIE Screen	
Account Number 9830.001	Sample # 9830.0012307	Date Started/Time	04.04.23 / 1150	Analyst Starting Test ET
Client RWDI	Sample Name SP1	Date Ended/Time	06.04.23 / 1150	#Neonates/Vessel 10
Person Collecting Sample J.A.	Temperature Upon Receipt 13.4 °C	Test Volume	250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled	02.04.23 / PM	Pre-aeration	no (yes)	Pre-aeration Duration 30 min
Date/Time Received	03.04.23 / 1400	Pre-aeration Rate	43 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes
Sample Description	cloudy, light brown	Dilution H_2O #	DW2326	Sample pH Adjustment (no) yes
Sample Type Description	surface water	Sample Point Description: MISA	(other)	Storage Temperature 4±2 °C
LC50 Randomization Template: —		Test Row(s):	22	

Initial Sample Measurements: pH 7.9 Dissolved O_2 9.8 mg/L 110 % Conductivity 330 µmhos Temperature 21 °C

Instrument Identification: Meter/Probe # 13/91 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	8.1	8.1	14/90	7.9	90%	7.8	87%	6/4	~~501~~ 571	192	21	21	6/4
100%	8.0	8.3	↓	9.8	110%	7.7	87%	↓	372	164	21	21	↓
Initials	ET	ET		ET		ET			ET	ET	ET	ET	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	63 C/B				
Culture age (days)					
Days to 1st Brood (≤12)					
Average # of Neonates/Brood (≥15)					
Previous 7 Days Mortality in Culture (≤25%)					

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 #	63 C/B →				63 C/B →												ET
24-Hr. # Immobile	0	0	0		0	0	0										ET
48-Hr. # Immobile	0	0	1		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										ET
Total # Immobile	1				0												
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) ao 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	9830-0012308	02-Apr-23	03-Apr-23	06-Apr-23 04-Apr-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: 09-Feb-23 **Reference Chemical:** Phenol **Fish Lot #:** LF260123
96-Hour LC50: 10.00 mg/L **95% Confidence Limits:** 8.03 mg/L; 12.45 mg/L
Historic Geometric Mean LC50: 9.03 mg/L **Historic Warning Limits (± 2 SD):** 6.56 mg/L; 12.42 mg/L

Daphnia magna

Date Reference Test Initiated: 04-Apr-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.46 mg/L **95% Confidence Limits:** 1.09 mg/L; 1.95 mg/L
Historic Geometric Mean LC50: 1.01 mg/L **Historic Warning Limits (± 2 SD):** 0.40 mg/L; 2.60 mg/L

TEST RESULTS APPROVED BY:

Date: April 11, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

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NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information		Test Information	
Sar Method: Composite (Grab) Other		Type:	Single Concentration (circled) LC50 TIE Screen
Account 9830.001	Sample Number 9830.0012308	Date/Time Started	06.04.23 / 1250
Client RWDI	Sample Name SP2	Date/Time Ended	10.04.23 / 1250
Person Collecting Sample J.A.	Temperature Upon Receipt 13.1 °C	Test Volume	30 L Per Vessel
Date/Time Collected	02.04.23 / pm	Pre-Aeration	~~No~~ Yes (circled)
Date/Time Received in Lab	03.04.23 / 1400	Rate of Aeration During Test	6.5 ±0.26 ml/min·L⁻¹
Sample Description	cloudy, light grey	Sample Type Description	surface water

Number of Fish Per Vessel	10	Analyst Starting Test	✓
Pre-Aeration Duration	30 min	Fish Lot #	T2 LF2601231
Dilution Water	dechlor	Number of Vessels Per Conc.	(1) 2
Sample Point Description: MISA	Other:	Pre-Aeration Rate	6.5 ±0.26 ml/min·L⁻¹
		Sample pH Adjustment	(No) Yes
		Storage Temperature	4±2 °C

Initial Sample Measurements Before Aeration - Cond.: 508 µmhos D.O: 8.8 mg/L 88 % Temp: 15 °C pH: 7.7 Air Flow Meter Reading: 0.150 L/min.
Instrument Identification- M/P #: 718 M/P #: 715 M/P #: 13/91 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	1210	209	~~7~~9.5	95	15	7.8	7/8	7/5	13/91	✓	10.04.23	1250	16	7.8	79%	7.5	7/5	13/91	ET
(1)	100%		0	0	0	0	1	491	9.0	89	15	7.8	1	1	1	✓	↓	↓	ET 16.5	7.8	78%	7.7	↓	↓	↓
Time			1300	1315	1245	1245																			
Initials			50	50	50	ET																			

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: ML	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 466
LC50 (Lower; Upper Limit)	—	Mean (SD)	52.1 (4.4)	Mean (SD)	1.44 (0.42)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	44 / 58	Min/Max	0.77 / ~~0~~ 2.12	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials)	aD	Sample Size	10	Loading Density	0.48 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 TIE Screen	
Account Number 9830.001	Sample # 9830.0012308	Date Started/Time 04.04.23 / 1200	Analyst Starting Test ET
Client RWDI	Sample Name SP2	Date Ended/Time 06.04.23 / 1200	#Neonates/Vessel 10
Person Collecting Sample J.A.	Temperature Upon Receipt 13.1 °C	Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled 02.04.23 / PM		Pre-aeration no (yes)	Pre-aeration Duration 30 min
Date/Time Received 03.04.23 / 1400		Pre-aeration Rate 37 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes
Sample Description cloudy, light grey		Dilution H_2O # DW2326	Sample pH Adjustment (no) yes
Sample Type Description surface water		Sample Point Description: MISA (other)	Storage Temperature 4±2 °C
LC50 Randomization Template: —		Test Row(s): 23	

Initial Sample Measurements: pH 7.8 Dissolved O_2 9.2 mg/L 104 % Conductivity 394 µmhos Temperature 21 °C

Instrument Identification: Meter/Probe # 13/91 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	8.1	8.1	14/90 ↓	7.9	90%	7.8	88%	6/4 ↓	~~501~~ 571	192	21	21	6/4 ↓
100%	7.9	8.1		~~7.9~~ 9.2 ET	104%	7.7	86%		441	196	21	21	
Initials	ET	ET		ET		ET			ET	ET	ET	ET	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	61c				
Culture age (days)					
Days to 1st Brood (≤12)					
Average # of Neonates/Brood (≥15)					
Previous 7 Days Mortality in Culture (≤25%)					

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 #	61c →				61c →												ET
24-Hr. # Immobile	0	0	0		0	0	0										ET
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										ET
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) GD 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
SP3	9830-0012309	02-Apr-23	03-Apr-23	06-Apr-23 04-Apr-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: 09-Feb-23 **Reference Chemical:** Phenol **Fish Lot #:** LF260123
96-Hour LC50: 10.00 mg/L **95% Confidence Limits:** 8.03 mg/L; 12.45 mg/L
Historic Geometric Mean LC50: 9.03 mg/L **Historic Warning Limits (± 2 SD):** 6.56 mg/L; 12.42 mg/L

Daphnia magna

Date Reference Test Initiated: 04-Apr-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.46 mg/L **95% Confidence Limits:** 1.09 mg/L; 1.95 mg/L
Historic Geometric Mean LC50: 1.01 mg/L **Historic Warning Limits (± 2 SD):** 0.40 mg/L; 2.60 mg/L

TEST RESULTS APPROVED BY:

Date: April 11, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2023\9000\9830-001\9830-0012309 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	Type:	Single Concentration LC50 TIE Screen
Account 9830.001	Sample Number 9830.0012309	Date/Time Started	06.04.23 / ~~1012~~ 1250
Client RWDI	Sample Name SP3	Date/Time Ended	10.04.23 / 1250
Person Collecting Sample J.A.	Temperature Upon Receipt 13.8 °C	Test Volume	30 L Per Vessel
Date/Time Collected	02.04.23 / pm	Pre-Aeration	~~No~~ Yes
Date/Time Received in Lab	03.04.23 / 1400	Rate of Aeration During Test	6.5 ±0.26 ml/min·L⁻¹
Sample Description	cloudy, light green	Sample Type Description	Surface water

Number of Fish Per Vessel	10	Analyst Starting Test	cs
Pre-Aeration Duration	30 min	Fish Lot #	12LF260123-1
Dilution Water	dechlor	Number of Vessels Per Conc.	(1) 2
Sample Point Description: MISA	Other:	Pre-Aeration Rate	6.5 ±0.26 ml/min·L⁻¹
		Sample pH Adjustment	No Yes
		Storage Temperature	4 ± 2 °C

Initial Sample Measurements Before Aeration - Cond.: 561 µmhos D.O: ~~7.8~~ 9.7 mg/L 98 % Temp: 15 °C pH: 7.8 Air Flow Meter Reading: 0.150 L/min.
Instrument Identification- M/P #: 718 M/P #: 715 M/P #: 13/91 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	1210	211	9.6	96	15	7.8	7/8	7/5	13/91	cs	10.04.23	1250	15	7.7	78%	7.5	7/5	13/91	ET
(1)	100%		0	0	0	0	1	546	9.5	95	15	7.8	1	1	1	1	↓	↓	15	8.8	89%	7.8	↓	↓	↓
Time			1300	1315	1245	1245																			
Initials			50	50	50	ET																			

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: mc	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 466
LC50 (Lower; Upper Limit)	—	Mean (SD)	51.9 (~~3.384~~ 3.7)	Mean (SD)	1.39 (0.32)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	47 / 57	Min/Max	0.95 / 2.02	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials)	cs	Sample Size	10	Loading Density	0.46 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 TIE Screen	
Account Number 9830.001	Sample # 9830.0012309	Date Started/Time 04.04.23 / 1210	Analyst Starting Test ET
Client RWDI	Sample Name SP3	Date Ended/Time 06.04.23 / 1210	#Neonates/Vessel 10
Person Collecting Sample J.A.	Temperature Upon Receipt 13.8 °C	Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled 02.04.23 / pm		Pre-aeration no (yes)	Pre-aeration Duration 30 min
Date/Time Received 03.04.23 / 1400		Pre-aeration Rate 42 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes
Sample Description cloudy, light green		Dilution H_2O # DW2326	Sample pH Adjustment (no) yes
Sample Type Description surface water		Sample Point Description: MISA (other)	Storage Temperature 4 ± 2 °C
LC50 Randomization Template: —		Test Row(s): 24	

Initial Sample Measurements: pH 7.9 Meter/Probe # 13/91 Dissolved O_2 9.7 mg/L 109 % Meter/Probe # 7/5 Conductivity 421 µmhos Meter/Probe # 7/8 Temperature 21 °C Meter/Probe # 7/5

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	8.1	8.1	14/90 ↓	7.9	90%	7.7	87%	6/4 ↓	~~502~~ 571	192	21	21	6/4 ↓
100%	8.0	8.1		9.6	109%	7.8	87%		~~452~~ 533	202	21	21	
Initials	ET	ET		ET		ET			ET	ET	ET	ET	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	63c				
Culture age (days)					
Days to 1st Brood (≤12)					
Average # of Neonates/Brood (≥15)					
Previous 7 Days Mortality in Culture (≤25%)					

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 #	63c →				63c →												ET
24-Hr. # Immobile	0	0	0		0	0	0										ET
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										ET
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) aO 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
SP4	9830-0012310	02-Apr-23	03-Apr-23	06-Apr-23 04-Apr-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: 09-Feb-23 **Reference Chemical:** Phenol **Fish Lot #:** LF260123
96-Hour LC50: 10.00 mg/L **95% Confidence Limits:** 8.03 mg/L; 12.45 mg/L
Historic Geometric Mean LC50: 9.03 mg/L **Historic Warning Limits (± 2 SD):** 6.56 mg/L; 12.42 mg/L

Daphnia magna

Date Reference Test Initiated: 04-Apr-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.46 mg/L **95% Confidence Limits:** 1.09 mg/L; 1.95 mg/L
Historic Geometric Mean LC50: 1.01 mg/L **Historic Warning Limits (± 2 SD):** 0.40 mg/L; 2.60 mg/L

TEST RESULTS APPROVED BY:

Date: April 11, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2023\9000\9830-001\9830-0012310 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	Type:	Single Concentration (LC50) TIE	Screen
Account 9830.001	Sample Number 9830.0010310	Date/Time Started	06.04.23 / 1255	Analyst Starting Test G
Client RWDI	Sample Name SP 4	Date/Time Ended	10.04.23 / 1255	Fish Lot # T2 LF2601231
Person Collecting Sample J.A.	Temperature Upon Receipt 12.7 °C	Test Volume	30 L Per Vessel; Number of Fish Per Vessel 10	Number of Vessels Per Conc. (1) 2
Date/Time Collected 02.04.23 / 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 03.04.23 / 1400		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: surface water	Sample Point Description: MISA	Other:	Storage Temperature 4±2 °C

Initial Sample Measurements Before Aeration - Cond.: 370 µmhos D.O: 9.8 mg/L 99 % Temp: 15 °C pH: 7.8 Air Flow Meter Reading: 0.150 L/min.
Instrument Identification- M/P #: 718 M/P #: 715 M/P #: 13/91 Meter #: 7

TOXICANT	CONC %	TOTAL NUMBER DEAD # OF HOURS FROM START OF TEST: —	24	48	72	96	Initial Measurements After Pre-Aeration: Time	Cond (umhos)	D.O. (mg/L)/%	°C	pH (units)	Meter/Probe: Cond	D.O./Temp	pH	Initials	Final Measurements: Date	Time	°C	D.O. (mg/L)/%	pH (units)	Meter/Probe: D.O./Temp	pH	Initials
Control			0	0	0	0	1215	208	9.5	95	15	7.8	7/8	7/5	13/91	G	10.04.23	1255	15	8.6	87%	7.7	7/5	13/91	ET
(1)	100%		0	0	0	0	1	379	9.7	97	15	7.8	1	1	1	1	↓	↓	15	8.9	89%	7.9	↓	↓	↓
Time			1300	1315	1245	1245																		
Initials			50	50	50	ET																		

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	Number of Fish in Batch at Day (-)7 466
LC50 (Lower; Upper Limit)	—	Mean (SD)	54.7 (5.1)	Mean (SD)	1.51 (0.46)	Number Dead (recorded daily for 7 days) 0 + 0 + 0 + 0 + 0 + 0 + 0	Total Number Dead for 7 days Preceding Test = 0
Method	—	Min/Max	49 / 63	Min/Max	0.96 / 2.23		
Verified By (initials)	GD	Sample Size	10	Loading Density	0.50 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 TIE Screen		
Account Number 9830.001	Sample # 9830.0012310	Date Started/Time	04.04.23 / 1215	Analyst Starting Test ET
Client RWDI	Sample Name SP4	Date Ended/Time	06.04.23 / 1215	#Neonates/Vessel 10
Person Collecting Sample J.A.	Temperature Upon Receipt 12.7 °C	Test Volume	250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled 02.04.23 / PM		Pre-aeration	no (yes)	Pre-aeration Duration 30 min
Date/Time Received 03.04.23 / 1400		Pre-aeration Rate 43 ±2 mL/min L⁻¹		Sample Hardness Adjustment (no) yes
Sample Description cloudy, light brown		Dilution H_2O # DW2326		Sample pH Adjustment (no) yes
Sample Type Description surface water		Sample Point Description: MISA (other)		Storage Temperature 4 ± 2 °C
LC50 Randomization Template: —		Test Row(s): 25		

Initial Sample Measurements: pH 7.9 Dissolved O_2 9.8 mg/L 111 % Conductivity ~~282~~ 423 µmhos Temperature 21 °C

Instrument Identification: Meter/Probe # 13/91 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	8.1	8.1	14/90 ↓	8.0	91%	7.8	88%	6/4 ↓	~~500~~ 571	192	21	21	6/4 ↓
100%	8.0	8.2		9.8	111%	7.8	88%		~~284~~ 423	160	21	21	
Initials	ET	ET		ET		ET			ET	ET	ET	ET	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	62 C/B				
Culture age (days)					
Days to 1st Brood (≤12)					
Average # of Neonates/Brood (≥15)					
Previous 7 Days Mortality in Culture (≤25%)					

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 #	62 C/B →				62 C/B →												ET
24-Hr. # Immobile	0	0	0		0	0	0										ET
48-Hr. # Immobile	0	0	0		0	0	0										
48-Hr. # Dead	0	0	0		0	0	0										ET
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) ED 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	9830-0012311	17-Apr-23	17-Apr-23	20-Apr-23 17-Apr-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: 06-Apr-23 **Reference Chemical:** Zinc **Fish Lot #:** LF150323-1
96-Hour LC50: 0.27 mg/L **95% Confidence Limits:** 0.21 mg/L; 0.35 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: 04-Apr-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.46 mg/L **95% Confidence Limits:** 1.09 mg/L; 1.95 mg/L
Historic Geometric Mean LC50: 1.01 mg/L **Historic Warning Limits (± 2 SD):** 0.40 mg/L; 2.60 mg/L

TEST RESULTS APPROVED BY:

Date: May 2, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

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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	Type: (Single Concentration) LC50 TIE Screen
Account 9830-001	Sample Number 9830-0012311		Date/Time Started 20/04/23 / 1205	Analyst Starting Test S6
Client RWDI	Sample Name SP2		Date/Time Ended 24/04/23 / 1205	Fish Lot # CF150323-1
Person Collecting Sample N/A	Temperature Upon Receipt 12.1 °C		Test Volume 20 L Per Vessel	Number of Fish Per Vessel 10
Date/Time Collected 17/04/23 / AM			Pre-Aeration No (Yes)	Pre-Aeration Duration 120 min
Date/Time Received in Lab 17/04/23 / 1330			Rate of Aeration During Test 6.5 ±0.26 ml/min·L⁻¹	Dilution Water Dechlor
Sample Description cloudy pale green	Sample Type Description surface water		Sample Point Description: MISA (Other)	Sample pH Adjustment (No) Yes
				Storage Temperature 4 ± 2 °C

Number of Vessels Per Conc. (1) 2

Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹

Initial Sample Measurements Before Aeration - Cond.: 492 µmhos D.O: 10.4 mg/L 105 % Temp: 15 °C pH: 8.2 Air Flow Meter Reading: 0.150 L/min.

Instrument Identification- M/P #: 7/8 M/P #: 7/5 M/P #: 13/91 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	1155	224	9.8	99	15	8.0	7/8	7/5	13/91	SO	24.04.23	1205	15	9.1	90%	8.1	7/5	13/91	ET
(1)	100		0	0	0	0	↓	494	9.9	100	15	8.2	↓	↓	↓	↓	↓	↓	14	9.2	91%	8.2	↓	↓	↓
Time			1025	9:15	9:00	1205	Number of Control Fish Showing Atypical Behaviour: <24h: 0 24h: 0 48h: 0 72h: 0 96h: 0																	
Initials			SO	KK	KK	ET																		

Percent Mortality	0 %	LENGTH (mm)	WEIGHT (g)	Initials: ET	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 417
LC50 (Lower; Upper Limit)	—	Mean (SD) 42.8 (2.8)	Mean (SD) 0.78 (0.15)		Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max 40 / 49	Min/Max 0.59 / 1.16		(+ 0 + 0 + 0 + 0 + 0 + 0	= 1
Verified By (initials)	CP	Sample Size 10	Loading Density 0.39 g/L		7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	0.2

Observations and notes:

DO @ 30 mins 10.5 mg/L, 106%

DO @ 60 mins 10.4 mg/L, 105%

DO @ 90 mins 10.2 mg/L, 103%.

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Inform n	Sample Method: Composite Grab Other	Test Int ation	Test Type: Single Concentration LC50 TIE Screen
Account Number 9830.001	Sample # 9830.0012311	Date Started/Time 17.04.23 / 1420	Analyst Starting Test US
Client RWDI	Sample Name SP2	Date Ended/Time 19.04.23 / 1410	#Neonates/Vessel 10
Person Collecting Sample —	Temperature Upon Receipt 12.1 °C	Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled 17.04.23 / AM		Pre-aeration no yes	Pre-aeration Duration 30 min
Date/Time Received 17.04.23 / 1330		Pre-aeration Rate 32 ±2 mL/min L⁻¹	Sample Hardness Adjustment no yes
Sample Description cloudy Pale green		Dilution H_2O # DW 2331	Sample pH Adjustment no yes
Sample Type Description Surface water		Sample Point Description: MISA other	Storage Temperature — °C
LC50 Randomization Template: —		Test Row(s): 3	

Initial Sample Measurements: pH 8.4 Dissolved O_2 10.4 mg/L 118 % Conductivity 518 µmhos Temperature 20 °C
Instrument Identification: Meter/Probe # 13/91 Meter/Probe # 715 Meter/Probe # 718 Meter/Probe # 715

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	7.8	8.0	13/91	8.1	90	8.4	94	715	623	184	19	20	715
100	8.4	8.2	↓	9.7	109	8.2	92	↓	521	176	20	20	↓
Initials	US	US		US		US			US	US	US	US	

PO# 2303459.01

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	33 P B				
Culture age (days)	21				
Days to 1st Brood (≤12)	8				
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 #	33 P B	→			33 P B	→											US
24-Hr. # Immobile	0	0	0		0	0	0										US
48-Hr. # Immobile	0	0	0		0	0	0										US
48-Hr. # Dead	0	0	0		0	0	0										
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) US 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	9830-0012312	03-May-23	03-May-23	04-May-23 04-May-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: 06-Apr-23 **Reference Chemical:** Zinc **Fish Lot #:** LF150323-1
96-Hour LC50: 0.27 mg/L **95% Confidence Limits:** 0.21 mg/L; 0.35 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: 02-May-23 **Reference Chemical:** Zinc
48-Hour LC50: 0.84 mg/L **95% Confidence Limits:** 0.73 mg/L; 0.98 mg/L
Historic Geometric Mean LC50: 1.02 mg/L **Historic Warning Limits (± 2 SD):** 0.39 mg/L; 2.63 mg/L

TEST RESULTS APPROVED BY:

Date: May 10, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2023\9000\9830-001\9830-0012312 TD

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519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information			Test Information		
Sar.	Method: Composite (Grab) Other		Test Type:	Single Concentration (LC50) TIE Screen	
Account 9830.001	Sample Number 9830.0012312		Date/Time Started	04.05.23 / 1215	Analyst Starting Test m
Client RWDI	Sample Name S81		Date/Time Ended	080523 / 12:35	Fish Lot # LF150323
Person Collecting Sample B.G	Temperature Upon Receipt 9.5 °C		Test Volume	20 L Per Vessel	Number of Fish Per Vessel 10
Date/Time Collected 03.05.23	/ AM		Pre-Aeration	No (Yes)	Pre-Aeration Duration 120 min
Date/Time Received in Lab 03.05.23	/ 1615		Rate of Aeration During Test	6.5 ±0.26 ml/min·L⁻¹	Dilution Water dechlor
Sample Description cloudy, light brown	Sample Type Description surface water		Sample Point Description: MISA Other:		

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.: 641 µmhos D.O: 10.5 mg/L 108 % Temp: 16 °C pH: 7.7 Air Flow Meter Reading: 0.150 L/min.

Instrument Identification- M/P #: 7/8 M/P #: 7/5 M/P #: 13/91 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
		5	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	1200	222	10.1	100	15	7.9	7/8	7/5	13/91	m	08.05.23	12:35	16	9.1	92	7.9	7/5	13/91	KK
1	100%	0	0	0	0	0	↓	637	9.9	101	16	7.9	↓	↓	↓	↓	↓	↓	15	9.2	93	8.1	↓	↓	KK
Time		1700	1040	10:00	11:20	12:30																			
Initials		m	m	CF	CF	KK																			

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: G	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 873
LC50 (Lower; Upper Limit)	–	Mean (SD)	45.5 (3.6)	Mean (SD)	0.93 (0.22)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	–	Min/Max	42 / 52	Min/Max	0.68 / 1.32	0 + 0 + 0 + 0 + 0 + 0 + 0	= 0
Verified By (initials)	GD	Sample Size	10	Loading Density	0.47 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100) 0	

Observations and notes:

DO @ 30min: 10.3mg/L / 106%.
DO @ 60min: 10.1 mg/L / 103%.
DO @ 90min: 10.1 mg/L / 103%.

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Sample Method: Composite (Grab) Other	Test Information	Test Type: (Single Concentration) LC50 TIE Screen	
Account Number 9830.001	Sample # 9830.001.2312		Date Started/Time 04.05.23 / 11:30	Analyst Starting Test KP	
Client RWD1	Sample Name SS1		Date Ended/Time 06.05.23 / 11:30	#Neonates/Vessel 10	
Person Collecting Sample BG	Temperature Upon Receipt 9.5 °C		Test Volume 250 mL/Vessel	mL Solution/Daphnid 25 mL	
Date/Time Sampled 03.05.23 / AM			Pre-aeration no (yes)	Pre-aeration Duration 30 min	
Date/Time Received 03.05.23 / 1615			Pre-aeration Rate 40.8 ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes	
Sample Description Cloudy, Light Brown			Dilution H_2O # DW2335	Sample pH Adjustment (no) yes	
Sample Type Description Surface Water			Sample Point Description: MISA (other)	Storage Temperature 4±2 °C	
LC50 Randomization Template: —			Test Row(s): 7		

Initial Sample Measurements: pH 7.8 Dissolved O_2 11.1 mg/L 126 % Conductivity 654 µmhos Temperature 21 °C

Instrument Identification: Meter/Probe # 13/91 Meter/Probe # 7/5 Meter/Probe # 7/5 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	13/91	8.7	97	8.7	98	7/5	686	182	20	21	7/5
100%	7.9	8.0	↓	9.4	106.3	7.8	98	↓	651	487	21	20	↓
Initials	KP	KP		KP		KP			KP	KP	KP	KP	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	71D B	73D B			
Culture age (days)	24	24			
Days to 1st Brood (≤12)	9	9			
Average # of Neonates/Brood (≥15)	38.3	38.3			
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 #	71D B	73D B	→		71D B	73D B	→										KP
24-Hr. # Immobile	0	0	0		0	0	0										KK
48-Hr. # Immobile	0	0	0		0	0	0										
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) GO 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	9830-0012314	13-Jul-23	13-Jul-23	14-Jul-23 14-Jul-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: 22-Jun-23 **Reference Chemical:** Phenol **Fish Lot #:** LF010623
96-Hour LC50: 8.17 mg/L **95% Confidence Limits:** 6.36 mg/L; 10.50 mg/L
Historic Geometric Mean LC50: 8.79 mg/L **Historic Warning Limits (± 2 SD):** 6.60 mg/L; 11.71 mg/L

Daphnia magna

Date Reference Test Initiated: 05-Jul-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.34 mg/L **95% Confidence Limits:** 1.05 mg/L; 1.71 mg/L
Historic Geometric Mean LC50: 1.00 mg/L **Historic Warning Limits (± 2 SD):** 0.39 mg/L; 2.58 mg/L

TEST RESULTS APPROVED BY:

Date: July 19, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

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704 Mara Street Point Edward, ON N7V 1X4
519-339-8787

NAUTILUS ENVIRONMENTAL RAINBOW TROUT TOXICITY TEST BENCH SHEET

Sample Information			Test Information		
Sa	Method: Composite (Grab) Other		Type: (Single Concentration) LC50 TIE Screen		
Account 9830.001	Sample Number 9830.02/2314		Date/Time Started 14.07.23 / 1155		Analyst Starting Test VD
Client RWDI	Sample Name SS1		Date/Time Ended 18.07.23 / 12:10		Fish Lot # T2 LF010623
Person Collecting Sample A.W	Temperature Upon Receipt 22.0 °C		Test Volume 30 L Per Vessel	Number of Fish Per Vessel 10	Number of Vessels Per Conc. (1) 2
Date/Time Collected 13.07.23 / PM			Pre-Aeration ~~No~~ KK (Yes)	Pre-Aeration Duration 30 min	Pre-Aeration Rate 65 ±0.26 ml/min·L⁻¹
Date/Time Received in Lab 13.07.23 / 15:45			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 water surface water		Sample Point Description: MISA (Other)		Storage Temperature 15±1 °C

Initial Sample Measurements Before Aeration - Cond.: 427 µmhos D.O: 8.3 mg/L 86 % Temp: 16 °C pH: 8.0 Air Flow Meter Reading: 0.225 L/min.
Instrument Identification- M/P #: 7/8 M/P #: 7/5 M/P #: 13/91 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	11:25	224	9.5	97	16	7.9	7/8	7/5	13/91	KK	18.07.23	12:10	15	8.1	82	7.7	7/5	13/91	KP
	100%		0	0	0	0	↓	432	8.5	88	16	8.1	↓	↓	↓	KK	↓	↓	15	7.9	80	7.7	↓	↓	↓
Time Initials			0900 AD	0845 KK	8:45 KP	12:10 KP	Number of Control Fish Showing Atypical Behaviour: <24h:____ 24h: 0 48h: 0 72h: 0 96h: 0																		

Percent Mortality	0 %	LENGTH (mm)		WEIGHT (g)	Initials: MB	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 947
LC50 (Lower; Upper Limit)	—	Mean (SD)	44.0 (5.6)	Mean (SD)	0.75 (0.32)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max	37 / 54	Min/Max	0.38 / 1.47	6 + 0 + 0 + ~~0~~ 0 KK + 9 + 0 + 0	= 15
Verified By (initials)	AD	Sample Size	10	Loading Density	0.25 g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	1.58

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Sample Method: Composite (Grab) Other	Test Information	Test Type: (Single Concentration) LC50 TIE Screen	
Account Number 9830-001	Sample # 9830-001 2314		Date Started/Time 14. 07. 23	10:00	Analyst Starting Test EV
Client RWDI	Sample Name SS1		Date Ended/Time 16-07-23	09:45	#Neonates/Vessel 10
Person Collecting Sample A.W	Temperature Upon Receipt 22.0 °C		Test Volume 250 mL/Vessel		mL Solution/Daphnid 25 mL
Date/Time Sampled 13. 07. 23	/ PM		Pre-aeration (no) yes		Pre-aeration Duration 10 min
Date/Time Received 13. 07. 23	/ 15:45		Pre-aeration Rate ±2 mL/min L⁻¹		Sample Hardness Adjustment (no) yes
Sample Description cloudy brown			Dilution H_2O # DH 2359		Sample pH Adjustment (no) yes
Sample Type Description surface water			Sample Point Description: MISA (other)		Storage Temperature 4±2 °C
LC50 Randomization Template: —			Test Row(s): 19		

Initial Sample Measurements: pH 8.1 Dissolved O_2 8.3 mg/L 92 % Conductivity 440 µmhos Temperature 20 °C

Instrument Identification: Meter/Probe # 13191 Meter/Probe # 715 Meter/Probe # 718 Meter/Probe # 715

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	7.9	14/90	8.5	98	8.5	95	6/4	641	186	21	21	8/4
100	8.1	7.9	↓	8.3	92	8.3	92	↓	440	176	20	21	↓
Initials	EV	KK		EV	KK				EV	EV	EV	KK	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	71 F B				
Culture age (days)	32				
Days to 1st Brood (≤12)	8				
Average # of Neonates/Brood (≥15)	13.6				
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 F B	→			71 F B	→											EV
24-Hr. # Immobile	0	0	0		0	0	0										KK
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) [illegible] 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	9830-0012315	13-Jul-23	13-Jul-23	14-Jul-23 14-Jul-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: 22-Jun-23 **Reference Chemical:** Phenol **Fish Lot #:** LF010623
96-Hour LC50: 8.17 mg/L **95% Confidence Limits:** 6.36 mg/L; 10.50 mg/L
Historic Geometric Mean LC50: 8.79 mg/L **Historic Warning Limits (± 2 SD):** 6.60 mg/L; 11.71 mg/L

Daphnia magna

Date Reference Test Initiated: 05-Jul-23 **Reference Chemical:** Zinc
48-Hour LC50: 1.34 mg/L **95% Confidence Limits:** 1.05 mg/L; 1.71 mg/L
Historic Geometric Mean LC50: 1.00 mg/L **Historic Warning Limits (± 2 SD):** 0.39 mg/L; 2.58 mg/L

TEST RESULTS APPROVED BY:

Date: July 19, 2023

C. D'Andrea

Carol D'Andrea
Laboratory Supervisor

Y:\bioassays\2023\9000\9830-001\9830-0012315 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	9830-00123/5	Date/Time Started	14-07-23 / 1155	Analyst Starting Test VR
Client	RWDI	Sample Name	SP2	Date/Time Ended	18-07-23 / 1213	Fish Lot # T2 LF010623
Person Collecting Sample	A.W	Temperature Upon Receipt	22.7 °C	Test Volume	30 L Per Vessel	Number of Fish Per Vessel 10
Date/Time Collected	13-07-23 / PM			Pre-Aeration	No (Yes)	Pre-Aeration Duration 30 min
Date/Time Received in Lab	13-07-23 / 15:45			Rate of Aeration During Test	6.5 ±0.26 ml/min·L⁻¹	Dilution Water Reichlor
Sample Description	clear light green	Sample Type Description	water surface water	Sample Point Description: MISA (Other)		Sample pH Adjustment (No) Yes
						Storage Temperature 15±1 °C

Number of Vessels Per Conc. (1) 2

Pre-Aeration Rate 6.5 ±0.26 ml/min·L⁻¹

Initial Sample Measurements Before Aeration - Cond.: 475 µmhos D.O: 8.4 mg/L 87 % Temp: 16 °C pH: 9.2

Instrument Identification- M/P #: 7/8 M/P #: 7/5 M/P #: 13/91 Air Flow Meter Reading: 0.225 L/min. Meter #: 07

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	11:25	224	9.6	98	15	8.0	7/8	7/5	13/91	KK	18-07-23	12:13	15	8.6	87	7.8	7/5	13/91	KP
	100%		0	0	0	0	↓	494	8.6	89	16	9.1	↓	↓	↓	KK	18-07-23	12:13	15	7.6	77	7.4	↓	↓	↓
(1)																									
Time			0845	0845	12:13																				
Initials			KK	KP	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: MB	Holding Mortalities 7-days Preceding Test	Number of Fish in Batch at Day (-)7 947
LC50 (Lower; Upper Limit)	—	Mean (SD) 48.6	(5.6)	Mean (SD) 1.11	(0.41)	Number Dead (recorded daily for 7 days)	Total Number Dead for 7 days Preceding Test
Method	—	Min/Max 41	/ 59	Min/Max 0.68	/ 2.01	6 + 0 + 0 + 0 + 0 + 0 + 0	= 158
Verified By (initials)	aD	Sample Size 9		Loading Density 0.37	g/L	7-Day Holding Mortality ([total number dead/number of fish in batch] x 100)	

Observations and notes:

Nautilus *Daphnia magna* Toxicity Test Bench Sheet

Sample Information		Sample Method: Composite (Grab) Other	Test Information	Test Type: (Single Concentration) LC50 TIE Screen	
Account Number	9830-001	Sample # 9830-001 2315	Date Started/Time	14-07/07/23 / 10:05	Analyst Starting Test TB
Client	RWDI	Sample Name SP2	Date Ended/Time	16-07-23 / 09:50	#Neonates/Vessel 10
Person Collecting Sample	A.W	Temperature Upon Receipt 22.7 °C	Test Volume	200 mL/Vessel	mL Solution/Daphnid 25 mL
Date/Time Sampled	13/07/23 / PM		Pre-aeration	(no) yes	Pre-aeration Duration — min
Date/Time Received	13/07/23 / 15:45		Pre-aeration Rate	— ±2 mL/min L⁻¹	Sample Hardness Adjustment (no) yes
Sample Description	Clear, light green		Dilution H_2O #	DW 2359	Sample pH Adjustment (no) yes
Sample Type Description	Surface water		Sample Point Description: MISA (other)		Storage Temperature 4±2 °C
LC50 Randomization Template:	—		Test Row(s):	20	

Initial Sample Measurements: pH 9.2 Dissolved O_2 8.5 mg/L 95 % Conductivity 498 µmhos Temperature 20 °C

Instrument Identification: Meter/Probe # 13/91 Meter/Probe # 715 Meter/Probe # 718 Meter/Probe # 715

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	7.9	14/90	8.5	98	8.5	95	6/4	641	186	21	21	6/4
100%	9.2	7.8	↓	8.5	95	8.4	93	↓	498	162	20	21	↓
Initials	TB	KK		TB		KK			TB	TB	TB	KK	

BROOD CULTURE HEALTH INFORMATION

Brood Culture #	72F				
Culture age (days)	32				
Days to 1st Brood (≤12)	8				
Average # of Neonates/Brood (≥15)	43.6				
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 #	72F	→			72F	→											
24-Hr. # Immobile	0	0	0		0	0	0										TB
48-Hr. # Immobile	0	0	0		0	0	0										KK
48-Hr. # Dead	0	0	0		0	0	0										
Total # Immobile	0				0												KK
Total # Dead	0				0												

Percent Mortality 0 % Standard Deviation of Control Survival 0 Standard Deviation of Test Survival 0 Verified By (Initials) 0 Notes