



AGNICO EAGLE
EXPLORATION

MELIADINE GOLD PROJECT

ANNUAL REPORT: LICENCE 2BW-MEL1215

PRESENTED TO THE NUNAVUT WATER BOARD

MARCH 2014

Contact:

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B 2. The Licensee shall file an Annual Report on the appurtenant undertaking with the Board no later than March 31st of the year following the calendar year being reported which shall contain the following information:

a) A summary report of water use and waste disposal activities:

- *No water has been used in 2013. The hazardous waste was temporarily stocked in a metal container and was sent by boat to a southern facility in the summer with other waste coming from the Meliadine camp.*

b) A summary report of construction activities including photographic records before, during and after construction.

- *The construction activities began during the winter of 2012 and was completed at the end of October 2013.*
- *The All Weather Access Road (AWAR) has a length of 25.2km and is built with roc & esker materials. Three bridges have been required to go from the tow to the camp. The first one that was built when going North is the Char River Bridge (25m long), the second one is the Meliadine Bridge (65m long) and the last one is the M5 Bridge (22m long). Pictures are available in Appendix 1.*
- *Twelve (12) culverts assembly installations have been required. These installations include several culvert units (From 3 to 7 units) installed at different heights in the sub-base material.*

c) A list of unauthorized discharges and a summary of follow-up actions taken:

- *There were no unauthorized discharges.*

d) A summary of all information requested and results of the Monitoring program

Part I

1. The Licensee shall implement the Plan entitled “Monitoring Plan for the phase 1 All-Weather Access Road between Rankin Inlet and the Meliadine site” dated January 2012, and submitted as additional information on January 19, 2011 approved by the Board with the issuance of this Licence.

- *Results available in Appendix 2*

2. The Licensee shall measure and record, in cubic metres, the daily volume of water utilized for road watering.

- *No water was used in 2013 under this licence.*

3. **The Licensee shall monitor all activities for signs of erosion.**
 - *Some culverts were eroded due to the freshet in 2013. Water crossings were repaired and improved to avoid this situation.*
4. **The Licensee shall obtain a digital photographic record of the water crossings before, during and after construction has been completed.**
 - *Please see pictures in Appendix 1*
5. **The Licensee shall, during periods of flow, conduct water quality testing immediately upstream and downstream of the water crossings, any significant seeps originating from borrow pits or rock quarries prior to construction, weekly during the construction and upon the construction.**
 - *Results available in Appendix 2.*
6. **The Licensee shall implement water crossings visual inspection and maintenance program prior to and during spring freshet and after heavy rainfall events to identify issues relating to watercourse crossings structural integrity and hydraulic function.**
 - *Visual inspections were conducted during the freshet and problems with some culverts were identified. They were corrected and improved during the summer.*
7. **All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board in writing.**
 - *The water analysis has been performed by the laboratory ALS Winnipeg (Manitoba), see Appendix 3 for details.*
 - *The rock analysis has been performed by Multilab Direct, Val-d'Or (Quebec), subcontracting MAXXAM, see Appendix 3 for details.*
8. **All analyses shall be performed in a laboratory accredited according to the ISO/IEC Standard 17025. The accreditation shall be current and in good standing.**
 - *See Appendix 3 for details.*

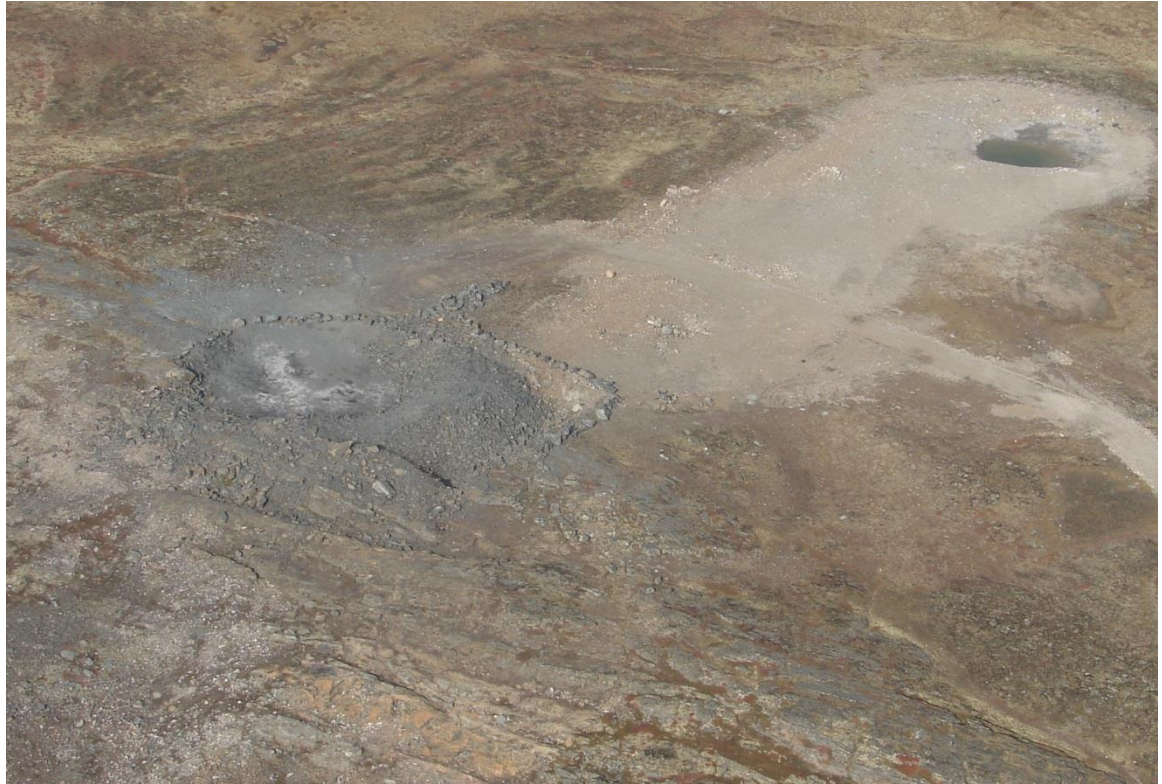
9. Additional monitoring requirements may be requested by the Inspector.

- *No additional monitoring was requested.*

e) A description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations

- *Eskers and quarries used for the construction of the road were replaced and returned as much as possible to their original state. The reclamation type is shown in the picture below.*

Picture of the reclamation done, quarry R14 and esker B13.



f) Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

- *No request were presented by the Board.*

Appendix 1
Pictures of the construction of bridges (2012)

Char River Bridge

L=29m, W=6.5m



Meliadine River Bridge

L=65m, W=6.5m



M5 Crossing Bridge

L=22m, W=6.5m



Appendix 2
Environmental Monitoring Results

Rock Quarries and Borrow Pits Sampling

Sample location	Average B5	Average B6-A	Average B10	Average B11-A	Average B12	Average B13	Average B15	Average R5	Average QR14	Average Q19
PNN (kg CaCO3 / t)	13.9	12.8	14.7	12.1	12.8	44.1	39.6	24.3	27.6	60.6
PN (kg CaCO3 / t)	15.0	14.0	16.0	13.2	13.6	46.0	40.0	25.0	36.3	61.3
PA (kg CaCO3 / t)	1.1	1.2	1.4	1.1	1.2	1.9	0.4	0.4	8.5	0.5
Sulfur %	0.035	0.038	0.043	0.034	0.025	0.060	0.010	0.010	0.271	0.017
ratio PN/PA	13.3	12.0	11.9	12.2	11.8	24.2	100.0	62.5	4.3	155.9

Water Sampling

Waterbody	Units	CCME Limits	CHAR-R		
Year			2013		
Date Sampled			22/07/2013	21/08/2013	30/09/2013
GPS Coordinates			543636-6970154	543636-6970154	543636-6970154
LAB			ALS LAB- WINNIPEG	ALS LAB- WINNIPEG	ALS LAB- WINNIPEG
Field Measurments			Field Measurments		
Water Temperature	oC		16.7	11.2	5
pH	pH units		8.04	8.42	7.6
Conductivity	(mS/cm)		90	240	250
Laboratory-Measured					
Ammonia, Total (as N)	mg/L	2.33	<0.010	<0.010	0.037
Biochemical Oxygen Demand	mg/L		<6.0	<6.0	<6.0
Mercury (Hg)-Total	mg/L	0.000026	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01	0.0054	0.0044	0.0028
Phosphorus (P)-Total Reactive	mg/L		<0.010	<0.010	<0.0010
Sodium Adsorption Ratio		0.03	0.75	0.67	0.74
Total Kjeldahl Nitrogen	%		<0.20	<0.20	<0.20
Phosphorus (P)-Total	mg/L		0.0054	0.0044	0.0028
Total Suspended Solids	mg/L		<5.0	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1	0.0084	0.0152	0.0134
Antimony (Sb)-Total	mg/L		<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.00031	0.00116	0.00059
Barium (Ba)-Total	mg/L		0.0151	0.048	0.0376
Beryllium (Be)-Total	mg/L		<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5	0.013	0.034	0.026
Cadmium (Cd)-Total	mg/L	Equation	<0.000010	0.000019	0.000013
Calcium (Ca)-Total	mg/L		11.2	30.1	27.4
Cesium (Cs)-Total	mg/L		<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L		<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L		<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation	0.0013	0.00371	0.00245
Iron (Fe)-Total	mg/L	0.3	<0.10	<0.10	<0.10
Lead (Pb)-Total	mg/L	Equation	<0.000090	<0.000090	0.000097
Lithium (Li)-Total	mg/L		<0.0020	0.0041	0.0032
Magnesium (Mg)-Total	mg/L		2.09	4.84	3.96
Manganese (Mn)-Total	mg/L		0.00304	0.0131	0.00222
Molybdenum (Mo)-Total	mg/L	0.073	0.00051	0.00314	0.00228
Nickel (Ni)-Total	mg/L	Equation	<0.0020	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L		<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L		1.86	4.91	3.75
Rubidium (Rb)-Total	mg/L		0.0026	0.00765	0.00462
Selenium (Se)-Total	mg/L	0.001	<0.0010	<0.0010	<0.0010
Silicon (Si)-Total	mg/L		0.411	0.958	0.868
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L		10.4	16.1	15
Strontium (Sr)-Total	mg/L		0.0601	0.169	0.143
Tellurium (Te)-Total	mg/L		<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.00010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L		<0.00050	0.00079	0.00072
Tungsten (W)-Total	mg/L		<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	0.015	0.00014	0.00202	0.0012
Vanadium (V)-Total	mg/L		<0.00020	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	0.03	<0.0020	0.0024	<0.0020
Zirconium (Zr)-Total	mg/L		<0.00040	<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L		28	79	60
Bicarbonate (HCO3)	mg/L		34	97	73
Carbonate (CO3)	mg/L		<12	<12	<12
Hydroxide (OH)	mg/L		<6.8	<6.8	<6.8
Chloride	mg/L		16	20.1	20.8
Conductivity	umhos/cm		122	270	246
Calcium (Ca)-Dissolved	mg/L		9.95	29.2	26
Magnesium (Mg)-Dissolved	mg/L		1.86	4.63	4.28
Potassium (K)-Dissolved	mg/L		1.68	4.69	3.66
Sodium (Na)-Dissolved	mg/L		9.24	14.9	15.5
Fluoride	mg/L	0.12	<0.10	0.19	0.14
Hardness (as CaCO3)	mg/L		36.4	95	84.6
Ion Balance	%		96.2	97.8	102
Nitrate-N	mg/L	13	0.121	0.426	0.064
Nitrate and Nitrite as N	mg/L		0.121	0.426	<0.071
Nitrite-N	mg/L	0.197	<0.050	<0.050	<0.050
Sulfate	mg/L		5.77	22.5	27.8
TDS (Calculated)	mg/L		79	176	160
Turbidity	NTU		0.38	0.38	0.61
pH	pH units	6.5-9.0	7.62	8.17	8.17

Waterbody			MELIADINE RIVER KM 2.1																	
Year	Units	CCME Limits	2008		2010				2011					2012			2013			
Date Sampled			21/06/2008	19/07/2008	21/06/2010	22/07/2010	26/08/2010	23/09/2010	23/06/2011	12/07/2011	28/08/2011	11/09/2011	09/10/2011	25/06/2012	29/07/2012	18/08/2012	23/06/2012	22/07/2013	21/08/2013	30/09/2013
GPS Coordinates			0530714, 6989630	0530712, 6989681	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712	544778.3-6971712
LAB			-	-	-	-	-	-	ALS LAB	ALS LAB	ALS LAB	ALS LAB	ALS LAB	ALS LAB	ALS LAB	ALS LAB	ALS LAB	ALS LAB	ALS LAB	ALS LAB
Field Measurements																				
Water Temperature	oC		5.63	12.7	-	-	11.4	5.4	-	-	14.2	3.53	0.8	687	10.3	8.6	10	15.5	12.7	4.5
pH	pH units		-	6.78	-	-	6.9	7.94	-	-	7.77	7.56	7.17	17.68	8016	7.77	8.13	8.26	8.05	7.8
Conductivity	(mS/cm)		42	63	-	-	-	-	-	-	0	69	149	62	77	78	50	50	105	270
Laboratory-Measured																				
Ion balance	%		-	Low EC	Low EC	-	-	-	-	-	-	-	-	Low EC	-	-	Low EC	Low EC	Low EC	101
Biochemical Oxygen Demand	mg/L		-	-	-	-	-	-	-	<1.0	-	-	-	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Ammonia as N	mg/L	2.33	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.055
Mercury (Hg)-Total	mg/L	0.000026	<0.00002	<0.00002	<0.00010	<0.00001	0.00021	<0.00001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01	0.0025	0.004	-	-	-	-	0.012	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.008	0.0063	0.0052	0.0027
Phosphorus (P)-Total Reactive	mg/L		<0.002	<0.002	-	-	-	-	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010	<0.010	<0.010	<0.0010
Total Kjeldahl Nitrogen	mg/L		0.167	<0.2	0.47	-	<1	1	-	-	<0.20	0.26	0.26	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Suspended Solids	mg/L		<5.0	<5.0	-	3	<1	3	-	<5.0	-	<5.0	<5.0	<5.0	<5.0	<5.0	5	13	<5.0	<5.0
Alkalinity, Total (as CaCO3)	mg/L		17.8	16	25.4	39	22	28	25.5	27	22.7	37.9	29.2	-	21	23	24	22	23	26
Bicarbonate (HCO3)	mg/L		17.8	19	31	39	22	28	31.1	33	27.7	46.2	35.6	-	25	28	29	26	27	32
Carbonate (CO3)	mg/L		<5.0	<5.0	<5.0	-	<2	<2	<0.60	<0.60	<0.60	<0.60	<0.60	-	<12	<12	<12	<12	<12	<12
Hydroxide (OH)	mg/L		<5.0	<5.0	<5.0	<2	<2	<2	<0.40	<0.40	<0.40	<0.40	<0.40	-	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
Calcium (Ca)-Dissolved	mg/L		7.76	5.96	8.96	-	9.2	-	-	-	9.2	17.3	12.8	7.22	8.17	7.44	7.46	7.49	8.08	11.3
Magnesium (Mg)-Dissolved	mg/L		1.13	0.853	1.33	-	-	-	-	-	1.46	3.24	2.35	1.05	1.23	1.08	1.09	1.2	1.36	3.39
Potassium (K)-Dissolved	mg/L		2	0.75	1.13	-	1.32	-	-	-	1.32	2.02	1.62	0.77	0.971	0.928	0.904	0.972	1.08	1.9
Sodium (Na)-Dissolved	mg/L		3.9	3.2	5	-	-	-	-	-	7.26	13.7	11.1	4.09	5.5	4.22	4.07	5.16	5.73	21.5
Chloride	mg/L		6.91	5	9.51	10.7	-	13.8	11.7	18.2	11.9	30.9	22.4	6.89	10.1	9.95	7.84	10.1	11.4	39.3
Conductivity	umhos/cm		68.8	64.2	88.5	89	152	101	97.8	120	94.3	195	144	68	84	83	77	81	98	202
Fluoride	mg/L	0.12	0.021	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L		24	20	27.9	29	21	28	29.8	34.8	26.6	61	42.9	22.4	27.5	26	23	26	26.8	45.2
Nitrate-N	mg/L	13	<0.005	0.1	<0.050	0.04	0.41	0.14	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate and Nitrite as N	mg/L		-	0.1	<0.071	-	-	-	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071
Nitrite-N	mg/L	0.197	<0.01	<0.050	<0.050	<0.01	-	<0.01	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L		3.11	2.8	3.44	2	-	2	3.93	4.99	3.57	14.4	8.36	3.06	3.48	3.4	3.4	3.28	3.51	8.73
TDS (Calculated)	mg/L		-	30	44.6	-	101	67	49.6	64	48.3	108	75.1	37.5	60	47	50	53	64	131
Aluminum (Al)-Total	mg/L	0.1	<0.0005	0.0019	0.011	<0.002	0.015	<0.002	0.0965	0.0114	0.034	<0.020	<0.020	0.0129	0.0089	<0.0050	0.0663	0.019	0.0096	0.0078
Antimony (Sb)-Total	mg/L		<0.0005	<0.00003	<0.00040	<0.0001	<0.0001	<0.0001	<0.00020	<0.00020	<0.0010	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005	<0.0005	<0.00003	<0.00040	0.0009	<0.0005	0.0008	0.00037	0.00032	<0.0010	<0.0010	<0.0010	0.00025	0.00026	0.00025	0.00027	0.00025	0.00025	0.00028
Barium (Ba)-Total	mg/L		0.02	0.00689	0.0133	0.0087	0.0095	0.009	0.0135	0.0145	0.00885	0.0152	0.0113	0.00955	0.0101	0.00962	0.0111	0.00852	0.00867	0.0137
Beryllium (Be)-Total	mg/L		<0.0010	<0.0002	<0.0010	<0.0005	<0.0005	0.0016	<0.0020	<0.00020	<0.0010	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L		-	-	-	-	-	-	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5	<0.1	<0.003	<0.050	<0.01	<0.01	<0.01	<0.010	0.014	<0.030	<0.030	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	Equation	0.000017	<0.00005	<0.000050	<0.00008	<0.00008	<0.00008	<0.000010	<0.000010	<0.00020	<0.00020	<0.00020	0.000016	<0.000010	<0.000010	<0.000010	0.000022	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L		-	-	9.72	8.5	6.8	8.6	9.57	10.5	8.48	18.5	13.1	6.7	8.59	8.29	7.45	8.21	8.37	11.9
Cesium (Cs)-Total	mg/L		-	-	-	-	-	-	<0.00010	<0.00010	<0.00050	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L		<0.001	<0.00006	<0.0050	<0.0006	<0.0006	0.0021*	<0.0010	<0.0010	<0.0020	<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L		<0.000.																	

Waterbody	Units	KM 3.0									
Year		2011		2012			2013				
Date Sampled		29/08/2011	14/09/2011	25/06/2012	29/07/2012	18/08/2012	24/06/2013	22/07/2013	21/08/2013	30/09/2013	
GPS Coordinates		55548-69718	545548-6971874	545548-6971874	545548-6971874	545548-6971874	545548-6971874	545548-6971874	545548-6971874	545548-6971874	
LAB		ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	
Field Measurements											
Water Temperature	oC	11.7	7.3	17.2	11.1	9.9	13.2	13.5	12.1	4.1	
pH	pH units	7.8	7.33	7.65	7.01	7.77	8.13	8.19	8.53	6.9	
Conductivity	(µS/cm)	0	286	196	196	315	800	210	290	340	
Laboratory-Measured											
Ammonia, Total (as N)	mg/L	<0.050	<0.050	0.011	0.033	0.033	<0.010	0.013	0.015	0.054	
Biochemical Oxygen Demand	mg/L	-	-	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	8.1	
Mercury (Hg)-Total	mg/L	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	
Phosphorus (P)-Total	mg/L	<0.010	<0.010	<0.010	0.013	0.011	0.0047	0.013	0.014	0.0085	
Phosphorus (P)-Total Reactive	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010	
Sodium Adsorption Ratio	%	-	-	0.97	0.65	1.56	1.01	1.38	1.46	1.46	
Total Kjeldahl Nitrogen	mg/L	0.85	-	0.32	0.94	0.53	<0.20	0.67	0.78	0.64	
Phosphorus (P)-Total	mg/L	-	-	0.0032	-	-	0.0047	0.013	0.014	0.0085	
Total Suspended Solids	mg/L	-	-	<5.0	5	<5.0	7	<5.0	5	<5.0	
Aluminum (Al)-Total	mg/L	0.0360	0.0220	0.0216	0.022	0.0077	0.014	0.025	0.0357	0.0293	
Antimony (Sb)-Total	mg/L	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Arsenic (As)-Total	mg/L	0.0012	0.001	0.00052	0.00101	0.00082	0.0004	0.0008	0.00114	0.00087	
Barium (Ba)-Total	mg/L	0.0247	0.0251	0.0137	0.0209	0.0228	0.012	0.0191	0.0241	0.0295	
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Bismuth (Bi)-Total	mg/L	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Boron (B)-Total	mg/L	0.042	<0.030	0.013	0.054	0.016	0.012	0.013	0.028	<0.010	
Cadmium (Cd)-Total	mg/L	<0.00020	<0.00020	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	0.000012	0.000012	
Calcium (Ca)-Total	mg/L	28.4	28	11	25.8	22.4	9.88	19.5	24.8	29.4	
Cesium (Cs)-Total	mg/L	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Chromium (Cr)-Total	mg/L	<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Cobalt (Co)-Total	mg/L	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Copper (Cu)-Total	mg/L	<0.0020	<0.0020	0.00109	0.00252	0.00119	0.00105	0.00163	0.00183	0.00164	
Iron (Fe)-Total	mg/L	<0.10	0.20	0.11	<0.10	0.14	0.13	0.12	0.15	0.16	
Lead (Pb)-Total	mg/L	<0.0010	<0.0010	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	0.000346	
Lithium (Li)-Total	mg/L	0.0222	0.0035	<0.0020	0.0029	0.0027	<0.0020	0.0023	0.0039	0.0034	
Magnesium (Mg)-Total	mg/L	5.12	5.06	2.22	3.5	4.61	2.16	3.76	4.73	4.99	
Manganese (Mn)-Total	mg/L	0.0042	0.0062	0.00311	0.00314	0.00403	0.00483	0.00273	0.00412	0.0085	
Molybdenum (Mo)-Total	mg/L	0.00126	0.00082	0.00048	0.00038	0.00064	0.00034	0.00069	0.00091	0.00084	
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Phosphorus (P)-Total	mg/L	<0.50	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Potassium (K)-Total	mg/L	3.34	2.92	1.62	2.76	2.76	1.45	2.49	3.13	3.21	
Rubidium (Rb)-Total	mg/L	0.00422	0.00357	0.00187	0.00229	0.00345	0.00163	0.00318	0.00416	0.00378	
Selenium (Se)-Total	mg/L	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Silicon (Si)-Total	mg/L	1.16	1.39	0.245	0.653	0.793	0.303	0.947	1.64	0.752	
Silver (Ag)-Total	mg/L	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Sodium (Na)-Total	mg/L	32.30	31.50	13.5	14.4	31.3	13.6	25.5	29.9	32.3	
Strontium (Sr)-Total	mg/L	0.168	0.158	0.0662	0.157	0.132	0.0547	0.115	0.155	0.166	
Tellurium (Te)-Total	mg/L	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium (Tl)-Total	mg/L	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Thorium (Th)-Total	mg/L	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin (Sn)-Total	mg/L	<0.00060	<0.00060	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Titanium (Ti)-Total	mg/L	<0.0010	0.0014	0.00087	0.00096	0.00053	0.00061	0.00115	0.00198	0.00153	
Tungsten (W)-Total	mg/L	<0.0020	<0.0020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium (U)-Total	mg/L	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	0.00012	
Vanadium (V)-Total	mg/L	<0.0020	<0.0020	0.00029	0.00066	0.00021	<0.00020	0.00039	0.00039	0.00031	
Zinc (Zn)-Total	mg/L	<0.020	<0.020	<0.0020	0.002	<0.0020	<0.0020	<0.0020	<0.0020	0.0265	
Zirconium (Zr)-Total	mg/L	<0.0010	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	
Alkalinity, Total (as CaCO3)	mg/L	62.5	58.2	28.0	52	53	25	43	59	62	
Bicarbonate (HCO3)	mg/L	76.2	71.1	34.0	64	65	31	53	73	75	
Carbonate (CO3)	mg/L	<0.60	<0.60	<12	<12	<12	<12	<12	<12	<12	
Hydroxide (OH)	mg/L	<0.40	<0.40	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	
Chloride	mg/L	58	53.9	26.3	23.7	61.4	22.9	42	57.2	61	
Conductivity	umhos/cm	279	278	155	198	246	133	231	318	340	
Calcium (Ca)-Dissolved	mg/L	28.3	25.5	10.9	22.4	23.3	8.54	17.5	23.8	26.8	
Magnesium (Mg)-Dissolved	mg/L	4.6	4.5	2.02	2.95	4.22	1.76	3.18	4.75	4.99	
Potassium (K)-Dissolved	mg/L	3.35	2.78	1.44	2.41	2.99	1.29	2.22	3.02	3.01	
Sodium (Na)-Dissolved	mg/L	30.8	28.1	13.1	12.3	31.1	12.4	21.8	29.4	31.3	
Fluoride	mg/L	0.11	<0.10	<0.10	-	-	<0.10	<0.10	0.1	0.1	
Hardness (as CaCO3)	mg/L	92.0	90.8	35.5	78.9	75	33.6	64.3	78.9	94	
Ion Balance	%	105	-	94.6	-	-	94.1	99.4	100	102	
Nitrate-N	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Nitrate and Nitrite as N	mg/L	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	
Nitrite-N	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Sulfate	mg/L	7.87	7.62	4.53	9.02	6.46	2.96	4.84	5.82	8.87	
TDS (Calculated)	mg/L	170	157	75.9	152	160	86	150	207	221	
Turbidity	NTU	0.69	1.21	0.66	0.8	1.24	1.3	2.34	1.8	1.69	
pH	pH units	8.15	8.12	7.65	8.01	8.04	7.66	7.93	8.07	7.97	

Waterbody	Units	CCME Limits	2BB-MEL0914 Limits	KM 3.9								
Year				2011			2012			2013		
Date Sampled				29/08/2011	14/09/2011	25/06/2012	29/07/2012	18/08/2012	24/06/2013	22/07/2013	21/08/2013	30/09/2013
GPS Coordinates				546167-6972178	546167-6972178	546167-6972178	546167-6972178	546167-6972178	546167-6972178	546167-6972178	546167-6972178	546167-6972178
LAB				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurments												
Water Temperature	oC			11.5	6.3	17.8	10.1	8.5	14.8	14.2	12.3	4.2
pH	pH units			7.8	7.14	7.26	7.88	7.58	7.91	7.93	8.2	7.6
Conductivity	(µS/cm)			0	396	192	321	480	180	340	410	490
Laboratory-Measured												
Ammonia, Total (as N)	mg/L	2.33		<0.050	<0.050	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	<0.010
Biochemical Oxygen Demand	mg/L			-	-	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Mercury (Hg)-Total	mg/L	0.000026		<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01		0.015	0.012	<0.010	0.016	0.026	0.011	0.017	0.017	0.011
Phosphorus (P)-Total Reactive	mg/L			<0.010	<0.010	0.011	<0.010	0.01	<0.010	<0.010	<0.010	<0.0010
Sodium Adsorption Ratio	%	0.03		-	-	0.58	1.79	1.04	0.63	2.15	2.49	2.47
Total Kjeldahl Nitrogen	mg/L			0.51	0.47	0.36	0.43	1.64	0.31	0.34	0.54	0.44
Phosphorus (P)-Total	mg/L			-	-	0.0025	-	-	0.011	0.017	0.017	0.011
Total Suspended Solids	mg/L			-	-	<5.0	6	7	5.0	<5.0	15	<5.0
Aluminum (Al)-Total	mg/L	0.1		0.118	0.0290	0.0095	0.195	0.0082	0.0194	0.0506	0.0814	0.0207
Antimony (Sb)-Total	mg/L			<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005		<0.0010	<0.0010	0.0005	0.0009	0.00172	0.00037	0.00064	0.00068	0.00052
Barium (Ba)-Total	mg/L			0.0236	0.0255	0.0235	0.0257	0.057	0.0241	0.0225	0.0259	0.0292
Beryllium (Be)-Total	mg/L			<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L			<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5		0.056	0.033	<0.010	0.042	<0.010	<0.010	0.03	0.046	0.043
Cadmium (Cd)-Total	mg/L	Equation		<0.00020	<0.00020	0.000016	0.000012	0.000015	<0.000010	0.000018	0.00002	<0.000010
Calcium (Ca)-Total	mg/L			23.2	25.5	21.9	22	54.3	20.7	19.4	23.8	24.3
Cesium (Cs)-Total	mg/L			<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L			<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L			<0.00050	<0.00050	<0.00020	<0.00020	0.00053	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation		0.005	<0.0020	0.00134	0.00254	0.00206	0.00112	0.00153	0.00206	0.00149
Iron (Fe)-Total	mg/L	0.3		0.19	0.18	0.18	0.59	4.44	0.55	0.22	0.36	0.13
Lead (Pb)-Total	mg/L	Equation		<0.0010	<0.0010	<0.000090	0.000174	0.000109	<0.000090	<0.000090	<0.000090	<0.000090
Lithium (Li)-Total	mg/L			0.0205	0.0035	0.0022	0.0029	0.0039	0.0023	0.0029	0.0044	0.0042
Magnesium (Mg)-Total	mg/L			7.57	8.51	2.98	6.83	8.22	2.75	7.02	8.8	9.36
Manganese (Mn)-Total	mg/L			0.0046	0.0035	0.0359	0.0086	0.101	0.0104	0.00401	0.00927	0.00347
Molybdenum (Mo)-Total	mg/L	0.073		0.00173	0.00154	0.00029	0.00134	0.00066	0.00028	0.00135	0.00168	0.00142
Nickel (Ni)-Total	mg/L	Equation		0.0021	<0.0020	<0.0020	<0.0020	0.0031	<0.0020	<0.0020	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L			<0.50	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L			4.08	3.92	2.14	3.73	5.59	2.47	3.61	4.2	4.2
Rubidium (Rb)-Total	mg/L			0.00432	0.00402	0.00202	0.00394	0.00673	0.00249	0.00371	0.00459	0.00425
Selenium (Se)-Total	mg/L	0.001		<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon (Si)-Total	mg/L			0.31	0.43	0.332	0.87	0.16	0.288	0.357	0.513	0.252
Silver (Ag)-Total	mg/L	0.0001		<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L			51.9	49.80	10.80	37	32.4	12.0	41.9	56	56.4
Strontium (Sr)-Total	mg/L			0.149	0.152	0.122	0.134	0.297	0.104	0.126	0.157	0.168
Tellurium (Te)-Total	mg/L			<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008		<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)-Total	mg/L			<0.0010	<0.0010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L			<0.00060	<0.00060	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L			0.0017	0.0014	0.00053	0.0101	0.00053	0.00111	0.00226	0.00497	0.0011
Tungsten (W)-Total	mg/L			<0.0020	<0.0020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	0.015		<0.00050	<0.00050	0.00011	0.00018	0.00065	0.00014	0.00019	0.0003	0.00025
Vanadium (V)-Total	mg/L			<0.0020	<0.0020	<0.00020	0.00112	0.00025	<0.00020	0.00053	0.00062	0.00027
Zinc (Zn)-Total	mg/L	0.03		<0.020	<0.020	<0.00020	0.0023	<0.0020	<0.0020	<0.0020	0.0038	<0.0020
Zirconium (Zr)-Total	mg/L			<0.0010	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L			50.3	47.4	47	42	155	41	41	51	51
Bicarbonate (HCO3)	mg/L			61.3	57.9	57	51	189	50	51	62	62
Carbonate (CO3)	mg/L			<0.60	<0.60	<12	<12	<12	<12	<12	<12	<12
Hydroxide (OH)	mg/L			<0.40	<0.40	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
Chloride	mg/L			94.7	91.6	22.7	67	61.1	21.7	82.1	103	111
Conductivity	umhos/cm			401	415	195	315	439	178	362	468	499
Calcium (Ca)-Dissolved	mg/L			22.6	22.1	19.8	17.6	60.1	17.1	18.3	22.3	24.1
Magnesium (Mg)-Dissolved	mg/L			7.13	7.26	2.85	5.22	7.77	2.46	6.31	8.45	8.94
Potassium (K)-Dissolved	mg/L			3.72	3.54	1.79	2.99	6.11	2.19	3.34	3.96	4.17
Sodium (Na)-Dissolved	mg/L			47.4	47.7	10.2	33.2	28.3	10.6	41.7	52.9	56
Fluoride	mg/L	0.12		0.1	<0.10	<0.10	-	-	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L			89.2	98.6	61.1	65.4	169	63.0	71.7	95.8	99.2
Ion Balance	%			99.3	-	94.5	-	-	95.3	99.8	102	101
Nitrate-N	mg/L	13		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate and Nitrite as N	mg/L			<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071
Nitrite-N	mg/L	0.197		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L			10.4	12.4	11.4	9.9	2.26	10.5	8.96	9.93	14.9
TDS (Calculated)	mg/L			216	213	100	208	285	115	235	304	325
Turbidity	NTU			2.2	1.17	0.87	3.82	19.6	1.68	2.12	3.16	1.63
pH	pH units	6.5-9.0		8.03	7.97	7.81	7.85	8.11	7.9	7.72	7.82	7.86

Waterbody			KM 5.0									
Year	Units	CCME Limits	2011			2012			2013			
Date Sampled			12/07/2011	29/08/2011	14/09/2011	25/06/2012	29/07/2012	18/08/2012	24/06/2013	22/07/2013	21/08/2013	30/09/2013
GPS Coordinates			546634-6973123	546634-6973123	546634-6973123	546634-6973123	546634-6973123	546634-6973123	546634-6973123	546634-6973123	546634-6973123	546634-6973123
LAB			ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements												
Water Temperature	oC		17.2	12.2	6.2	15.8	11.8	10	13.2	13.2	11.2	4.2
pH	pH units		7.9	8.2	7.02	7.45	8.4	7.96	7.75	7.83	8.42	7.6
Conductivity	(µS/cm)		-	0	245	125	167	187	80	190	240	300
Laboratory-Measured												
Ammonia, Total (as N)	mg/L	2.33	<0.050	<0.050	<0.050	0.013	<0.010	<0.010	<0.010	0.015	0.019	<0.010
Biochemical Oxygen Demand	mg/L		1.7	-	-	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Mercury (Hg)-Total	mg/L	0.000026	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01	0.015	0.01	0.013	<0.010	-	0.041	0.012	0.014	0.013	0.0098
Phosphorus (P)-Total Reactive	mg/L		-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010
Sodium Adsorption Ratio	%	0.03	-	-	-	0.78	2.25	0.94	0.77	1.11	1.25	1.29
Total Kjeldahl Nitrogen	mg/L		-	0.55	0.56	0.31	0.45	0.6	0.28	0.38	0.57	0.43
Phosphorus (P)-Total	mg/L		<0.20	-	-	0.0031	0.0054	-	0.012	0.014	0.013	0.0098
Total Suspended Solids	mg/L		<5.0	-	-	<5.0	6	28	<5.0	<5.0	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1	0.0145	0.05	0.0390	0.0132	0.0761	0.313	0.0274	0.0354	0.0608	0.0261
Antimony (Sb)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.0004	<0.0010	<0.0010	0.00028	0.00075	0.00046	0.00022	0.00037	0.00045	0.00037
Barium (Ba)-Total	mg/L		0.0221	0.0262	0.0284	0.0171	0.0241	0.025	0.0199	0.0235	0.0289	0.0318
Beryllium (Be)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5	0.014	0.035	<0.030	0.013	0.028	0.018	0.010	0.016	0.022	0.015
Cadmium (Cd)-Total	mg/L	Equation	<0.000010	<0.00020	<0.00020	0.000031	0.000014	0.000018	0.00002	0.000022	0.000012	<0.000010
Calcium (Ca)-Total	mg/L		14.4	22.2	24.4	10.8	19.7	15	10.1	17	21.8	25.3
Cesium (Cs)-Total	mg/L		<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	0.00043	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation	0.00122	<0.0020	<0.0020	0.00133	0.00202	0.00281	0.00128	0.00158	0.00214	0.0014
Iron (Fe)-Total	mg/L	0.3	0.30	0.17	0.23	0.23	0.38	0.79	0.23	0.21	0.26	0.16
Lead (Pb)-Total	mg/L	Equation	<0.000090	<0.0010	<0.0010	0.000155	0.000155	0.000397	<0.000090	<0.000090	<0.000090	0.00331
Lithium (Li)-Total	mg/L		<0.0020	0.0161	<0.0020	<0.0020	0.003	0.0022	<0.0020	<0.0020	0.0027	0.0022
Magnesium (Mg)-Total	mg/L		2.85	4.83	5.12	2.14	6.07	3.45	2.11	4.16	5.39	5.6
Manganese (Mn)-Total	mg/L		0.0086	0.0047	0.0053	0.00387	0.00678	0.0292	0.00574	0.00659	0.00839	0.00583
Molybdenum (Mo)-Total	mg/L	0.073	0.00053	0.00062	0.00055	0.00028	0.00116	0.00056	0.00031	0.00075	0.00076	0.00065
Nickel (Ni)-Total	mg/L	Equation	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L		<0.20	<0.50	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L		1.83	2.62	2.68	1.69	3.17	2.31	1.81	2.34	2.8	3.05
Rubidium (Rb)-Total	mg/L		0.00217	0.00322	0.00299	0.00168	0.00357	0.00288	0.00212	0.00289	0.00371	0.00339
Selenium (Se)-Total	mg/L	0.001	<0.0010	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon (Si)-Total	mg/L		0.128	<0.30	0.570	0.154	0.599	0.603	0.236	0.233	0.412	0.311
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L		13.40	23.60	23.80	10.7	34.8	16.6	10.1	20.4	25.2	26.6
Strontium (Sr)-Total	mg/L		0.0792	0.12	0.128	0.0571	0.123	0.0873	0.0524	0.0942	0.122	0.134
Tellurium (Te)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00060	<0.00060	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L		0.00078	<0.0010	0.0022	0.00088	0.00394	0.0247	0.00165	0.00198	0.00506	0.00113
Tungsten (W)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	0.015	<0.00010	<0.00050	<0.00050	<0.00010	0.00016	0.0001	<0.00010	0.00011	0.00017	0.00013
Vanadium (V)-Total	mg/L		0.00034	<0.0020	<0.0020	0.00023	0.00078	0.0014	<0.00020	0.0004	0.00038	0.0002
Zinc (Zn)-Total	mg/L	0.03	<0.0050	<0.020	<0.020	0.0032	<0.0020	0.003	0.0027	<0.0020	0.0026	<0.0020
Zirconium (Zr)-Total	mg/L		<0.00040	<0.0010	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L		33.20	43.90	40.70	24	32	36	25	33	44	40
Bicarbonate (HCO3)	mg/L		40.50	53.50	49.70	30	39	44	30	41	53	48
Carbonate (CO3)	mg/L		<0.60	<0.60	<0.60	<12	<12	<12	<12	<12	<12	<12
Hydroxide (OH)	mg/L		<0.40	<0.40	<0.40	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
Chloride	mg/L		28.0	45.4	43.1	20.3	27.3	25.8	18.2	37.6	50.7	54.2
Conductivity	umhos/cm		168.0	233.0	243.0	134	173	167	123	215	294	310
Calcium (Ca)-Dissolved	mg/L		-	21.6	22.2	10.7	13.4	15.1	9.07	15.7	21.7	23.3
Magnesium (Mg)-Dissolved	mg/L		-	4.25	4.4	2.07	2.88	2.94	1.81	3.81	5.53	5.52
Potassium (K)-Dissolved	mg/L		-	2.47	2.47	1.62	2.02	2.32	1.56	2.24	2.79	3.04
Sodium (Na)-Dissolved	mg/L		-	22.3	20.8	10.9	14.4	15.2	9.74	18.8	25.9	26.7
Fluoride	mg/L	0.12	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L		47.7	75.3	82.0	35.2	45.3	51.7	33.8	54.9	76.6	86.3
Ion Balance	%		-	100	-	102	-	-	95.6	99.3	103	102
Nitrate-N	mg/L	13	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate and Nitrite as N	mg/L		<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071
Nitrite-N	mg/L	0.197	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L		8.66	14.2	18.10	6.26	8.11	6.55	5.22	12.2	17.3	23.1
TDS (Calculated)	mg/L		89.1	137.0	136.0	66.6	126	108	80	140	191	201
Turbidity	NTU		1.36	1.45	1.38	1.05	0.83	2.88	1.04	1.86	1.55	1.42
pH	pH units	6.5-9.0	7.90	7.99	7.89	7.58	7.79	7.69	7.66	7.66	7.89	7.73

Waterbody	Units	CCME Limits	KM 6.7									
Year			2011		2012			2013				
Date Sampled			29/08/2012	14/09/2011	25/06/2012	29/07/2012	18/08/2012	24/06/2013	22/07/2013	21/08/2013	30/09/2013	
GPS Coordinates			547380-6974493	547380-6974493	547380-6974493	547380-6974493	547380-6974493	547380-6974493	547380-6974493	547380-6974493	547380-6974493	547380-6974493
LAB			ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements												
Water Temperature	oC		12.8	7.1	17.9	10.5	10	13.7	12.8	12.8	3.9	
pH	pH units		7.7	7.00	7.56	8.12	8.19	7.94	8.06	8.64	6.8	
Conductivity	(µS/cm)		0	69	34	51	64	10	10	90	120	
Laboratory-Measured												
Ammonia, Total (as N)	mg/L	2.33	<0.050	<0.050	0.029	0.012	<0.010	<0.010	0.013	<0.010	0.025	
Biochemical Oxygen Demand	mg/L		-	-	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	
Mercury (Hg)-Total	mg/L	0.000026	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	
Phosphorus (P)-Total	mg/L	0.004 - 0.01	0.029	0.019	0.01	0.022	0.017	0.0082	0.014	0.024	0.0083	
Phosphorus (P)-Total Reactive	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.016	<0.0010	
Sodium Adsorption Ratio	%	0.03	-	-	0.35	0.32	0.34	0.29	0.33	0.38	0.39	
Total Kjeldahl Nitrogen	mg/L		1.57	0.73	0.57	0.84	0.9	0.28	0.7	1.06	0.57	
Phosphorus (P)-Total	mg/L		-	-	-	-	-	0.0082	0.014	0.024	0.0083	
Total Suspended Solids	mg/L		-	-	5	12	8	<5.0	<5.0	10	<5.0	
Aluminum (Al)-Total	mg/L	0.1	0.091	0.0680	0.2030	0.0462	0.0354	0.0598	0.0621	0.126	0.0539	
Antimony (Sb)-Total	mg/L		<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Arsenic (As)-Total	mg/L	0.005	<0.0010	<0.0010	0.00039	0.00031	0.00034	<0.00020	0.00036	0.00049	0.00025	
Barium (Ba)-Total	mg/L		0.0176	0.0169	0.0122	0.0137	0.0137	0.0103	0.0135	0.0181	0.0223	
Beryllium (Be)-Total	mg/L		<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Bismuth (Bi)-Total	mg/L		<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Boron (B)-Total	mg/L	1.5	<0.030	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium (Cd)-Total	mg/L	Equation	<0.00020	<0.00020	0.000085	0.000019	0.000017	0.000015	0.000035	0.00002	0.000015	
Calcium (Ca)-Total	mg/L		9.27	8.95	4.63	7.32	7.68	4.03	7.02	8.4	10.8	
Cesium (Cs)-Total	mg/L		<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Chromium (Cr)-Total	mg/L		<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Cobalt (Co)-Total	mg/L		<0.00050	<0.00050	0.00028	<0.00020	<0.00020	<0.00020	<0.00020	0.0002	0.0002	
Copper (Cu)-Total	mg/L	Equation	0.0032	0.0025	0.00327	0.00314	0.0026	0.00201	0.00341	0.00376	0.00214	
Iron (Fe)-Total	mg/L	0.3	0.56	0.46	0.65	0.36	0.26	0.15	0.71	0.93	0.88	
Lead (Pb)-Total	mg/L	Equation	<0.0010	<0.0010	0.000356	0.000109	<0.000090	<0.000090	0.000144	0.000225	0.00164	
Lithium (Li)-Total	mg/L		0.0127	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Magnesium (Mg)-Total	mg/L		1.45	1.500	0.854	1.21	1.27	0.785	1.26	1.62	1.79	
Manganese (Mn)-Total	mg/L		0.005	0.0067	0.00871	0.00325	0.00289	0.00505	0.00319	0.00672	0.0127	
Molybdenum (Mo)-Total	mg/L	0.073	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Nickel (Ni)-Total	mg/L	Equation	0.0022	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Phosphorus (P)-Total	mg/L		<0.50	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Potassium (K)-Total	mg/L		2.08	1.57	1.21	1.16	1.3	1.07	1.58	2.08	1.78	
Rubidium (Rb)-Total	mg/L		0.00339	0.00229	0.00202	0.00201	0.00227	0.0018	0.00279	0.00371	0.00285	
Selenium (Se)-Total	mg/L	0.001	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Silicon (Si)-Total	mg/L		0.37	1.86	0.508	1.11	0.777	0.372	0.558	0.856	1.68	
Silver (Ag)-Total	mg/L	0.0001	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Sodium (Na)-Total	mg/L		5.41	5.01	2.63	3.92	4.09	2.21	3.57	4.53	5.03	
Strontium (Sr)-Total	mg/L		0.0437	0.0379	0.0220	0.0334	0.0347	0.0163	0.0311	0.0387	0.0467	
Tellurium (Te)-Total	mg/L		<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium (Tl)-Total	mg/L	0.0008	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Thorium (Th)-Total	mg/L		<0.0010	<0.0010	0.00023	0.0001	<0.00010	<0.00010	0.00011	0.00015	0.00013	
Tin (Sn)-Total	mg/L		<0.00060	<0.00060	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Titanium (Ti)-Total	mg/L		0.003	0.0031	0.0145	0.00166	0.00146	0.00178	0.0022	0.00715	0.00223	
Tungsten (W)-Total	mg/L		<0.0020	<0.0020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium (U)-Total	mg/L	0.015	<0.00050	<0.00050	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	
Vanadium (V)-Total	mg/L		<0.0020	<0.0020	0.00097	0.00038	0.00036	<0.00020	0.00038	0.0008	0.00052	
Zinc (Zn)-Total	mg/L	0.03	<0.020	<0.020	0.0096	<0.0020	0.0023	0.0025	0.0023	0.0027	<0.0020	
Zirconium (Zr)-Total	mg/L		<0.0010	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	
Alkalinity, Total (as CaCO3)	mg/L		17.6	16.4	11.2	17.7	21	11.9	18.2	22	23	
Bicarbonate (HCO3)	mg/L		21.5	20.0	13.7	21.6	26	14.5	22.2	27	28	
Carbonate (CO3)	mg/L		<0.60	<0.60	<0.60	<1.2	<12	<0.60	<0.60	<12	<12	
Hydroxide (OH)	mg/L		<0.40	<0.40	<0.34	<0.68	<6.8	<0.34	<0.34	<6.8	<6.8	
Chloride	mg/L		7.68	7.00	3.57	4.91	5.05	3.02	4.62	6.12	9.96	
Conductivity	umhos/cm		81.1	79	44	62	73	41	61	78	100	
Calcium (Ca)-Dissolved	mg/L		8.76	8.24	4.43	6.67	7.96	3.71	6.55	7.98	10.4	
Magnesium (Mg)-Dissolved	mg/L		1.3	1.260	0.739	0.96	1.16	0.689	1.16	1.55	1.84	
Potassium (K)-Dissolved	mg/L		1.86	1.47	1.20	1.06	1.35	1.01	1.53	1.99	1.74	
Sodium (Na)-Dissolved	mg/L		5.15	4.49	3.05	3.39	3.87	2.3	3.37	4.48	5.22	
Fluoride	mg/L	0.12	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	<0.10	<0.10	
Hardness (as CaCO3)	mg/L		29.1	28.5	14.1	23.3	24.4	13.3	22.7	27.6	34.4	
Ion Balance	%		Low EC	-	Low EC	-	-	Low EC	Low EC	Low EC	103	
Nitrate-N	mg/L	13	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Nitrate and Nitrite as N	mg/L		<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	
Nitrite-N	mg/L	0.197	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Sulfate	mg/L		8.84	9.10	2.61	2.84	2.87	2.17	2.92	3.71	8.28	
TDS (Calculated)	mg/L		44.2	41.4	22.3	38	47	27	40	51	65	
Turbidity	NTU		4.55	2.23	2.16	3.8	2.97	1.29	1.73	4.63	2.81	
pH	pH units	6.5-9.0	7.46	7.45	7.26	7.36	7.45	7.27	7.37	7.39	7.43	

Waterbody			KM 8.6									
Year	Units	CCME Limits	2011			2012			2013			
Date Sampled			12/07/2011	29/08/2011	14/09/2011	25/06/2012	29/07/2012	18/08/2012	24/06/2013	22/07/2013	21/08/2013	30/09/2013
GPS Coordinates			547909-6975915	547909-6975915	547909-6975915	547909-6975915	547909-6975915	547909-6975915	547909-6975915	547909-6975915	547909-6975915	547909-6975915
LAB			ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements												
Water Temperature	oC		19.0	13.0	8.0	15.3	12.9	13.5	13.4	12	13.1	3.6
pH	pH units		7.9	7.6	7.23	7.54	7.98	7.81	7.98	7.98	8.49	7.1
Conductivity (µS/cm)			-	0	104	41	74	42	10	110	180	170
Laboratory-Measured												
Ammonia, Total (as N)	mg/L	2.33	<0.050	<0.050	<0.050	<0.010	0.027	0.027	<0.010	<0.010	0.025	<0.010
Biochemical Oxygen Demand	mg/L		1.6	-	-	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Mercury (Hg)-Total	mg/L	0.000026	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01	0.016	<0.010	<0.010	<0.010	-	-	0.005	0.011	0.0068	0.0069
Phosphorus (P)-Total Reactive	mg/L		-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010
Sodium Adsorption Ratio	%	0.03	-	-	-	0.3	0.32	0.27	0.28	0.52	0.64	0.4
Total Kjeldahl Nitrogen	mg/L		-	0.65	0.38	0.34	0.48	0.55	0.27	0.81	0.96	0.42
Phosphorus (P)-Total	mg/L		<0.20	-	-	0.0028	0.0031	0.0037	0.005	0.011	0.0068	0.0069
Total Suspended Solids	mg/L		<5.0	-	-	<5.0	<5.0	8	5.0	<5.0	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1	0.0109	0.024	0.0230	0.0078	0.011	0.0154	0.0253	0.0373	0.0261	0.0087
Antimony (Sb)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.00022	<0.0010	<0.0010	<0.00020	0.00022	<0.00020	<0.00020	0.00025	0.00033	<0.00020
Barium (Ba)-Total	mg/L		0.0127	0.0192	0.0202	0.00865	0.0145	0.0171	0.00884	0.0199	0.0305	0.0277
Beryllium (Be)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5	<0.010	<0.030	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	Equation	<0.000010	<0.00020	<0.00020	0.000016	0.000015	<0.000010	<0.000010	0.000029	0.00002	<0.000010
Calcium (Ca)-Total	mg/L		7.89	17	14.30	5.21	10.5	11.2	5.55	17	25.3	20.6
Cesium (Cs)-Total	mg/L		<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation	0.00182	0.0021	0.00280	0.00158	0.00245	0.00185	0.00166	0.00448	0.00438	0.00175
Iron (Fe)-Total	mg/L	0.3	0.18	0.14	0.17	0.11	0.15	<0.10	0.17	0.14	0.2	<0.10
Lead (Pb)-Total	mg/L	Equation	0.000125	<0.0010	<0.0010	<0.000090	0.000108	<0.000090	<0.000090	0.000223	0.000169	0.000679
Lithium (Li)-Total	mg/L		<0.0020	0.0164	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Magnesium (Mg)-Total	mg/L		1.13	2.36	2.29	0.841	1.54	1.26	0.883	2.46	3.88	3.14
Manganese (Mn)-Total	mg/L		0.0109	0.0094	0.0059	0.0052	0.00889	0.00421	0.0082	0.00314	0.00478	0.00603
Molybdenum (Mo)-Total	mg/L	0.073	<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	0.00066	0.00062	<0.00020
Nickel (Ni)-Total	mg/L	Equation	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L		<0.20	<0.50	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L		1.26	2.50	2.14	1.03	1.64	1.92	1.17	2.91	4.38	2.64
Rubidium (Rb)-Total	mg/L		0.00233	0.00392	0.00332	0.00172	0.00265	0.00238	0.00183	0.00421	0.00588	0.00426
Selenium (Se)-Total	mg/L	0.001	<0.0010	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon (Si)-Total	mg/L		0.342	1.02	1.650	0.401	0.495	0.433	0.261	0.2	0.346	1.56
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L		3.49	6.84	6.09	2.42	4.35	3.8	2.59	8.65	13.1	6.8
Strontium (Sr)-Total	mg/L		0.0269	0.0535	0.0426	0.0174	0.0317	0.0244	0.0177	0.0521	0.0802	0.0662
Tellurium (Te)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00060	<0.00060	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L		0.00024	<0.0010	<0.0010	0.00029	<0.00050	<0.00050	0.00073	0.0006	0.00085	0.00067
Tungsten (W)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	0.015	<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	0.00013	<0.00010	0.00033	0.00056	<0.00010
Vanadium (V)-Total	mg/L		<0.00020	<0.0020	<0.0020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	0.03	<0.0050	<0.020	<0.020	<0.0020	0.003	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zirconium (Zr)-Total	mg/L		<0.00040	<0.0010	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L		23.80	33.90	26.00	14.1	26	34	16.2	43	66	30
Bicarbonate (HCO3)	mg/L		29.00	41.40	31.70	17.2	32	41	19.7	53	81	37
Carbonate (CO3)	mg/L		<0.60	<0.60	<0.60	<0.60	<12	<12	<0.60	<12	<12	<12
Hydroxide (OH)	mg/L		<0.40	<0.40	<0.40	<0.34	<6.8	<6.8	<0.34	<6.8	<6.8	<6.8
Chloride	mg/L		6.79	11	8.26	3.75	6.08	6.07	3.56	11.6	18.7	12.2
Conductivity	umhos/cm		77.40	124.00	111.00	50	83	86	51	144	216	178
Calcium (Ca)-Dissolved	mg/L		-	17.7	12.6	5.12	9.69	11.5	5.05	16.3	23.8	20.1
Magnesium (Mg)-Dissolved	mg/L		-	2.18	1.9	0.826	1.3	1.22	0.778	2.31	3.84	3.29
Potassium (K)-Dissolved	mg/L		-	2.46	1.94	1.05	1.56	2.03	1.06	2.82	4.22	2.6
Sodium (Na)-Dissolved	mg/L		-	6.52	5.19	2.79	3.95	3.61	2.56	8.17	12.7	7.4
Fluoride	mg/L	0.12	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L		24.4	52.2	45.1	16.2	32.5	33.3	17.5	52.7	79	64.5
Ion Balance	%		-	111	-	Low EC	-	-	Low EC	102	104	101
Nitrate-N	mg/L	13	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate and Nitrite as N	mg/L		<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071
Nitrite-N	mg/L	0.197	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L		3.89	13.3	14.80	3.11	3.99	2.75	2.22	9.68	11.3	33.3
TDS (Calculated)	mg/L		38.7	73.4	60.2	25.1	52	56	33	93	140	116
Turbidity	NTU		0.65	0.65	0.63	0.38	0.68	0.76	0.81	0.84	1.03	1.2
pH	pH units	6.5-9.0	7.76	7.89	7.74	7.65	7.74	7.78	7.51	7.9	8.22	7.66

Waterbody	Units	CCME Limits	KM 11.5								
Year			2011			2012					
Date Sampled			12/07/2011	29/08/2012	14/09/2011	25/06/2012	29/07/2012	18/08/2012	22/07/2013	21/08/2013	30/09/2013
GPS Coordinates			547445-6978314	547445-6978314	547445-6978314	547445-6978314	547445-6978314	547445-6978314	547445-6978314	547445-6978314	547445-6978314
LAB			ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements											
Water Temperature	oC		17.4	12	6.8	16.3	10.5	13.5	12.2	13.3	4.1
pH	pH units		6.9	7.5	7.28	7.69	8.13	8.01	7.83	8.8	7.3
Conductivity	(µS/cm)		-	0	54	28	40	42	0	10	160
Laboratory-Measured											
Ammonia, Total (as N)	mg/L	2.33	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	0.011	0.026	<0.010
Biochemical Oxygen Demand	mg/L		1.2	-	-	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Mercury (Hg)-Total	mg/L	0.000026	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01	0.013	<0.010	<0.010	<0.010	-	-	0.0074	0.0057	0.0043
Phosphorus (P)-Total Reactive	mg/L		-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010
Sodium Adsorption Ratio	%	0.03	-	-	-	0.24	0.21	0.2	0.25	0.28	0.46
Total Kjeldahl Nitrogen	mg/L		-	0.34	0.37	<0.20	0.31	0.29	0.33	0.42	0.4
Phosphorus (P)-Total	mg/L		<0.20	-	-	0.0011	0.0024	0.0036	0.0074	0.0057	0.0043
Total Suspended Solids	mg/L		28	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1	0.0168	0.024	<0.020	0.0091	0.0151	0.65	0.0118	0.0171	0.0145
Antimony (Sb)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	7.41	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.00034	<0.0010	<0.0010	<0.00020	0.00023	0.0093	0.00024	0.00034	0.00021
Barium (Ba)-Total	mg/L		0.0112	0.0102	0.0117	0.00798	0.0103	<0.00020	0.00795	0.00879	0.0222
Beryllium (Be)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	0.00872	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5	<0.010	<0.030	<0.030	<0.010	<0.010	<0.00020	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	Equation	<0.000010	<0.00020	<0.00020	0.000011	<0.000010	<0.00020	0.000024	0.000018	<0.000010
Calcdum (Ca)-Total	mg/L		5.24	6.99	8.22	4.11	6.49	<0.010	5.87	6.76	19
Cesium (Cs)-Total	mg/L		<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.000010	<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.0010	<0.0010	5.9	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L		0.00024	<0.00050	<0.00050	<0.00020	<0.00020	<0.00010	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation	0.00274	<0.0020	0.00210	0.00128	0.00224	<0.0010	0.00206	0.00212	0.00266
Iron (Fe)-Total	mg/L	0.3	0.24	<0.10	<0.10	<0.10	<0.10	<0.00020	<0.10	0.14	<0.10
Lead (Pb)-Total	mg/L	Equation	<0.000090	<0.0010	<0.0010	<0.000090	<0.000090	0.00263	<0.000090	<0.000090	0.000113
Lithium (Li)-Total	mg/L		<0.0020	0.0082	<0.0020	<0.0020	<0.0020	<0.10	<0.0020	<0.0020	<0.0020
Magnesium (Mg)-Total	mg/L		0.576	0.827	1.12	0.568	0.836	<0.000090	0.803	0.964	1.94
Manganese (Mn)-Total	mg/L		0.0188	0.0033	0.0030	0.00231	0.0095	<0.0020	0.00232	0.00835	0.00251
Molybdenum (Mo)-Total	mg/L	0.073	<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	0.76	<0.00020	<0.00020	0.00037
Nickel (Ni)-Total	mg/L	Equation	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.00388	<0.0020	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L		<0.20	<0.50	<0.50	<0.10	<0.10	<0.00020	<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L		0.39	0.97	0.92	0.518	0.719	<0.0020	0.942	1.16	2.07
Rubidium (Rb)-Total	mg/L		0.00109	0.00177	0.00181	0.00101	0.00154	<0.10	0.0018	0.00218	0.00404
Selenium (Se)-Total	mg/L	0.001	<0.0010	<0.0050	<0.0050	<0.0010	<0.0010	0.709	<0.0010	<0.0010	<0.0010
Silicon (Si)-Total	mg/L		0.099	<0.30	0.440	0.154	0.193	0.00142	0.221	0.45	1.18
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.0010	<0.00010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L		1.71	2.16	2.74	1.61	2.29	0.211	2.41	2.95	7.34
Strontium (Sr)-Total	mg/L		0.0192	0.0269	0.0275	0.015	0.0222	<0.00010	0.021	0.0244	0.0746
Tellurium (Te)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	2.08	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.0050	<0.0050	<0.00010	<0.00010	0.0206	<0.00010	<0.00010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00060	<0.00060	<0.00020	<0.00020	<0.00010	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L		0.00029	<0.0010	<0.0010	0.00026	0.00052	<0.00010	<0.00050	0.00055	0.00113
Tungsten (W)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.00010	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	0.015	<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.00050	<0.00010	<0.00010	<0.00010
Vanadium (V)-Total	mg/L		<0.00020	<0.0020	<0.0020	<0.00020	<0.00020	<0.00010	<0.00020	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	0.03	<0.0050	<0.020	<0.020	<0.0020	<0.0020	<0.00010	<0.0020	0.003	<0.0020
Zirconium (Zr)-Total	mg/L		<0.00040	<0.0010	<0.0010	<0.00040	<0.00040	<0.00020	<0.00040	<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L		15.80	17.30	17.70	10.9	15.8	<0.0020	15.1	17.4	34
Bicarbonate (HCO3)	mg/L		19.20	21.10	21.60	13.3	19.3	<0.00040	18.4	21.2	41
Carbonate (CO3)	mg/L		<0.60	<0.60	<0.60	<0.60	<1.2	<1.2	<0.60	<0.60	<12
Hydroxide (OH)	mg/L		<0.40	<0.40	<0.40	<0.34	<0.68	<0.68	<0.34	<0.34	<6.8
Chloride	mg/L		2.66	3.41	3.66	2.4	2.95	3.04	3.31	4.47	11.5
Conductivity	umhos/cm		46.60	55.40	63.00	42	50	51	48	60	157
Calcium (Ca)-Dissolved	mg/L		-	7.13	7.61	4.23	5.85	6.12	5.27	6.43	18.5
Magnesium (Mg)-Dissolved	mg/L		-	0.776	0.9	0.58	0.66	0.704	0.705	0.947	2.06
Potassium (K)-Dissolved	mg/L		-	0.96	0.96	0.54	0.68	0.735	0.85	1.11	2.08
Sodium (Na)-Dissolved	mg/L		-	2.03	2.23	1.96	1.97	1.91	2.14	2.85	7.91
Fluoride	mg/L	0.12	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L		15.5	20.9	25.1	13	19.6	17.9	18	20.8	55.3
Ion Balance	%		-	Low EC	-	Low EC	-	-	Low EC	Low EC	102
Nitrate-N	mg/L	13	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate and Nitrite as N	mg/L		<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071
Nitrite-N	mg/L	0.197	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L		2.50	4.93	7.26	3.03	3.23	3.27	3.04	3.76	22.2
TDS (Calculated)	mg/L		22.5	29.6	33.3	19.3	36	33	31	39	102
Turbidity	NTU		0.78	0.51	0.48	0.69	0.62	0.65	0.74	1.32	0.89
pH	pH units	6.5-9.0	7.49	7.59	7.56	7.64	7.46	7.41	7.36	7.61	7.64

Waterbody	Units	CCME Limits	KM 13.3									
Year			2011			2012			2013			
Date Sampled			12/07/2011	29/08/2012	14/09/2011	25/06/2012	29/07/2012	18/08/2012	24/06/2013	22/07/2013	21/08/2013	30/09/2013
GPS Coordinates			546287-6979542	546287-6979542	546287-6979542	546287-6979542	546287-6979542	546287-6979542	547445-6978314	547445-6978314	547445-6978314	547445-6978314
LAB			ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements												
Water Temperature	oC		18.8	11.5	6.9	13.5	10.2	12.6	12.9	12.6	12.3	3.8
pH	pH units		7.1	6.9	7.38	7.92	8.05	7.96	8.26	7.8	8.89	7
Conductivity	(µS/cm)		-	0	79	29	56	66	0.01	0.03	0.08	0.1
Laboratory-Measured												
Ammonia, Total (as N)	mg/L	2.33	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	0.019	<0.010	0.035
Biochemical Oxygen Demand	mg/L		1.5	-	-	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Mercury (Hg)-Total	mg/L	0.000026	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01	0.016	<0.010	<0.010	<0.010	-	-	0.0083	0.013	0.0068	0.0053
Phosphorus (P)-Total Reactive	mg/L		-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010
Sodium Adsorption Ratio	%	0.03	-	-	-	0.15	0.25	0.24	0.21	0.26	0.3	0.3
Total Kjeldahl Nitrogen	mg/L		-	0.58	0.52	0.23	0.51	0.59	0.29	0.57	0.6	0.46
Phosphorus (P)-Total	mg/L		-	-	-	0.0024	0.0084	0.0055	0.0083	0.013	0.0068	0.0053
Total Suspended Solids	mg/L		<5.0	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1	0.01	0.025	<0.020	0.0102	0.0243	0.013	0.0446	0.0228	0.0122	0.0768
Antimony (Sb)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.00069	<0.0010	<0.0010	0.00024	0.00036	0.00038	0.00029	0.00039	0.00052	0.00036
Barium (Ba)-Total	mg/L		0.0239	0.019	0.0200	0.011	0.0182	0.0151	0.0104	0.014	0.02	0.0302
Beryllium (Be)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5	<0.010	<0.030	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	Equation	<0.000010	<0.00020	<0.00020	0.00002	0.00004	<0.000010	<0.000010	0.000033	0.00001	0.000023
Calcium (Ca)-Total	mg/L		9.25	10.8	11.70	4.34	8.6	9.01	3.9	8.24	13.2	13
Cesium (Cs)-Total	mg/L		<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	0.00026	<0.00020	<0.00020	<0.00020	<0.00020	0.00037
Copper (Cu)-Total	mg/L	Equation	0.00211	<0.0020	<0.0020	0.00093	0.00207	0.00166	0.00141	0.00179	0.00186	0.0027
Iron (Fe)-Total	mg/L	0.3	0.41	0.17	0.21	0.18	0.51	0.22	0.2	0.16	0.16	0.32
Lead (Pb)-Total	mg/L	Equation	<0.000090	<0.0010	<0.0010	<0.000090	0.000207	<0.000090	<0.000090	<0.000090	<0.000090	0.000136
Lithium (Li)-Total	mg/L		<0.0020	0.0121	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Magnesium (Mg)-Total	mg/L		1.11	1.47	1.74	0.638	1.23	1.26	0.663	1.19	1.97	2.26
Manganese (Mn)-Total	mg/L		0.0273	0.0045	0.0076	0.00685	0.0394	0.00466	0.00579	0.00564	0.00396	0.027
Molybdenum (Mo)-Total	mg/L	0.073	<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Nickel (Ni)-Total	mg/L	Equation	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0021
Phosphorus (P)-Total	mg/L		<0.20	<0.50	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L		0.94	1.36	1.34	0.564	0.953	1.09	0.626	1.11	1.73	1.62
Rubidium (Rb)-Total	mg/L		0.00149	0.00242	0.00229	0.00091	0.00175	0.00189	0.00115	0.00198	0.00291	0.00322
Selenium (Se)-Total	mg/L	0.001	<0.0010	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon (Si)-Total	mg/L		0.147	0.58	0.79	0.138	0.33	0.422	0.249	0.378	0.916	1.76
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L		2.46	3.85	4.05	1.73	3.13	3.21	1.7	3.01	4.42	3.99
Strontium (Sr)-Total	mg/L		0.0434	0.0473	0.0477	0.019	0.0355	0.0378	0.017	0.0352	0.0581	0.0558
Tellurium (Te)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00060	<0.00060	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L		0.00036	<0.0010	<0.0010	0.00034	0.00075	<0.00050	0.00138	0.00053	<0.00050	0.00277
Tungsten (W)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	0.015	<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)-Total	mg/L		<0.00020	<0.0020	<0.0020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021
Zinc (Zn)-Total	mg/L	0.03	<0.0050	<0.020	<0.020	0.0022	0.0044	<0.0020	<0.0020	<0.0020	0.0021	<0.0020
Zirconium (Zr)-Total	mg/L		<0.00040	<0.0010	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L		28.90	28.00	27.50	12.1	21	27	12.2	22	33	28
Bicarbonate (HCO3)	mg/L		35.30	34.10	33.60	14.8	26	33	14.9	27	40	34
Carbonate (CO3)	mg/L		<0.60	<0.60	<0.60	<0.60	<12	<12	<0.60	<12	<12	<12
Hydroxide (OH)	mg/L		<0.40	<0.40	<0.40	<0.34	<6.8	<6.8	<0.34	<6.8	<6.8	<6.8
Chloride	mg/L		4.29	5.86	5.75	2.93	4.35	5.35	2.38	4.47	6.66	7.23
Conductivity	umhos/cm		75.50	81.50	87.60	39	65	73	37	67	103	120
Calcium (Ca)-Dissolved	mg/L		-	10.4	10.9	4.31	7.64	9.15	3.82	7.76	12.1	14.2
Magnesium (Mg)-Dissolved	mg/L		-	1.3	1.5	0.644	0.97	1.17	0.588	1.11	1.93	2.47
Potassium (K)-Dissolved	mg/L		-	1.49	1.3	0.57	0.87	1.14	0.595	1.07	1.65	1.72
Sodium (Na)-Dissolved	mg/L		-	3.11	3.34	1.27	2.71	2.94	1.71	2.85	4.3	4.64
Fluoride	mg/L	0.12	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L		27.6	33	36.4	13.4	26.6	27.7	12.5	25.5	41	41.8
Ion Balance	%		-	Low EC	-	Low EC	-	-	Low EC	Low EC	102	104
Nitrate-N	mg/L	13	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate and Nitrite as N	mg/L		<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071
Nitrite-N	mg/L	0.197	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L		2.59	4.57	6.33	2.01	3.01	3.21	1.5	4.15	6.09	16.9
TDS (Calculated)	mg/L		38.0	43.5	45.7	19	44	48	24	43	67	78
Turbidity	NTU		1.00	0.63	0.74	0.61	0.87	1.18	1.36	1.04	0.86	1.83
pH	pH units	6.5-9.0	7.80	7.81	7.79	7.62	7.57	7.59	7.34	7.51	7.85	7.42

Waterbody	Units	CCME Limits	KM 22.6									
Year			2011			2012			2013			
Date Sampled			12/07/2011	29/08/2012	14/09/2011	25/06/2012	29/07/2012	18/08/2012	24/06/2013	22/07/2013	21/08/2013	30/09/2013
GPS Coordinates			541245-6985577	541245-6985577	541245-6985577	541245-6985577	541245-6985577	541245-6985577	541245-6985577	541245-6985577	541245-6985577	541245-6985577
LAB	Field Measurements	LAB	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Water Temperature			17.4	11.9	7.4	17.4	10.4	11.7	14.1	11.5	13.5	2.8
pH			7.5	7.5	7.25	7.76	7.93	7.94	8.33	7.85	8.95	6.6
Conductivity (µS/cm)			-	0	168	72	80	68	-	150	150	130
Laboratory-Measured	Laboratory-Measured	LAB										
Ammonia, Total (as N)			mg/L	2.33	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	0.024	0.014
Biochemical Oxygen Demand			mg/L		1.2	-	<6.0	<6.0	<6.0	<6.0	42.6	<6.0
Mercury (Hg)-Total			mg/L	0.000026	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01	<0.010	<0.010	<0.010	<0.010	-	0.011	0.0082	0.011	0.0078	0.0091
Phosphorus (P)-Total Reactive	mg/L		-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010
Sodium Adsorption Ratio	%	0.03	-	-	-	0.2	0.17	0.16	0.15	0.22	0.34	0.21
Total Kjeldahl Nitrogen	mg/L		-	0.77	0.57	0.3	0.22	0.36	0.37	0.55	0.86	0.34
Phosphorus (P)-Total	mg/L		<0.010	-	-	0.0016	0.0019	-	0.0082	0.011	0.0078	0.0091
Total Suspended Solids	mg/L		<5.0	-	-	<5.0	<5.0	6	<5.0	<5.0	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1	<0.0050	0.02	<0.020	0.0055	<0.0050	<0.0050	0.0068	<0.0050	<0.0050	0.0069
Antimony (Sb)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.00073	0.0044	0.00240	0.00151	0.00104	0.0014	0.0018	0.00238	0.00416	0.00216
Barium (Ba)-Total	mg/L		0.0212	0.0325	0.0307	0.0158	0.0169	0.0113	0.0182	0.0298	0.0346	0.0424
Beryllium (Be)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5	<0.010	<0.030	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	Equation	<0.000010	<0.00020	<0.00020	0.000015	<0.000010	<0.000010	<0.000010	0.000027	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L		15.7	26.9	28.0	11.7	14	10.5	14.6	28.5	29	24.2
Cesium (Cs)-Total	mg/L		<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation	0.00079	<0.0020	<0.0020	0.00106	0.00106	0.0012	0.00134	0.00155	0.00151	0.00168
Iron (Fe)-Total	mg/L	0.3	<0.10	0.24	0.29	<0.10	<0.10	<0.10	0.15	0.15	0.36	0.22
Lead (Pb)-Total	mg/L	Equation	<0.000090	<0.0010	<0.0010	0.000091	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	0.000414
Lithium (Li)-Total	mg/L		<0.0020	0.0126	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.002	<0.0020
Magnesium (Mg)-Total	mg/L		1.37	3.09	3.33	1.21	1.41	1.04	1.57	3.15	3.81	2.45
Manganese (Mn)-Total	mg/L		0.0251	0.0212	0.0218	0.00828	0.00572	0.024	0.00829	0.0139	0.0365	0.0345
Molybdenum (Mo)-Total	mg/L	0.073	<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	<0.00020
Nickel (Ni)-Total	mg/L	Equation	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.002	<0.0020
Phosphorus (P)-Total	mg/L		<0.20	<0.50	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L		0.53	2.11	1.71	0.83	0.773	0.798	0.996	1.75	2.55	1.59
Rubidium (Rb)-Total	mg/L		0.00082	0.00228	0.00191	0.00099	0.00115	0.0011	0.00114	0.00205	0.00275	0.00212
Selenium (Se)-Total	mg/L	0.001	0.0015	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon (Si)-Total	mg/L		0.171	1.14	1.150	0.328	0.364	0.263	0.45	0.912	1.74	0.857
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L		2.54	6.11	5.83	2.26	2.53	2.2	2.19	4.93	7	3.86
Strontium (Sr)-Total	mg/L		0.0580	0.1030	0.0974	0.044	0.0494	0.0394	0.0435	0.0954	0.112	0.0859
Tellurium (Te)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00060	<0.00060	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L		<0.00020	<0.0010	<0.0010	0.0004	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Tungsten (W)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	0.015	<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)-Total	mg/L		<0.00020	<0.0020	<0.0020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	0.03	0.0092	<0.020	<0.020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0058
Zirconium (Zr)-Total	mg/L		<0.00040	<0.0010	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L		41.80	73.10	69.50	34.00	37.00	32.00	40	72	78.00	55
Bicarbonate (HCO3)	mg/L		51.00	89.20	84.80	41.00	46.00	39.00	49	88	96.00	67
Carbonate (CO3)	mg/L		<0.60	<0.60	<0.60	<12	<12	<12	<12	<12	<12	<12
Hydroxide (OH)	mg/L		<0.40	<0.40	<0.40	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
Chloride	mg/L		3.68	11	9.88	3.87	3.8	3.79	3.59	9.13	14	6.69
Conductivity	umhos/cm		92.40	165.00	168.00	83.00	90.00	73.00	93	174	206.00	140
Calcium (Ca)-Dissolved	mg/L		-	25.7	25.9	11.5	13.4	10.6	13	26.5	31.9	20.2
Magnesium (Mg)-Dissolved	mg/L		-	2.71	2.9	1.23	1.2	1	1.42	2.86	4.35	2.22
Potassium (K)-Dissolved	mg/L		-	1.87	1.63	0.83	0.79	<2.0	0.889	1.64	2.8	1.49
Sodium (Na)-Dissolved	mg/L		-	5.65	5.19	2.68	2.36	2.07	2.17	4.47	7.72	3.72
Fluoride	mg/L	0.12	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L		44.9	79.9	83.7	33.7	40.8	30.4	42.9	78.1	88	70.6
Ion Balance	%		-	97.8	-	Low EC	-	-	Low EC	99.7	114	99.7
Nitrate-N	mg/L	13	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.139
Nitrate and Nitrite as N	mg/L		<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	0.139
Nitrite-N	mg/L	0.197	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L		1.17	3.21	5.54	1.88	2.01	1.86	1.66	4.83	4.52	4.79
TDS (Calculated)	mg/L		50.1	94.0	92.7	42.2	68	48	61	113	134	91
Turbidity	NTU		0.30	0.83	1.32	0.38	0.32	1.02	0.71	1.07	1.67	1.76
pH	pH units	6.5-9.0	7.87	8.25	8.20	7.98	7.76	7.65	7.99	8.16	8.25	7.59

Waterbody	Units	CCME Limits	KM 23.6									
Year			2011			2012			2013			
Date Sampled			12/07/2011	29/08/2012	14/09/2011	25/06/2012	29/07/2012	18/08/2012	24/06/2013	22/07/2013	21/08/2013	30/09/2013
GPS Coordinates			541188-6986363	541188-6986363	541188-6986363	541188-6986363	541188-6986363	541188-6986363	541188-6986363	541188-6986363	541188-6986363	541188-6986363
LAB			ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS	
Field Measurements												
Water Temperature	oC		17.1	13	6.9	13	11.5	12.3	12	11.25	13.9	2.2
pH	pH units		8.1	7.6	7.18	7.86	7.77	7.66	7.65	7.7	8.03	7.3
Conductivity	(µS/cm)		-	0	232	161	212	206	110	120	210	330
Laboratory-Measured												
Ammonia, Total (as N)	mg/L	2.33	<0.050	<0.050	<0.050	<0.010	<0.010	0.012	<0.010	<0.010	0.022	<0.010
Biochemical Oxygen Demand	mg/L		1.2	-	-	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Mercury (Hg)-Total	mg/L	0.000026	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01	0.014	<0.010	<0.010	<0.010	-	-	0.0055	0.0063	0.0129	0.0028
Phosphorus (P)-Total Reactive	mg/L		-	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium Adsorption Ratio	%	0.03	-	-	-	0.26	0.26	0.23	0.2	0.23	0.26	0.24
Total Kjeldahl Nitrogen	mg/L		-	0.39	0.42	0.21	0.31	0.29	<0.20	0.21	0.33	0.24
Phosphorus (P)-Total	mg/L		-	-	-	0.0021	0.0025	0.0036	0.0055	0.0063	0.0129	0.0028
Total Suspended Solids	mg/L		-	-	-	<5.0	<5.0	5	<5.0	<5.0	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1	<0.0050	0.022	<0.020	<0.0050	<0.0050	<0.0050	0.0078	<0.0050	0.0072	0.0094
Antimony (Sb)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.00264	0.0041	0.0029	0.00154	0.00178	0.00234	0.00135	0.00216	0.0039	0.00246
Barium (Ba)-Total	mg/L		0.0242	0.0255	0.0244	0.0245	0.0253	0.0265	0.0199	0.0191	0.0312	0.0348
Beryllium (Be)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5	<0.010	<0.030	<0.030	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	Equation	<0.000010	<0.00020	<0.00020	0.000015	<0.00010	<0.00010	<0.00010	0.000027	0.000028	<0.000010
Calcium (Ca)-Total	mg/L		26.0	33.2	36.4	22.2	31	29.5	17.3	22.4	35.9	53.6
Cesium (Cs)-Total	mg/L		<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Chromium (Cr)-Total	mg/L		<0.0010	<0.0020	<0.0020	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation	0.00104	<0.0020	<0.0020	0.00075	0.00101	0.00095	0.00064	0.00084	0.00102	0.00447
Iron (Fe)-Total	mg/L	0.3	0.12	0.21	0.16	0.11	<0.10	0.32	<0.10	0.22	0.52	<0.10
Lead (Pb)-Total	mg/L	Equation	<0.000090	<0.0010	<0.0010	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	0.00035
Lithium (Li)-Total	mg/L		0.0075	0.0235	0.0058	0.0077	0.009	0.0067	0.0061	0.0042	0.0041	0.0039
Magnesium (Mg)-Total	mg/L		3.18	4.34	5.03	2.76	3.88	3.56	2.13	2.65	4.21	5.58
Manganese (Mn)-Total	mg/L		0.0176	0.0261	0.0159	0.012	0.00554	0.0639	0.0108	0.04	0.0978	0.0197
Molybdenum (Mo)-Total	mg/L	0.073	<0.00020	<0.00050	<0.00050	<0.00020	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	0.00021
Nickel (Ni)-Total	mg/L	Equation	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L		<0.20	<0.50	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Potassium (K)-Total	mg/L		1.39	1.95	1.72	1.2	1.53	1.35	1.11	1.15	1.62	2.11
Rubidium (Rb)-Total	mg/L		0.00162	0.0021	0.00192	0.0013	0.00175	0.00161	0.00121	0.00134	0.00231	0.00277
Selenium (Se)-Total	mg/L	0.001	<0.0010	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon (Si)-Total	mg/L		0.784	1.34	1.650	0.552	0.497	0.604	0.383	0.377	0.953	1.74
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L		4.72	6.57	6.87	4.03	6.03	5.32	3.16	4.28	6.36	6.46
Strontium (Sr)-Total	mg/L		0.154	0.194	0.178	0.15	0.19	0.156	0.117	0.109	0.174	0.192
Tellurium (Te)-Total	mg/L		<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.0050	<0.0050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00060	<0.00060	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium (Ti)-Total	mg/L		<0.00020	<0.0010	<0.0010	0.00028	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054
Tungsten (W)-Total	mg/L		<0.0010	<0.0020	<0.0020	0.00017	<0.00010	<0.00010	0.00016	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	0.015	<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00014	0.00033
Vanadium (V)-Total	mg/L		<0.00020	<0.0020	<0.0020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	0.03	<0.0050	<0.020	<0.020	<0.0020	<0.0020	<0.0020	0.0027	<0.0020	0.0054	<0.0020
Zirconium (Zr)-Total	mg/L		<0.00040	<0.0010	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L		38.10	52.50	59.00	29	39	46	26	36	63	104
Bicarbonate (HCO3)	mg/L		46.50	64.00	72.00	35	47	56	31	44	77	127
Carbonate (CO3)	mg/L		<0.60	<0.60	<0.60	<12	<12	<12	<12	<12	<12	<12
Hydroxide (OH)	mg/L		<0.40	<0.40	<0.40	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
Chloride	mg/L		31.4	40.2	36.9	30.6	38	34.3	24.9	23.2	32.1	36.3
Conductivity	umhos/cm		176.00	213.00	229.00	172	210	172	144	151	244	342
Calcium (Ca)-Dissolved	mg/L		-	32.4	33.1	21.7	28.6	30	16.8	20.6	34.3	51.3
Magnesium (Mg)-Dissolved	mg/L		-	3.99	4.4	2.91	3.51	3.3	2.06	2.39	3.85	6.19
Potassium (K)-Dissolved	mg/L		-	1.82	1.63	1.27	1.51	1.41	1.01	1.05	1.55	2.1
Sodium (Na)-Dissolved	mg/L		-	6.03	5.99	4.83	5.53	4.9	3.34	3.92	5.95	6.89
Fluoride	mg/L	0.12	<0.10	<0.10	<0.10	<0.10	-	-	<0.10	<0.10	<0.10	<0.10
Hardness (as CaCO3)	mg/L		78.0	101.0	111.0	66.3	93.4	88.4	52	66.8	107	157
Ion Balance	%		-	100	-	103	-	-	92.8	97.9	101	101
Nitrate-N	mg/L	13	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.223
Nitrate and Nitrite as N	mg/L		<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	0.223
Nitrite-N	mg/L	0.197	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L		3.42	3.12	5.29	3.91	5.6	4.7	2.87	3.68	6.86	12.7
TDS (Calculated)	mg/L		93.0	119.0	123.0	82.5	156	112	94	98	159	222
Turbidity	NTU		0.56	0.5	0.57	0.51	0.37	0.89	0.6	0.88	1.91	0.23
pH	pH units	6.5-9.0	7.99	8.13	8.12	7.79	7.91	7.77	7.62	7.49	7.78	7.81

Noise Monitoring

Date:	2013-07-29	Time:	11:20			
Make of noise meter:	Larson Davis 831					
Is the road still under construction:	Yes - Dozer/Haul Truck and pick-up truck for topping					
Monitoring location 1:		UTM Easting:	547888	UTM Northing:	6978093	
Perpendicular distance from the road:						
Edge of the road:	27.2	dB (LAeq)				
50 meters of the road:	25	dB (LAeq)				
100 meters of the road:	16.7	dB (LAeq)				
200 meters of the road:	18.4	dB (LAeq)				
300 meters of the road:	15.9	dB (LAeq)				
400 meters of the road:	16	dB (LAeq)				
Weather information						
Localisation from the road	Edge	50 m	100 m	200 m	300 m	400 m
Wind speed average :	8.9	11.1	7.4	8.7	6.5	7.3
Wind speed max :	na	na	na	na	na	na
Wind orientation:	163	179	162	143	165	163
Temperature at the beginning:	18.7	21.5	21.4	22.4	21.3	22.3
Humidity :	43.2	41.5	40.9	44.2	42.4	40.7
Windchill:	na	na	na	na	na	na
Dew point:	8.3	7.5	8.7	8.0	8.6	9.1
Sunny - cloudy - rainy - snowy	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny

Date:	2013-08-09	Time:	10:27			
Make of noise meter:	Larson Davis 831					
Is the road still under construction:	Yes - Dozer/Rock Truck					
Monitoring location 1:		UTM Easting:	546200	UTM Northing:	6979554	
Perpendicular distance from the road:						
Edge of the road:	63.4	dB (LAeq)				
50 meters of the road:	59.9	dB (LAeq)				
100 meters of the road:	58	dB (LAeq)				
200 meters of the road:	53.9	dB (LAeq)				
300 meters of the road:	53.9	dB (LAeq)				
400 meters of the road:	43.4	dB (LAeq)				
Weather information						
Localisation from the road	Edge	50 m	100 m	200 m	300 m	400 m
Wind speed average :	10	NA	NA	NA	NA	NA
Wind speed max :	15	NA	NA	NA	NA	NA
Wind orientation:	55	NA	NA	NA	NA	NA
Temperature at the beginning:	17.5	NA	NA	NA	NA	NA
Humidity :	43	NA	NA	NA	NA	NA
Windchill:	NA	NA	NA	NA	NA	NA
Dew point:	3.2	NA	NA	NA	NA	NA
Sunny - cloudy - rainy - snowy	Sunny	NA	NA	NA	NA	NA

Date:	2013-08-15	Time:	07:00			
Make of noise meter:	Larson Davis 831					
Is the road still under construction:	Yes - Dozer/Rock Truck/pick-up					
Monitoring location 1:		UTM Easting:	546200	UTM Northing:	6979554	
Perpendicular distance from the road:						
Edge of the road:	76.5	dB (LAeq)				
50 meters of the road:	67.4	dB (LAeq)				
100 meters of the road:	42.6	dB (LAeq)				
200 meters of the road:	42.6	dB (LAeq)				
300 meters of the road:	40.6	dB (LAeq)				
400 meters of the road:	40.7	dB (LAeq)				
Weather information						
Localisation from the road	Edge	50 m	100 m	200 m	300 m	400 m
Wind speed average :	5.197	NA	NA	NA	NA	NA
Wind speed max :	9.67	NA	NA	NA	NA	NA
Wind orientation:	125	NA	NA	NA	NA	NA
Temperature at the beginning:	11.45	NA	NA	NA	NA	NA
Humidity :	na	NA	NA	NA	NA	NA
Windchill:	11.97	NA	NA	NA	NA	NA
Dew point:	na	NA	NA	NA	NA	NA
Sunny - cloudy - rainy - snowy	Sunny	NA	NA	NA	NA	NA

Dust Monitoring

	1ST					2nd					3rd				
	START				END	START				END	START				END
DATE	24/06/2013				24/07/2013	24/07/2013				26/08/2013	26/08/2013				30/09/2013
STATION	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
UNITS															
mg	8	5	4	2	8	12	13	11	7	7	8	8	10	3	2
mg/cm2/30day	0.093	0.066	0.044	0.029	0.096	0.134	0.147	0.127	0.073	0.073	0.081	0.088	0.103	0.028	0.025
mg	7	4	3	2	3	12	13	9	4	4	7	7	10	2	<2
mg/cm2/30day	0.081	0.051	0.037	0.022	0.037	0.134	0.14	0.1	0.047	0.04	0.069	0.076	0.103	0.019	0.013

Appendix 3 Labs Certification



CALA

Canadian Association for
Laboratory Accreditation Inc.

CALA Directory of Laboratories

Membership Number: 1442
Laboratory Name: ALS Environmental (Winnipeg)
Parent Institution: ALS Canada Ltd.
Address: 1329 Niakwa Road East Unit 12 Winnipeg MB R2J 3T4
Contact: Ms. Kayla Harold
Phone: (204) 255-9726
Fax: (204) 255-9721
Email: kayla.harold@alsglobal.com; linda.neimor@ALSGlobal.com

Standard: Conforms with requirements of ISO/IEC 17025
Clients Served: All Interested Parties
Revised On: January 7, 2013
Valid To: June 5, 2015

Scope of Accreditation

Air (Inorganic)

Radon - Air (142)
WP-TM-1801; modified from EPA 402-F-93-003
ELECTRET RADON MONITOR
Radon

Air (Mycology)

Mold - Air (163)
WP-TM-1704; modified from ASTM D7391
DIRECT MICROSCOPIC EXAMINATION
Biocontaminant Identification
Biocontaminant Quantification

Air (Mycology)

Mould - Air (AGAR Strips) (055)
WP-TM-1703; modified from INTRO. TO FOOD-BOURNE FUNGI
MICROSCOPE
Biocontaminant Identification
Biocontaminant Quantitation

Food (Microbiology)

Coliforms - Dairy Products (Except Unpasteurized Milk for Payment Purposes) & Meat and Edible Meat Offal (Milk Powder, Egg, Cheese, Butter, Evaporated Milk, Meat) (153)
A152; MFHPB-19
MOST PROBABLE NUMBER
Escherichia coli (E.coli)
Fecal Coliforms
Total Coliforms

† "OSDWA" indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario "Safe Drinking Water Act" (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at http://www.cala.ca/cala_directories.html

Food (Microbiology)

Coliforms - Dairy Products (Except Unpasteurized Milk for Payment Purposes) & Meat and Edible Meat Offal (Milk Powder, Egg, Cheese, Butter, Evaporated Milk, Meat) (157)

A173; MFHPB-31

POUR PLATE

Total Coliforms

Food (Microbiology)

Heterotrophic Plate Count - Dairy Products (Except Unpasteurized Milk for Payment Purposes) & Meat and Edible Meat Offal (Milk Powder, Egg, Cheese, Butter, Evaporated Milk, Meat) (152)

A166; MFHPB-18

POUR PLATE

Heterotrophic Plate Count

Food (Microbiology)

Listeria - Dairy Products (Except Unpasteurized Milk for Payment Purposes) & Meat and Edible Meat Offal (Milk Powder, Egg, Cheese, Butter, Evaporated Milk, Meat) (151)

WP-TM-1202; AOAC 997.03

VISUAL IMMUNOPRECIPITATE ASSAY

Listeria monocytogenes

Food (Microbiology)

Listeria - Dairy Products (Except Unpasteurized Milk for Payment Purposes) & Meat and Edible Meat Offal (Milk Powder, Egg, Cheese, Butter, Evaporated Milk, Meat) (156)

WP-TM-1201; MFHPB-30

SPREAD PLATE

Listeria monocytogenes

Food (Microbiology)

Listeria - Dairy Products (Except Unpasteurized Milk for Payment Purposes) & Meat and Edible Meat Offal (Milk Powder, Egg, Cheese, Butter, Evaporated Milk, Meat) (158)

WP-TM-1203; MFLP-34

VISUAL IMMUNOPRECIPITATE ASSAY

Listeria monocytogenes

Food (Microbiology)

Salmonella - Dairy Products (Except Unpasteurized Milk for Payment Purposes) & Meat and Edible Meat Offal (Milk Powder, Egg, Cheese, Butter, Evaporated Milk, Meat) (154)

WP-TM-1204; MFHPB-20

SPREAD PLATE

Salmonella

Food (Microbiology)

Salmonella - Dairy Products (Except Unpasteurized Milk for Payment Purposes) & Meat and Edible Meat Offal (Milk Powder, Egg, Cheese, Butter, Evaporated Milk, Meat) (159)

WP-TM-1205; MFLP-70

IMMUNODIFFUSION ASSAY

Salmonella

Food (Microbiology)

Salmonella - Meat, Poultry and Egg Products (160)

WP-TM-1206; USDA MLG 4

SPREAD PLATE

Salmonella

Food (Microbiology)

Staphylococcus - Dairy Products (Except Unpasteurized Milk for Payment Purposes) & Meat and Edible Meat Offal (Milk Powder, Egg, Cheese, Butter, Evaporated Milk, Meat) (155)

A159; MFHPB-21

SPREAD PLATE

Staphylococcus aureus

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Oil (Organic)

Polychlorinated Biphenyls (PCB) - Oil (020)
WP-TM-0799; modified from EPA SW846 8082
GC/ECD - EXTRACTION
Aroclor 1242
Aroclor 1254
Aroclor 1260
Total PCB

Solids (Biology)

Benthic Organisms - Sediment (075)
WP-TM-1301; modified from SM 10500
MICROSCOPE EXAMINATION
Benthos Enumeration
Benthos Identification

Solids (Inorganic)

Heavy Hydrocarbons and Oil and Grease - Soil (108)
WP-TM-0722; modified from CCME TIER 1
GRAVIMETRIC
F4: Gravimetric
F4G-sq: Gravimetric Heavy Hydrocarbon - Silica Gel
Mineral Oil and Grease
Oil and Grease

Solids (Inorganic)

Metals - TCLP Leachate - Waste (149)
WP-TP-2006/NA-TM-1002; modified from EPA 1311/200.2
ICP/MS - TCLP
Antimony
Arsenic
Barium
Beryllium
Boron
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Molybdenum
Nickel
Potassium
Selenium
Silver
Strontium
Thallium
Tin
Uranium
Vanadium
Zinc
Zirconium

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Solids (Inorganic)

Total Mercury (TCLP Leachate) - Waste (162)

WP-TP-2006/WP-TM-10071/WP-WI-2001; modified from EPA 1311/245.7

COLD VAPOUR ATOMIC FLUORESCENCE - TCLP

Mercury

Solids (Inorganic)

Total Mercury - Soil (128)

WP-TM-10071/NA-TP-2004/WP-WI-2001; modified from EPA 245.7

COLD VAPOUR ATOMIC FLUORESCENCE - DIGESTION

Mercury

Solids (Inorganic)

Total Metals - Solids (131)

NA-TM-1002/NA-TP-2004; modified from EPA 200.2

ICP/MS - DIGESTION

Aluminum

Antimony

Arsenic

Barium

Beryllium

Bismuth

Boron

Cadmium

Calcium

Chromium

Cobalt

Copper

Iron

Lead

Magnesium

Manganese

Nickel

Phosphorus

Potassium

Selenium

Silver

Sodium

Strontium

Thallium

Thorium

Tin

Titanium

Uranium

Vanadium

Zinc

Solids (Organic)

Glycols - Soil (145)

WP-TM-1102; modified from ASTM D3695-82

GC/FID

Diethylene Glycol

Ethylene Glycol

Propylene Glycol

Tetraethylene Glycol

Triethylene Glycol

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Solids (Organic)

Petroleum Hydrocarbons (PHC) - Soil (064)

WP-TM-0722; modified from CCME TIER 1

GC/FID - EXTRACTION

F2: C10-C16

F3: C16-C34

F4: C34-C50

Solids (Organic)

Petroleum Hydrocarbons (PHC) - Soil (148)

NA-TP-2100/NA-TM-1100; modified from CCME TIER 1

GC/FID

F2: C10-C16

F3: C16-C34

F4: C34-C50

Solids (Organic)

Petroleum Hydrocarbons (PHC) - Soil (150)

NA-TP-2100/NA-TM-1100; modified from CCME - TIER 1

GRAVIMETRIC - TUMBLER

F4: Gravimetric

Solids (Organic)

Polychlorinated Biphenyls (PCB) - Soil (045)

WP-TM-0801; modified from EPA SW 846 3550A

GC/ECD - EXTRACTION

Aroclor 1016

Aroclor 1221

Aroclor 1232

Aroclor 1248

Aroclor 1262

Aroclor 1268

Aroclor 1242

Aroclor 1254

Aroclor 1260

Total PCB

Solids (Organic)

Polycyclic Aromatic Hydrocarbons (PAH) - Soil (051)

WP-TM-1101/WP-TP-2102; modified from EPA SW 846 3550C, 8270D

GC/MS - SHAKE

Acenaphthene

Acenaphthylene

Anthracene

Benzo (a) anthracene

Benzo (a) pyrene

Benzo (b) fluoranthene

Benzo (g,h,i) perylene

Benzo (k) fluoranthene

Chrysene

Dibenzo (a,h) anthracene

Fluoranthene

Fluorene

Indeno (1,2,3 - cd) pyrene

Methyl Anthracene

Naphthalene

Naphthalene - Dimethyl

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Napthalene - Methyl
Pentachlorophenol
Phenanthrene
Pyrene
Quinoline

Solids (Organic)

Volatile Fatty Acids - Soil (129)

WP-TM-0752; modified from ASTM D3695-
GC/MS - WATER EXTRACTION

Acetic Acid
Butyric Acid
Caproic Acid
Formic Acid
Isobutyric Acid
Isovaleric Acid
Propionic Acid
Valeric Acid

Solids (Organic)

Volatile Organic Compounds (VOC) - Soil (141)

WP-TM-0808/NA-WI-3006/NA-TM-1102; modified from EPA 5021A/8260C
GC/MS - METHANOL EXTRACTION/HEADSPACE

1,1-Dichloroethane
1,1-Dichloroethylene
1,1-Dichloropropene
1,1,1-Trichloroethane
1,1,1,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,3-Dichlorobenzene
1,3-Dichloropropane
1,3,5-Trimethylbenzene
1,4-Dichlorobenzene
2-Chlorotoluene
2,2-Dichloro-propane
4-Chlorotoluene
4-Isopropyltoluene
Acetone (2-Propanone)
Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform
Bromomethane
Carbon disulfide
Carbon Tetrachloride

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Chlorobenzene
Chlorodibromomethane
Chloroethane
Chloroform
Chloromethane
cis-1,2-Dichloroethylene
cis-1,3-Dichloropropene
Dibromomethane
Dichlorodifluoromethane
Dichloromethane
Ethylbenzene
Ethylene Dibromide
Hexachlorobutadiene
Hexane
Isopropylbenzene
m/p-xylene
Methyl ethyl ketone
Methyl isobutyl ketone
Methyl n-butyl ketone
Methyl t-butyl ether
n-Butylbenzene
Naphthalene
o-xylene
sec-Butylbenzene
Styrene
tert-Butylbenzene
Tetrachloroethylene
Toluene
trans-1,2-Dichloroethylene
trans-1,3-Dichloropropene
Trichloroethylene
Trichlorofluoromethane
Vinyl chloride

Solids (Organic)

/olatile Petroleum Hydrocarbons (PHC) - Soil (140)
NP-TM-0808/NA-WI-3006; CCME PHC - PERFORMANCE BASED MODIFICATION
GC/FID - METHANOL EXTRACTION/HEADSPACE
F1: C6-C10

Tissue (Inorganic)

Total Mercury - Animal Tissue (082)
VA-TP-2003/WP-TM-1008; modified from EPA 1631, 245.7
COLD VAPOUR ATOMIC FLUORESCENCE - DIGESTION
Mercury

Tissue (Inorganic)

Total Metals - Animal Tissue (070)
VA-TP-2003/NA-TM-1002; modified from EPA 200.3 AND 200.8
ICP/MS - DIGESTION
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth

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Boron
Cadmium
Calcium
Cesium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Molybdenum
Nickel
Phosphorus
Potassium
Rubidium
Selenium
Silver
Sodium
Strontium
Tellurium
Thallium
Tin
Titanium
Uranium
Vanadium
Zinc

Tissue (Inorganic)

Total Metals - Vegetation (071)

NA-TP-2003/NA-TM-1002; modified from EPA 200.3 AND 200.8

ICP/MS - DIGESTION

Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium
Cesium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Molybdenum
Nickel
Phosphorus
Potassium
Rubidium

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Selenium
Silver
Sodium
Strontium
Tellurium
Thallium
Tin
Titanium
Uranium
Vanadium
Zinc

Water (Inorganic)

Acidity - Water (111)
WP-TM-1003; modified from SM 2310 B
TITRIMETRIC
Acidity as CaCO₃ - LR

Water (Inorganic)

Alkalinity - Water (001)
WP-TM-1001; modified from SM 2320 B
TITRIMETRIC
Alkalinity (pH 4.5)

Water (Inorganic)

Ammonia - Water (135)
WP-TM-1011/WP-WI-3005; modified from SM 4500-NH₃ F
COLORIMETRIC - DISCRETE ANALYZER
Ammonia

Water (Inorganic)

Anions - Water (134)
NA-TM-1001; modified from EPA 300.1
ION CHROMATOGRAPHY
Bromide
Chloride
Fluoride
Nitrate
Nitrite
Sulfate

Water (Inorganic)

Biochemical Oxygen Demand (BOD) - Water (015)
WP-TM-1015; modified from SM 5210 B
D.O. METER
BOD (5 day)
CBOD (5 day)

Water (Inorganic)

Carbon - Water (038)
A609; modified from SM 5310 B
AUTO IR ANALYZER
Inorganic Carbon
Total Carbon

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Water (Inorganic)

Chemical Oxygen Demand (COD) - Water (060)
A010; modified from SM 5220D/HACH
COLOR - DIGESTION
COD

Water (Inorganic)

Chlorine - Water (147)
WP-TM-1013; modified from sm 4500-Cl G
COLORIMETRIC
Free Chlorine
Total Chlorine

Water (Inorganic)

Color - Water (136)
WP-TM-1010/WP-WI-3005; modified from SM 2120-COLOR
COLORIMETRIC - DISCRETE ANALYZER
True Colour

Water (Inorganic)

Conductivity - Water (003)
WP-TM-1001; modified from SM 2510 B
CONDUCTIVITY METER
Conductivity (25°C)

Water (Inorganic)

Cyanide - Water (018)
WP-TM-1006; modified from SM 4500-CN- O/EPA 1311
COLOR - DISTILLATION
Cyanide (SAD)
Cyanide (WAD)

Water (Inorganic)

Dissolved and Extractable Metals - Water (056)
NA-TP-2002/NA-TM-1002; modified from EPA 200.8
ICP/MS
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium
Cesium
Chromium
Cobalt
Copper
Iron
Lead
Lithium
Magnesium
Manganese
Molybdenum
Nickel
Phosphorus
Potassium

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Rubidium
Selenium
Silicon
Silver
Sodium
Strontium
Tellurium
Thallium
Tin
Titanium
Tungsten
Uranium
Vanadium
Zinc
Zirconium

Water (Inorganic)

Dissolved Oxygen - Water (088)
A005; modified from SM 4500-O- C
IODOMETRIC - AZIDE MODIFICATION
Dissolved Oxygen

Water (Inorganic)

Mercury (Total and Dissolved) - Water (081)
WP-TM-1007/WP-TM-1008/WP-WI-2001/NA-TP-2002; modified from EPA 1631 E
CVAFS - BrCl DIGESTION
Mercury

Water (Inorganic)

Nitrate plus Nitrite - Water (007)
WP-TM-0270; modified from SM 4500-NO3- I
FIA COLORIMETRIC
Nitrate plus Nitrite

Water (Inorganic)

pH - Water (019)
WP-TM-1001; modified from SM 4500-H+ B
pH METER
pH

Water (Inorganic)

Phosphorus - Water (024)
WP-TM-1004; modified from SM 4500-P H
FIA COLORIMETRIC - DIGESTION
Dissolved Phosphate
Phosphate
Total Dissolved Phosphorus
Total Inorganic Phosphorus
Total Phosphorus

Water (Inorganic)

Phosphorus - Water (164)
WP-TM-1016; modified from APHA 4500-P B&E
COLORIMETRIC - DISCRETE ANALYZER
Dissolved Phosphate
Phosphate

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Water (Inorganic)

Phosphorus - Water (165)

WP-TM-1016; modified from APHA 4500-P B&E
COLORIMETRIC - DISCRETE ANALYZER - DIGESTION
Total Dissolved Phosphorus
Total Inorganic Phosphorus
Total Phosphorus

Water (Inorganic)

Silica - Water (137)

WP-TM-1012/WP-WI-3005; modified from SM 4500-SiO₂
COLORIMETRIC - DISCRETE ANALYZER
Reactive Silica

Water (Inorganic)

Solids - Water (014)

WP-TM-1014; modified from SM 2540 B, C, D
GRAVIMETRIC
Total Dissolved Solids
Total Solids
Total Suspended Solids

Water (Inorganic)

Total Kjeldahl Nitrogen (TKN) - Water (012)

WP-TM-0217; modified from LACHAT 10-107-06-2-E
AUTO COLOR - DIGESTION
Total Kjeldahl Nitrogen

Water (Inorganic)

Total Metals - Water (057)

NA-TP-2001/NA-TM-1002; modified from EPA SW846 3015/SM 3030 E
ICP/MS - DIGESTION
Aluminum
Antimony
Arsenic
Barium
Beryllium
Bismuth
Boron
Cadmium
Calcium
Cesium
Chromium
Cobalt
Copper
Iron
Lead
Lithium
Magnesium
Manganese
Molybdenum
Nickel
Phosphorus
Potassium
Rubidium
Selenium
Silicon

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Silver
Sodium
Strontium
Tellurium
Thallium
Tin
Titanium
Tungsten
Uranium
Vanadium
Zinc
Zirconium

Water (Inorganic)

Turbidity - Water (068)
WP-TM-1009; modified from SM 2130 B
TURBIDIMETRIC
Turbidity

Water (Microbiology)

Coliforms - Water (026)
A152; modified from SM 9221 A, B, C
MOST PROBABLE NUMBER
Escherichia coli (E. Coli)
Fecal Coliforms
Total Coliforms

Water (Microbiology)

Coliforms - Water (039)
A172; modified from SM 9223 B/IDEXX
MOST PROBABLE NUMBER (QUANTI-TRAY)
Escherichia coli (E. coli)
Total Coliforms

Water (Microbiology)

Coliforms - Water (079)
A178; modified from HACH 10029/APHA 9222 B
MEMBRANE FILTRATION (mCOLIBLUE)
Escherichia coli (E. coli)
Total Coliforms

Water (Microbiology)

Coliforms - Water (143)
WP-TM-0153; modified from SM 9222
MEMBRANE FILTRATION (DC-AGAR)
Escherichia coli (E. coli)
Total Coliforms

Water (Microbiology)

Cryptosporidium and Giardia - Water (053)
A174; modified from EPA 1623
IMS/FA - FILTRATION
Cryptosporidium Enumeration
Giardia Enumeration

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Water (Microbiology)

Fecal (Thermotolerant) Coliforms - Water (025)
A151; modified from SM 9222 D
MEMBRANE FILTRATION (mFC)
Fecal (Thermotolerant) Coliforms

Water (Microbiology)

Heterotrophic Plate Count (HPC) - Water (041)
A165; modified from SM 9215 B
POUR PLATE
Heterotrophic Plate Count (HPC)

Water (Microbiology)

Legionella - Water (118)
A182; modified from ISO 11731/SM 9260 J
MEMBRANE FILTRATION
Legionella-enumeration

Water (Microbiology)

Microcystins - Water (090)
WP-TM-1104; modified from TOXICON/ENVIROLOGIX
ELISA
Microcystins

Water (Microbiology)

Phytoplankton and Zooplankton - Water (076)
WP-TM-0102; modified from SM 10200
MICROSCOPE EXAMINATION
Phytoplankton Enumeration
Phytoplankton Identification
Zooplankton Enumeration
Zooplankton Identification

Water (Microbiology)

Pseudomonas aeruginosa - Water (093)
A156; modified from SM 9213 E
MEMBRANE FILTRATION (mPAC)
Pseudomonas aeruginosa

Water (Microbiology)

Total Coliforms - Water (078)
A151; modified from SM 9222 B
MEMBRANE FILTRATION (mENDO)
Total Coliforms

Water (Organic)

Alcohols and Glycols - Water (146)
WP-TM-1102; modified from ASTM D3695-82
GC/FID
Acetone
Diethylene Glycol
Ethanol
Ethylene Glycol
Isobutanol
Isopropanol
Methanol
n-Butanol
n-Pentanol
Propylene Glycol

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Sec-Butanol
Tetraethylene Glycol
Triethylene Glycol

Water (Organic)

Chlorophyll - Water (085)
A212; modified from SM 10200 H
ACETONE EXTRACTION - SPEC
Chlorophyll-a
Pheophytin

Water (Organic)

Chlorophyll A - Water (144)
WP-TM-117; SM 10200H
FLUORESCENCE
Chlorophyll

Water (Organic)

Haloacetic Acids (HAA) - Water (124)
WP-TM-0805; modified from EPA 552.2
GC/ECD - LIQUID/LIQUID PARTITION
Bromochloroacetic Acid
Dibromoacetic Acid
Dichloroacetic Acid
Monobromoacetic Acid
Monochloroacetic Acid
Trichloroacetic Acid

Water (Organic)

Petroleum Hydrocarbons (PHC) - Water (132)
NA-TM-1104/NA-TP-2100; modified from EPA 3511/8015D
GC/FID - EXTRACTION
F2 (C10-C16)
F3 (C16-C34)
F4 (C34-C50)

Water (Organic)

Polycyclic Aromatic Hydrocarbons (PAH) - Water (066)
WP-TM-1101/WP-TP-2101; modified from EPA SW846 3510B, 8270D
GC/MS
1-Methylnaphthalene
2-Methylnaphthalene
Acenaphthene
Acenaphthylene
Anthracene
Benzo (a) anthracene
Benzo (a) pyrene
Benzo (b) fluoranthene
Benzo (g,h,i) perylene
Benzo (k) fluoranthene
Chrysene
Dibenzo (a,h) anthracene
Fluoranthene
Fluorene
Indeno (1,2,3 - cd) pyrene
Naphthalene
Phenanthrene
Pyrene

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Water (Organic)

Total PCBs - Water (074)
WP-TM-0706; modified from EPA 8082 A
GC/ECD - EXTRACTION
Arochlor 1016
Arochlor 1221
Arochlor 1232
Arochlor 1248
Arochlor 1262
Arochlor 1268
Aroclor 1242
Aroclor 1254
Aroclor 1260
Total PCB

Water (Organic)

Volatile Fatty Acids - Water (130)
WP-TM-0752; modified from ASTM D3695
GC/MS
Acetic Acid
Butyric Acid
Caproic Acid
Formic Acid
Isobutyric Acid
Isovaleric Acid
Propionic Acid
Valeric Acid

Water (Organic)

Volatile Organic Compounds (VOC) - Water (063)
WP-TP-2105, WP-TM-0718; modified from EPA SW846 8260B, 5030B, 5710 D
GC/MS - PURGE & TRAP
1,1-Dichloroethane
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Benzene
Bromodichloromethane
Bromodichloromethane - Formation Potential
Bromodichloromethane - Preserved
Bromoform
Bromoform - Formation Potential
Bromoform - Preserved
Carbon Tetrachloride
Carbon Tetrachloride - Formation Potential
Carbon Tetrachloride - Preserved
Chlorodibromomethane
Chlorodibromomethane - Formation Potential
Chlorodibromomethane - Preserved
Chloroform
Chloroform - Formation Potential
Chloroform - Preserved
Dichloromethane
Ethylbenzene
m/p-xylene
o-xylene

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Tetrachloroethylene
Tetrachloroethylene - Formation Potential
Tetrachloroethylene - Preserved
Toluene
Trichloroethylene
Vinyl Chloride

Water (Organic)

Volatile Organic Compounds (VOC) - Water (139)

WP-TM-0808/NA-WI-3006/NA-TM-1102/WP-TP-2105; modified from EPA 5021A/8260C

GC/MS - HEADSPACE

1,1-Dichloroethane
1,1-Dichloroethylene
1,1-Dichloropropene
1,1,1-Trichloroethane
1,1,1,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1,2,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,3-Dichlorobenzene
1,3-Dichloropropane
1,3,5-Trimethylbenzene
1,4-Dichlorobenzene
2-Chlorotoluene
2,2-Dichloro-propane
4-Chlorotoluene
4-Isopropyltoluene
Acetone (2-Propanone)
Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromodichloromethane - Formation Potential
Bromoform
Bromoform - Formation Potential
Bromomethane
Carbon disulfide
Carbon Tetrachloride
Carbon Tetrachloride - Formation Potential
Chlorobenzene
Chlorodibromomethane
Chlorodibromomethane - Formation Potential
Chloroethane
Chloroform
Chloroform - Formation Potential
Chloromethane
cis-1,2-Dichloroethylene

† "OSDWA" indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario "Safe Drinking Water Act" (2002).

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cis-1,3-Dichloropropene
Dibromomethane
Dichlorodifluoromethane
Dichloromethane
Ethylbenzene
Ethylene Dibromide
Hexachlorobutadiene
Hexane
Isopropylbenzene
m/p-xylene
Methyl ethyl ketone
Methyl isobutyl ketone
Methyl n-butyl ketone
Methyl t-butyl ether
n-Butylbenzene
Naphthalene
o-xylene
sec-Butylbenzene
Styrene
tert-Butylbenzene
Tetrachloroethylene
Tetrachloroethylene - Formation Potential
Toluene
trans-1,2-Dichloroethylene
trans-1,3-Dichloropropene
Trichloroethylene
Trichlorofluoromethane
Vinyl Chloride

Water (Organic)

Volatile Petroleum Hydrocarbons (VPH) - Water (138)
WP-TM-0808/NA-WI-3006; modified from EPA 5021A/8015D
GC/FID - HEADSPACE
F1 (C6-C10)
TVH (C5-C10)

Water (Toxicology)

Daphnia magna - Wastewater (017)
WP-TM-0112; modified from EPS 1/RM/11, EPS 1/RM/14
ACUTE LETHALITY (SURVIVAL)
Daphnia LC50 (48 h)
Single Concentration (48h)

Water (Toxicology)

Microtox - Liquid Phase - Wastewater (050)
WP-TM-1403; modified from EPS 1/RM/24
BIOLUMINESCENCE
Microtox (30min.)
Microtox (5min.)
Microtox IC50 (15 min)

Water (Toxicology)

Rainbow Trout - Wastewater (049)
WP-TM-1402; modified from EPS 1/RM/9, EPS 1/RM/13
ACUTE LETHALITY (SURVIVAL)
Single Concentration (96h)
Trout LC50 (96 h)

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Water (Toxicology)

Rainbow Trout - Wastewater (161)

WP-TM-1402; modified from EPS 1/RM/50, EPS 1/RM/13

ACUTE LETHALITY (SURVIVAL)

Single Concentration (96h) - pH Stabilized

Trout LC50 (96 h) - pH Stabilized

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Lot Lot				Date Analysé			
Num. Init.	Type C.Q.	Groupe		aaaa/mm/jj	Valeur	Réc.	Unités de
1004955 DKH	ÉTALON CQ	Soufre (S)		2012/05/16		87	%
	Blanc de méthode	Soufre (S)		2012/05/16	ND, LDR=0.01		%

Matériau de référence certifié: Matériau dont une ou plusieurs valeurs des propriétés sont certifiées par une procédure techniquement valide, délivré par un organisme de certification et accompagné d'un certificat. Sert à évaluer l'exactitude d'une méthode analytique.
Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.
LDR = Limite de détection rapportée