

**MELIADINE
GOLD
PROJECT**



2012 Annual Report

Water Licence 2BW-MEL1215

**Prepared for the Nunavut Water Board
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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 during 2012. The waste was disposed at the Rankin Inlet landfill. The hazardous waste material is temporarily stocked in a metal container. It will be correctly packaged and labeled to be shipped by barge to a southern facility.*

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

- *The first 11.5 km of the all-weather access road were constructed using 105 969m³ of rock and 20 961m³ of esker material.*
- *3 bridges were constructed; the Char River bridge (29.2 m long), the Meliadine bridge (65.3 m long) and the M5.0 bridge (22 m long).*
- *For the pictures, please see the appendix 1*

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 in appendix 2*

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

- *No water has been used for 2012*

3. **The Licensee shall monitor all activities for signs of erosion.**
 - *No sign of erosion noted.*
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 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.**
 - *Will be implemented during the 2013 spring freshet.*
7. **All sampling, sample preservation and analyses shall be conduct 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 the details.*
 - *The rock analysis has been performed by Multilab Direct, Val-d'Or (Quebec), subcontracting MAXXAM, see appendix 3 for the details.*
8. **All analyses shall be performed in a laboratory accredited according the ISO/IEC Standard 17025. The accreditation shall be current and in good standing.**
 - *See appendix 3 for the details.*
9. **Additional monitoring requirements may be requested by the Inspector.**
 - *No additional monitoring has been requested.*

10. The Licensee shall include in the Construction Summary Report required under Part E, Item 2 all data, monitoring results and information required by this part.

➤ *Construction is not finalised yet.*

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

➤ *No reclamation work has been undertaken.*

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

➤ *No request presented by the Board.*

Appendix 1
Pictures of the bridges construction

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 B15	Average QR14	Average Q19
PNN (kg CaCO3 / t)	10.9	10.0	10.8	12.1	13.5	39.6	27.6	78.75
PN (kg CaCO3 / t)	12.0	10.8	12.0	13.2	14.6	40.0	36.3	79.5
PA (kg CaCO3 / t)	1.1	0.9	1.3	1.1	1.1	0.4	8.5	0.4
Sulfur %	0.033	0.028	0.040	0.034	0.034	0.010	0.271	0.015
ratio PN/PA	11.3	12.5	9.6	12.2	13.5	100.0	4.3	198.75

Water Sampling

Waterbody	Units	CCME Limits	CHAR-R	
Year			2012	
Date Sampled			22/09/2012	01/10/2012
GPS Coordinates			543636-6970154	543636-6970154
LAB			ALS	ALS
Field Measurments			Field Measurments	
Water Temperature	oC		3.36	2.8
pH	pH units		7.72	7.51
Conductivity	(mS/cm)		401	100
Laboratory-Measured				
Ammonia, Total (as N)	mg/L	2.33	<0.010	<0.010
Biochemical Oxygen Demand	mg/L		<6.0	<6.0
Mercury (Hg)-Total	mg/L	0.000026	<0.000020	<0.000020
Phosphorus (P)-Total	mg/L	0.004 - 0.01	-	-
Phosphorus (P)-Total Reactive	mg/L		<0.010	<0.010
Sodium Adsorption Ratio		0.03	0.83	0.93
Total Kjeldahl Nitrogen	%		<0.20	0.23
Phosphorus (P)-Total	mg/L		0.0035	0.0028
Total Suspended Solids	mg/L		<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1	0.0053	<0.0050
Antimony (Sb)-Total	mg/L		<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005	0.00042	0.00037
Barium (Ba)-Total	mg/L		0.0223	0.0181
Beryllium (Be)-Total	mg/L		<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L		<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5	0.022	0.019
Cadmium (Cd)-Total	mg/L	Equation	<0.000010	0.000011
Calcium (Ca)-Total	mg/L		16.4	12.2
Cesium (Cs)-Total	mg/L		<0.00010	<0.00010
Chromium (Cr)-Total	mg/L		<0.0010	<0.0010
Cobalt (Co)-Total	mg/L		<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation	0.00167	0.00109
Iron (Fe)-Total	mg/L	0.3	<0.10	<0.10
Lead (Pb)-Total	mg/L	Equation	<0.000090	0.000248
Lithium (Li)-Total	mg/L		<0.0020	<0.0020
Magnesium (Mg)-Total	mg/L		3.01	2.32
Manganese (Mn)-Total	mg/L		0.00194	0.00287
Molybdenum (Mo)-Total	mg/L	0.073	0.00095	0.00064
Nickel (Ni)-Total	mg/L	Equation	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L		-	<0.10
Potassium (K)-Total	mg/L		2.38	1.8
Rubidium (Rb)-Total	mg/L		0.00292	0.00215
Selenium (Se)-Total	mg/L	0.001	<0.0010	<0.0010
Silicon (Si)-Total	mg/L		0.438	0.241
Silver (Ag)-Total	mg/L	0.0001	<0.00010	<0.00010
Sodium (Na)-Total	mg/L		15.1	13.6
Strontium (Sr)-Total	mg/L		0.0916	0.0661
Tellurium (Te)-Total	mg/L		<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	0.0008	<0.00010	<0.00010
Thorium (Th)-Total	mg/L		<0.00010	<0.00010
Tin (Sn)-Total	mg/L		<0.00020	<0.00020
Titanium (Ti)-Total	mg/L		<0.00050	<0.00050
Tungsten (W)-Total	mg/L		<0.00010	<0.00010
Uranium (U)-Total	mg/L	0.015	0.00036	0.00017
Vanadium (V)-Total	mg/L		<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	0.03	<0.0020	0.0033
Zirconium (Zr)-Total	mg/L		<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L		39	31
Bicarbonate (HCO3)	mg/L		47	37
Carbonate (CO3)	mg/L		<12	<12
Hydroxide (OH)	mg/L		<6.8	<6.8
Chloride	mg/L		23.4	23.1
Conductivity	umhos/cm		172	157
Calcium (Ca)-Dissolved	mg/L		13.9	11
Magnesium (Mg)-Dissolved	mg/L		2.55	2.64
Potassium (K)-Dissolved	mg/L		2.03	1.71
Sodium (Na)-Dissolved	mg/L		12.8	13.2
Fluoride	mg/L	0.12	<0.10	<0.10
Hardness (as CaCO3)	mg/L		45.2	39.9
Ion Balance	%		93.2	97.9
Nitrate-N	mg/L	13	<0.050	<0.050
Nitrate and Nitrite as N	mg/L		<0.071	<0.071
Nitrite-N	mg/L	0.197	<0.050	<0.050
Sulfate	mg/L		9.21	7.47
TDS (Calculated)	mg/L		112	102
Turbidity	NTU		0.24	0.44
pH	pH units	6.5-9.0	7.58	7.69

Waterbody			MELIADINE RIVER KM 2.1																
Year	Units	CCME Limits	2008		2010				2011					2012					
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	17/09/2012	01/10/2012	
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	544778.3-6971713	544778.3-6971713
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	1.4	2.1	
pH	pH units		-	6.78	-	-	6.9	7.94	-	-	7.77	7.56	7.17	17.68	8016	7.77	8.84	7.54	
Conductivity	(µS/cm)		42	63	-	-	-	-	-	-	0	69	149	62	77	78	102	430	
Laboratory-Measured																			
Ion balance	%		-	Low EC	Low EC	-	-	-	-	-	-	-	-	Low EC	-	-	98.2	102	
Biochemical Oxygen Demand	mg/L		-	-	-	-	-	-	-	<1.0	-	-	-	<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	
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	
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	0.0024	0.0017	
Phosphorus (P)-Total Reactive	mg/L		<0.002	<0.002	-	-	-	-	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
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	
Total Suspended Solids	mg/L		<5.0	<5.0	-	3	<1	3	-	<5.0	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
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	25	31	
Bicarbonate (HCO3)	mg/L		17.8	19	31	39	22	28	31.1	33	27.7	46.2	35.6	-	25	28	30	38	
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	
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	
Calcium (Ca)-Dissolved	mg/L		7.76	5.96	8.96	-	-	-	-	-	9.2	17.3	12.8	7.22	8.17	7.44	10.7	16.6	
Magnesium (Mg)-Dissolved	mg/L		1.13	0.853	1.33	-	-	-	-	-	1.46	3.24	2.35	1.05	1.23	1.08	1.59	9.75	
Potassium (K)-Dissolved	mg/L		2	0.75	1.13	-	-	-	-	-	1.32	2.02	1.62	0.77	0.971	0.928	1.3	3.54	
Sodium (Na)-Dissolved	mg/L		3.9	3.2	5	-	-	-	-	-	7.26	13.7	11.1	4.09	5.5	4.22	7.41	58.3	
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	15.9	115	
Conductivity	umhos/cm		68.8	64.2	88.5	89	152	101	97.8	120	94.3	195	144	68	84	83	113	481	
Fluoride	mg/L	0.12	0.021	-	-	-	-	-	<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	31.7	81.5	
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	
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	
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	
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	4.75	14.8	
TDS (Calculated)	mg/L		-	30	44.6	-	101	67	49.6	64	48.3	108	75.1	37.5	60	47	73	313	
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	0.0055	0.0146	
Antimony (Sb)-Total	mg/L		<0.0005	<0.0003	<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	
Arsenic (As)-Total	mg/L	0.005	<0.0005	<0.0003	<0.00040	0.0009	<0.0005	0.0008	0.00037	0.00032	<0.0010	<0.0010	<0.0010	0.00025	0.00026	0.00025	0.00028	0.00054	
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	0.0102	0.0213	
Beryllium (Be)-Total	mg/L		<0.0010	<0.0002	<0.0010	<0.0005	<0.0005	0.0016	<0.00020	<0.00020	<0.0010	<0.0010	<0.0010	<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	
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	0.028	
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	<0.000010	
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	9.69	16.5	
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	
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	
Cobalt (Co)-Total	mg/L		<0.0003	<0.0001	<0.0020	-	-	-	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Copper (Cu)-Total	mg/L	Equation	0.001	0.0007	0.0011	0.0008	0.0011	0.0006	0.00112	0.00119	<0.0020	<0.0020	<0.0020	0.00085	0.00124	0.00088	0.00105	0.00126	
Iron (Fe)-Total	mg/L	0.3	<0.03	<0.01	0.057	<0.01	<0.01	0.07	0.15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Lead (Pb)-Total	mg/L	Equation	<0.0005	<0.00005	<0.00010	<0.0003	0.0006	0.0003	<0.000090	<0.000090	<0.0010	<0.0010	<0.0010	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	
Lithium (Li)-Total	mg/L		<0.0005	-	<0.010	<0.1	<0.1	<0.1	<0.0020	<0.0020	0.005	<0.0020	0.0024	<0.0020	<0.0020	<0.0020	<0.0020	0.0021	
Magnesium (Mg)-Total	mg/L		1.12	0.865	1.44	1.8	1	1.8	1.42	2.09	1.32	3.58	2.45	1.01	1.48	1.3	1.82	8.72	
Manganese (Mn)-Total	mg/L		0.00204	0.0018	0.0062	<0.0005	0.0021	0.0022	0.0111	0.00317	0.0037	0.0035	0.0028	0.00467	0.0042	0.00295	0.00265	0.00579	
Molybdenum (Mo)-Total	mg/L	0.073	<0.0																

Waterbody	Units	CCME Limits	28B-MELO914 Limits	KM 3.0							Waterbody	Units	CCME Limits	28B-MELO914 Limits	KM 3.9						
Year				2011			2012				Year				2011			2012			
Date Sampled				29/08/2011	14/09/2011	25/06/2012	29/07/2012	18/08/2012	22/09/2012	01/10/2012	Date Sampled				29/08/2011	14/09/2011	25/06/2012	29/07/2012	18/08/2012	22/09/2012	01/10/2012
GPS Coordinates				545548-6971874	545548-6971874	545548-6971874	545548-6971874	545548-6971874	545548-6971875	541245-6985578	GPS Coordinates				546167-6972178	546167-6972178	546167-6972178	546167-6972178	546167-6972178	546167-6972179	541245-6985578
LAB				ALS	ALS	ALS	ALS	ALS	ALS	LAB				ALS	ALS	ALS	ALS	ALS	ALS		
Field Measurements										Field Measurements											
Water Temperature	oC			11.7	7.3	17.2	11.1	9.9	1.5	2.5	Water Temperature	oC			11.5	6.3	17.8	10.1	8.5	1	1.2
pH	pH units			7.8	7.33	7.65	7.01	7.77	7.57	8.4	pH	pH units			7.8	7.14	7.26	7.88	7.58	7	7.52
Conductivity	(µS/cm)			0	286	196	196	315	308	310	Conductivity	(µS/cm)			0	396	192	321	480	326	360
Laboratory-Measured											Laboratory-Measured										
Ammonia, Total (as N)	mg/L	2.33		<0.050	<0.050	0.011	0.033	0.033	<0.010	<0.010	Ammonia, Total (as N)	mg/L	2.33		<0.050	<0.050	<0.010	<0.010	0.012	0.108	0.029
Biochemical Oxygen Demand	mg/L			-	-	<6.0	<6.0	<6.0	<6.0	<6.0	Biochemical Oxygen Demand	mg/L			-	-	<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	Mercury (Hg)-Total	mg/L	0.000026		<0.000050	<0.000050	<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	0.013	0.011	-	-	Phosphorus (P)-Total	mg/L	0.004 - 0.01		0.015	0.012	<0.010	0.016	0.026	-	-
Phosphorus (P)-Total Reactive	mg/L			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	Phosphorus (P)-Total Reactive	mg/L			<0.010	<0.010	0.011	<0.010	0.01	<0.010	<0.010
Sodium Adsorption Ratio	%	0.03		-	-	0.97	0.65	1.56	1.53	1.81	Sodium Adsorption Ratio	%	0.03		-	-	0.58	1.79	1.04	1.09	1.24
Total Kjeldahl Nitrogen	mg/L			0.85	-	0.32	0.94	0.53	0.5	0.6	Total Kjeldahl Nitrogen	mg/L			0.51	0.47	0.36	0.43	1.64	1.13	0.65
Phosphorus (P)-Total	mg/L			-	-	0.0032	-	-	0.0049	0.0046	Phosphorus (P)-Total	mg/L			-	-	0.0025	-	-	0.0179	0.008
Total Suspended Solids	mg/L			-	-	<5.0	5	<5.0	<5.0	<5.0	Total Suspended Solids	mg/L			-	-	<5.0	6	7	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1		0.0360	0.0220	0.0216	0.022	0.0077	0.0231	0.0145	Aluminum (Al)-Total	mg/L	0.1		0.118	0.0290	0.0095	0.195	0.0082	0.0203	0.0174
Antimony (Sb)-Total	mg/L			<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	Antimony (Sb)-Total	mg/L			<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005		0.0012	0.001	0.00052	0.00101	0.00082	0.00089	0.00098	Arsenic (As)-Total	mg/L	0.005		<0.0010	<0.0010	0.0005	0.0009	0.00172	0.00101	0.00044
Barium (Ba)-Total	mg/L			0.0247	0.0251	0.0137	0.0209	0.0228	0.0268	0.0303	Barium (Ba)-Total	mg/L			0.0236	0.0255	0.0235	0.0257	0.057	0.0342	0.0352
Beryllium (Be)-Total	mg/L			<0.0010	<0.0010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	Beryllium (Be)-Total	mg/L			<0.0010	<0.0010	<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	Bismuth (Bi)-Total	mg/L			<0.00050	<0.00050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Boron (B)-Total	mg/L	1.5		0.042	<0.030	0.013	0.054	0.016	0.011	0.017	Boron (B)-Total	mg/L	1.5		0.056	0.033	<0.010	0.042	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	Equation		<0.00020	<0.00020	0.000011	<0.000010	<0.000010	<0.000010	<0.000010	Cadmium (Cd)-Total	mg/L	Equation		<0.00020	<0.00020	0.000016	0.000012	0.000015	0.000012	<0.000010
Calcium (Ca)-Total	mg/L			28.4	28	11	25.8	22.4	30.4	28.9	Calcium (Ca)-Total	mg/L			23.2	25.5	21.9	22	54.3	43.6	41.3
Cesium (Cs)-Total	mg/L			<0.00050	<0.00050	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	Cesium (Cs)-Total	mg/L			<0.00050	<0.00050	<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	Chromium (Cr)-Total	mg/L			<0.0020	<0.0020	<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	Cobalt (Co)-Total	mg/L			<0.00050	<0.00050	<0.00020	<0.00020	0.00053	0.00055	0.00034
Copper (Cu)-Total	mg/L	Equation		<0.0020	<0.0020	0.00109	0.00252	0.00119	0.00122	0.00098	Copper (Cu)-Total	mg/L	Equation		0.005	<0.0020	0.00134	0.00254	0.00206	0.00189	0.00123
Iron (Fe)-Total	mg/L	0.3		<0.10	0.20	0.11	<0.10	0.14	0.17	0.14	Iron (Fe)-Total	mg/L	0.3		0.19	0.18	0.18	0.59	4.44	1.32	0.9
Lead (Pb)-Total	mg/L	Equation		<0.0010	<0.0010	<0.000090	<0.000090	<0.000090	<0.000090	<0.000090	Lead (Pb)-Total	mg/L	Equation		<0.0010	<0.0010	<0.000090	0.000174	0.000109	<0.000090	<0.000090
Lithium (Li)-Total	mg/L			0.0222	0.0035	<0.0020	0.0029	0.0027	0.0033	0.0036	Lithium (Li)-Total	mg/L			0.0205	0.0035	0.0022	0.0029	0.0039	0.0035	0.0036
Magnesium (Mg)-Total	mg/L			5.12	5.06	2.22	3.5	4.61	5.63	5.09	Magnesium (Mg)-Total	mg/L			7.57	8.51	2.98	6.83	8.22	7.31	5.93
Manganese (Mn)-Total	mg/L			0.0042	0.0062	0.00311	0.00314	0.00403	0.0042	0.00522	Manganese (Mn)-Total	mg/L			0.0046	0.0035	0.0359	0.0086	0.101	0.0579	0.0895
Molybdenum (Mo)-Total	mg/L	0.073		0.00126	0.00082	0.00048	0.00038	0.00064	0.00068	0.00068	Molybdenum (Mo)-Total	mg/L	0.073		0.00173	0.00154	0.00029	0.00134	0.00066	0.00032	0.00022
Nickel (Ni)-Total	mg/L	Equation		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	Nickel (Ni)-Total	mg/L	Equation		0.0021	<0.0020	<0.0020	<0.0020	0.0031	0.0031	0.0022
Phosphorus (P)-Total	mg/L			<0.50	<0.50	<0.10	<0.10	<0.10	-	<0.10	Phosphorus (P)-Total	mg/L			<0.50	<0.50	<0.10	<0.10	<0.10	-	<0.10
Potassium (K)-Total	mg/L			3.34	2.92	1.62	2.76	2.76	3.42	3.16	Potassium (K)-Total	mg/L			4.08	3.92	2.14	3.73	5.59	6.34	4.32
Rubidium (Rb)-Total	mg/L			0.00422	0.00357	0.00187	0.00229	0.00345	0.00423	0.00393	Rubidium (Rb)-Total	mg/L			0.00432	0.00402	0.00202	0.00394	0.00673	0.00706	0.00446
Selenium (Se)-Total	mg/L	0.001		<0.0050	<0.0050</																

Waterbody	Units	CCME Limits	2BB-MEL0914 Limits	KM 5.0							
Year				2011			2012				
Date Sampled				12/07/2011	29/08/2011	14/09/2011	25/06/2012	29/07/2012	18/08/2012	22/09/2012	01/10/2012
GPS Coordinates				546634-6973123	546634-6973123	546634-6973123	546634-6973123	546634-6973123	546634-6973123	546634-6973124	541245-6985578
LAB				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements											
Water Temperature	oC			17.2	12.2	6.2	15.8	11.8	10	1	2.7
pH	pH units			7.9	8.2	7.02	7.45	8.4	7.96	7.21	7.59
Conductivity	(µS/cm)			-	0	245	125	167	187	228	140
Laboratory-Measured											
Ammonia, Total (as N)	mg/L	2.33		<0.050	<0.050	<0.050	0.013	<0.010	<0.010	<0.010	0.026
Biochemical Oxygen Demand	mg/L			1.7	-	-	<6.0	<6.0	<6.0	<6.0	12.6
Mercury (Hg)-Total	mg/L	0.000026		<0.000050	<0.000050	<0.000050	<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	-	-
Phosphorus (P)-Total Reactive	mg/L			-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium Adsorption Ratio	%	0.03		-	-	-	0.78	2.25	0.94	1.06	0.96
Total Kjeldahl Nitrogen	mg/L			-	0.55	0.56	0.31	0.45	0.6	0.29	0.4
Phosphorus (P)-Total	mg/L			<0.20	-	-	0.0031	0.0054	-	0.0042	0.0043
Total Suspended Solids	mg/L			<5.0	-	-	<5.0	6	28	<5.0	5
Aluminum (Al)-Total	mg/L	0.1		0.0145	0.05	0.0390	0.0132	0.0761	0.313	0.0127	0.0117
Antimony (Sb)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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	0.00033	0.00042
Barium (Ba)-Total	mg/L			0.0221	0.0262	0.0284	0.0171	0.0241	0.025	0.0235	0.0265
Beryllium (Be)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Boron (B)-Total	mg/L	1.5		0.014	0.035	<0.030	0.013	0.028	0.018	0.02	0.018
Cadmium (Cd)-Total	mg/L	Equation		<0.000010	<0.00020	<0.00020	0.000031	0.000014	0.000018	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L			14.4	22.2	24.4	10.8	19.7	15	20.3	20.5
Cesium (Cs)-Total	mg/L			<0.00010	<0.00050	<0.00050	<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
Cobalt (Co)-Total	mg/L			<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	0.00043	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation		0.00122	<0.0020	<0.0020	0.00133	0.00202	0.00281	0.00175	0.00125
Iron (Fe)-Total	mg/L	0.3		0.30	0.17	0.23	0.23	0.38	0.79	<0.10	0.11
Lead (Pb)-Total	mg/L	Equation		<0.000090	<0.0010	<0.0010	0.000155	0.000155	0.000397	<0.000090	<0.000090
Lithium (Li)-Total	mg/L			<0.0020	0.0161	<0.0020	<0.0020	0.003	0.0022	<0.0020	0.0021
Magnesium (Mg)-Total	mg/L			2.85	4.83	5.12	2.14	6.07	3.45	4.03	3.58
Manganese (Mn)-Total	mg/L			0.0086	0.0047	0.0053	0.00387	0.00678	0.0292	0.00244	0.00296
Molybdenum (Mo)-Total	mg/L	0.073		0.00053	0.00062	0.00055	0.00028	0.00116	0.00056	0.00057	0.00047
Nickel (Ni)-Total	mg/L	Equation		<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
Potassium (K)-Total	mg/L			1.83	2.62	2.68	1.69	3.17	2.31	2.8	2.38
Rubidium (Rb)-Total	mg/L			0.00217	0.00322	0.00299	0.00168	0.00357	0.00288	0.00297	0.00278
Selenium (Se)-Total	mg/L	0.001		<0.0010	<0.0050	<0.0050	<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	0.286	0.253
Silver (Ag)-Total	mg/L	0.0001		<0.00010	<0.0010	<0.0010	<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	20.8	17.9
Strontium (Sr)-Total	mg/L			0.0792	0.12	0.128	0.0571	0.123	0.0873	0.116	0.103
Tellurium (Te)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Thorium (Th)-Total	mg/L			<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	0.0001	<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
Titanium (Ti)-Total	mg/L			0.00078	<0.0010	0.0022	0.00088	0.00394	0.0247	0.00071	0.00103
Tungsten (W)-Total	mg/L			<0.0010	<0.0020	<0.0020	<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	0.00011	<0.00010
Vanadium (V)-Total	mg/L			0.00034	<0.0020	<0.0020	0.00023	0.00078	0.0014	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	0.03		<0.0050	<0.020	<0.020	0.0032	<0.0020	0.003	<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
Alkalinity, Total (as CaCO3)	mg/L			33.20	43.90	40.70	24	32	36	40	40
Bicarbonate (HCO3)	mg/L			40.50	53.50	49.70	30	39	44	49	49
Carbonate (CO3)	mg/L			<0.60	<0.60	<0.60	<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
Chloride	mg/L			28.0	45.4	43.1	20.3	27.3	25.8	36.6	33
Conductivity	umhos/cm			168.0	233.0	243.0	134	173	167	224	217
Calcium (Ca)-Dissolved	mg/L			-	21.6	22.2	10.7	13.4	15.1	17	17.7
Magnesium (Mg)-Dissolved	mg/L			-	4.25	4.4	2.07	2.88	2.94	3.5	3.9
Potassium (K)-Dissolved	mg/L			-	2.47	2.47	1.62	2.02	2.32	2.44	2.18
Sodium (Na)-Dissolved	mg/L			-	22.3	20.8	10.9	14.4	15.2	18.4	17.1
Fluoride	mg/L	0.12		<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	67.2	65.8
Ion Balance	%			-	100	-	102	-	-	96.3	101
Nitrate-N	mg/L	13		<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
Nitrite-N	mg/L	0.197		<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	11.5	12.1
TDS (Calculated)	mg/L			89.1	137.0	136.0	66.6	126	108	145	141
Turbidity	NTU			1.36	1.45	1.38	1.05	0.83	2.88	0.65	2.15
pH	pH units	6.5-9.0		7.90	7.99	7.89	7.58	7.79	7.69	7.51	7.72

Waterbody	Units	CCME Limits	28B-MEL0914 Limits	KM 6.7						
Year				2011		2012				
Date Sampled				29/08/2012	14/09/2011	25/06/2012	29/07/2012	18/08/2012	22/09/2012	01/10/2012
GPS Coordinates				547380-6974493	547380-6974493	547380-6974493	547380-6974493	547380-6974493	547380-6974494	541245-6985578
LAB				ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements										
Water Temperature	oC			12.8	7.1	17.9	10.5	10	1.1	1.1
pH	pH units			7.7	7.00	7.56	8.12	8.19	7.28	7.7
Conductivity	(µS/cm)			0	69	34	51	64	7.4	20
Laboratory-Measured										
Ammonia, Total (as N)	mg/L	2.33		<0.050	<0.050	0.029	0.012	<0.010	<0.010	0.018
Biochemical Oxygen Demand	mg/L			-	-	<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
Phosphorus (P)-Total	mg/L	0.004 - 0.01		0.029	0.019	0.01	0.022	0.017	-	-
Phosphorus (P)-Total Reactive	mg/L			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium Adsorption Ratio	%	0.03		-	-	0.35	0.32	0.34	0.37	0.38
Total Kjeldahl Nitrogen	mg/L			1.57	0.73	0.57	0.84	0.9	0.62	0.68
Phosphorus (P)-Total	mg/L			-	-	-	-	-	0.0084	0.0069
Total Suspended Solids	mg/L			-	-	5	12	8	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1		0.091	0.0680	0.2030	0.0462	0.0354	0.0399	0.0302
Antimony (Sb)-Total	mg/L			<0.0010	<0.0010	<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	0.00032	0.00034
Barium (Ba)-Total	mg/L			0.0176	0.0169	0.0122	0.0137	0.0137	0.017	0.0186
Beryllium (Be)-Total	mg/L			<0.0010	<0.0010	<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
Boron (B)-Total	mg/L	1.5		<0.030	<0.030	<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	0.000012	<0.000010
Calcium (Ca)-Total	mg/L			9.27	8.95	4.63	7.32	7.68	10.8	10.4
Cesium (Cs)-Total	mg/L			<0.00050	<0.00050	<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
Cobalt (Co)-Total	mg/L			<0.00050	<0.00050	0.00028	<0.00020	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation		0.0032	0.0025	0.00327	0.00314	0.0026	0.00228	0.00232
Iron (Fe)-Total	mg/L	0.3		0.56	0.46	0.65	0.36	0.26	0.41	0.39
Lead (Pb)-Total	mg/L	Equation		<0.0010	<0.0010	0.000356	0.000109	<0.000090	0.000092	0.000109
Lithium (Li)-Total	mg/L			0.0127	<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	1.64	1.53
Manganese (Mn)-Total	mg/L			0.005	0.0067	0.00871	0.00325	0.00289	0.00409	0.0045
Molybdenum (Mo)-Total	mg/L	0.073		<0.00050	<0.00050	<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
Phosphorus (P)-Total	mg/L			<0.50	<0.50	<0.10	<0.10	<0.10	-	<0.10
Potassium (K)-Total	mg/L			2.08	1.57	1.21	1.16	1.3	1.76	1.69
Rubidium (Rb)-Total	mg/L			0.00339	0.00229	0.00202	0.00201	0.00227	0.00281	0.00254
Selenium (Se)-Total	mg/L	0.001		<0.0050	<0.0050	<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	1.06	1.1
Silver (Ag)-Total	mg/L	0.0001		<0.0010	<0.0010	<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	5.11	4.9
Strontium (Sr)-Total	mg/L			0.0437	0.0379	0.0220	0.0334	0.0347	0.0436	0.0446
Tellurium (Te)-Total	mg/L			<0.0010	<0.0010	<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
Thorium (Th)-Total	mg/L			<0.0010	<0.0010	0.00023	0.0001	<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
Titanium (Ti)-Total	mg/L			0.003	0.0031	0.0145	0.00166	0.00146	0.00173	0.00177
Tungsten (W)-Total	mg/L			<0.0020	<0.0020	<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
Vanadium (V)-Total	mg/L			<0.0020	<0.0020	0.00097	0.00038	0.00036	0.0004	0.00038
Zinc (Zn)-Total	mg/L	0.03		<0.020	<0.020	0.0096	<0.0020	0.0023	<0.0020	<0.0020
Zirconium (Zr)-Total	mg/L			<0.0010	<0.0010	<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	26	25
Bicarbonate (HCO3)	mg/L			21.5	20.0	13.7	21.6	26	32	31
Carbonate (CO3)	mg/L			<0.60	<0.60	<0.60	<1.2	<12	<12	<12
Hydroxide (OH)	mg/L			<0.40	<0.40	<0.34	<0.68	<6.8	<6.8	<6.8
Chloride	mg/L			7.68	7.00	3.57	4.91	5.05	7.16	7.29
Conductivity	umhos/cm			81.1	79	44	62	73	85	89
Calcium (Ca)-Dissolved	mg/L			8.76	8.24	4.43	6.67	7.96	8.65	8.98
Magnesium (Mg)-Dissolved	mg/L			1.3	1.260	0.739	0.96	1.16	1.38	1.65
Potassium (K)-Dissolved	mg/L			1.86	1.47	1.20	1.06	1.35	1.47	1.52
Sodium (Na)-Dissolved	mg/L			5.15	4.49	3.05	3.39	3.87	4.39	4.68
Fluoride	mg/L	0.12		<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	33.6	32.4
Ion Balance	%			Low EC	-	Low EC	-	-	Low EC	Low EC
Nitrate-N	mg/L	13		<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
Nitrite-N	mg/L	0.197		<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	4.98	5.25
TDS (Calculated)	mg/L			44.2	41.4	22.3	38	47	55	58
Turbidity	NTU			4.55	2.23	2.16	3.8	2.97	3.24	2.38
pH	pH units	6.5-9.0		7.46	7.45	7.26	7.36	7.45	7.29	7.54

Waterbody	Units	CCME Limits	28B-MEL0914 Limits	KM 8.6							
Year				2011			2012				
Date Sampled				12/07/2011	29/08/2011	14/09/2011	25/06/2012	29/07/2012	18/08/2012	22/09/2012	01/10/2012
GPS Coordinates				547909-6975915	547909-6975915	547909-6975915	547909-6975915	547909-6975915	547909-6975915	547909-6975916	547909-6975916
LAB				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	1.7	2.5
pH	pH units			7.9	7.6	7.23	7.54	7.98	7.81	7.23	7.76
Conductivity	(µS/cm)			-	0	104	41	74	42	127	60
Laboratory-Measured											
Ammonia, Total (as N)	mg/L	2.33		<0.050	<0.050	<0.050	<0.010	0.027	0.027	<0.010	0.015
Biochemical Oxygen Demand	mg/L			1.6	-	-	<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
Phosphorus (P)-Total	mg/L	0.004 - 0.01		0.016	<0.010	<0.010	<0.010	-	-	-	0.015
Phosphorus (P)-Total Reactive	mg/L			-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium Adsorption Ratio	%	0.03		-	-	-	0.3	0.32	0.27	0.34	0.34
Total Kjeldahl Nitrogen	mg/L			-	0.65	0.38	0.34	0.48	0.55	0.37	0.55
Phosphorus (P)-Total	mg/L			<0.20	-	-	0.0028	0.0031	0.0037	0.0058	-
Total Suspended Solids	mg/L			<5.0	-	-	<5.0	<5.0	8	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1		0.0109	0.024	0.0230	0.0078	0.011	0.0154	0.0093	0.008
Antimony (Sb)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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	0.00024	<0.00020
Barium (Ba)-Total	mg/L			0.0127	0.0192	0.0202	0.00865	0.0145	0.0171	0.0225	0.0208
Beryllium (Be)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Boron (B)-Total	mg/L	1.5		<0.010	<0.030	<0.030	<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	0.00002	<0.000010
Calcium (Ca)-Total	mg/L			7.89	17	14.30	5.21	10.5	11.2	18.7	17.2
Cesium (Cs)-Total	mg/L			<0.00010	<0.00050	<0.00050	<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
Cobalt (Co)-Total	mg/L			<0.00020	<0.00050	<0.00050	<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	0.00286	0.00173
Iron (Fe)-Total	mg/L	0.3		0.18	0.14	0.17	0.11	0.15	<0.10	0.23	0.17
Lead (Pb)-Total	mg/L	Equation		0.000125	<0.0010	<0.0010	<0.000090	0.000108	<0.000090	0.000272	0.000145
Lithium (Li)-Total	mg/L			<0.0020	0.0164	<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	2.61	2.02
Manganese (Mn)-Total	mg/L			0.0109	0.0094	0.0059	0.0052	0.00889	0.00421	0.0131	0.00565
Molybdenum (Mo)-Total	mg/L	0.073		<0.00020	<0.00050	<0.00050	<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
Phosphorus (P)-Total	mg/L			<0.20	<0.50	<0.50	<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	2.71	2.48
Rubidium (Rb)-Total	mg/L			0.00233	0.00392	0.00332	0.00172	0.00265	0.00238	0.00414	0.00326
Selenium (Se)-Total	mg/L	0.001		<0.0010	<0.0050	<0.0050	<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	1.08	1.02
Silver (Ag)-Total	mg/L	0.0001		<0.00010	<0.0010	<0.0010	<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	6.49	5.97
Strontium (Sr)-Total	mg/L			0.0269	0.0535	0.0426	0.0174	0.0317	0.0244	0.0571	0.0462
Tellurium (Te)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Thorium (Th)-Total	mg/L			<0.00010	<0.0010	<0.0010	<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
Titanium (Ti)-Total	mg/L			0.00024	<0.0010	<0.0010	0.00029	<0.00050	<0.00050	0.00055	0.00057
Tungsten (W)-Total	mg/L			<0.0010	<0.0020	<0.0020	<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	0.00011	<0.00010
Vanadium (V)-Total	mg/L			<0.00020	<0.0020	<0.0020	<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	0.003	<0.0020
Zirconium (Zr)-Total	mg/L			<0.00040	<0.0010	<0.0010	<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	42	39
Bicarbonate (HCO3)	mg/L			29.00	41.40	31.70	17.2	32	41	51	48
Carbonate (CO3)	mg/L			<0.60	<0.60	<0.60	<0.60	<12	<12	<12	<12
Hydroxide (OH)	mg/L			<0.40	<0.40	<0.40	<0.34	<6.8	<6.8	<6.8	<6.8
Chloride	mg/L			6.79	11	8.26	3.75	6.08	6.07	10.2	9.7
Conductivity	umhos/cm			77.40	124.00	111.00	50	83	86	134	144
Calcium (Ca)-Dissolved	mg/L			-	17.7	12.6	5.12	9.69	11.5	14.5	15.3
Magnesium (Mg)-Dissolved	mg/L			-	2.18	1.9	0.826	1.3	1.22	2.02	2.28
Potassium (K)-Dissolved	mg/L			-	2.46	1.94	1.05	1.56	2.03	2.11	2.19
Sodium (Na)-Dissolved	mg/L			-	6.52	5.19	2.79	3.95	3.61	5.28	5.37
Fluoride	mg/L	0.12		<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	44.4	51.2
Ion Balance	%			-	111	-	Low EC	-	-	90.7	98.5
Nitrate-N	mg/L	13		<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
Nitrite-N	mg/L	0.197		<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	8.2	9.6
TDS (Calculated)	mg/L			38.7	73.4	60.2	25.1	52	56	87	93
Turbidity	NTU			0.65	0.65	0.63	0.38	0.68	0.76	1.03	1.26
pH	pH units	6.5-9.0		7.76	7.89	7.74	7.65	7.74	7.78	7.57	7.93

Waterbody	Units	CCME Limits	2BB-MEL0914 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	22/09/2012	01/10/2012
GPS Coordinates				547445-6978314	547445-6978314	547445-6978314	547445-6978314	547445-6978314	547445-6978314	547445-6978315	541245-6985578
LAB				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements											
Water Temperature	oC			17.4	12	6.8	16.3	10.5	13.5	0.8	2.9
pH	pH units			6.9	7.5	7.28	7.69	8.13	8.01	7.13	7.72
Conductivity	(µS/cm)			-	0	54	28	40	42	64	60
Laboratory-Measured											
Ammonia, Total (as N)	mg/L	2.33		<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Biochemical Oxygen Demand	mg/L			1.2	-	-	<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
Phosphorus (P)-Total	mg/L	0.004 - 0.01		0.013	<0.010	<0.010	<0.010	-	-	-	<0.010
Phosphorus (P)-Total Reactive	mg/L			-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium Adsorption Ratio	%	0.03		-	-	-	0.24	0.21	0.2	0.21	0.33
Total Kjeldahl Nitrogen	mg/L			-	0.34	0.37	<0.20	0.31	0.29	0.23	0.34
Phosphorus (P)-Total	mg/L			<0.20	-	-	0.0011	0.0024	0.0036	0.0035	0.0028
Total Suspended Solids	mg/L			28	-	-	<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	0.0073	0.0132
Antimony (Sb)-Total	mg/L			<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	7.41	<0.00020	<0.00020
Arsenic (As)-Total	mg/L	0.005		0.00034	<0.0010	<0.0010	<0.00020	0.00023	0.0093	0.00023	0.00027
Barium (Ba)-Total	mg/L			0.0112	0.0102	0.0117	0.00798	0.0103	<0.00020	0.0134	0.0371
Beryllium (Be)-Total	mg/L			<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	0.00023	<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
Boron (B)-Total	mg/L	1.5		<0.010	<0.030	<0.030	<0.010	<0.010	<0.00020	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	Equation		<0.000010	<0.00020	<0.00020	0.000011	<0.000010	<0.00020	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L			5.24	6.99	8.22	4.11	6.49	<0.010	9.82	13.9
Cesium (Cs)-Total	mg/L			<0.00010	<0.00050	<0.00050	<0.00010	<0.00010	<0.000010	<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
Cobalt (Co)-Total	mg/L			0.00024	<0.00050	<0.00050	<0.00020	<0.00020	<0.00010	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation		0.00274	<0.0020	0.00210	0.00128	0.00224	<0.0010	0.0018	0.00172
Iron (Fe)-Total	mg/L	0.3		0.24	<0.10	<0.10	<0.10	<0.10	<0.00020	<0.10	<0.10
Lead (Pb)-Total	mg/L	Equation		<0.000090	<0.0010	<0.0010	<0.000090	<0.000090	0.00263	<0.000090	<0.000090
Lithium (Li)-Total	mg/L			<0.0020	0.0082	<0.0020	<0.0020	<0.0020	<0.10	<0.0020	<0.0020
Magnesium (Mg)-Total	mg/L			0.576	0.827	1.12	0.568	0.836	<0.000090	1.16	1.88
Manganese (Mn)-Total	mg/L			0.0188	0.0033	0.0030	0.00231	0.0095	<0.0020	0.00364	0.0042
Molybdenum (Mo)-Total	mg/L	0.073		<0.00020	<0.00050	<0.00050	<0.00020	<0.00020	0.76	<0.00020	<0.00020
Nickel (Ni)-Total	mg/L	Equation		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.00388	<0.0020	<0.0020
Phosphorus (P)-Total	mg/L			<0.20	<0.50	<0.50	<0.10	<0.10	<0.00020	-	<0.10
Potassium (K)-Total	mg/L			0.39	0.97	0.92	0.518	0.719	<0.0020	1.09	1.52
Rubidium (Rb)-Total	mg/L			0.00109	0.00177	0.00181	0.00101	0.00154	<0.10	0.00215	0.0029
Selenium (Se)-Total	mg/L	0.001		<0.0010	<0.0050	<0.0050	<0.0010	<0.0010	0.709	<0.0010	<0.0010
Silicon (Si)-Total	mg/L			0.099	<0.30	0.440	0.154	0.193	0.00142	0.43	1.07
Silver (Ag)-Total	mg/L	0.0001		<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.0010	<0.00010	<0.00010
Sodium (Na)-Total	mg/L			1.71	2.16	2.74	1.61	2.29	0.211	2.83	5.4
Strontium (Sr)-Total	mg/L			0.0192	0.0269	0.0275	0.015	0.0222	<0.00010	0.034	0.0498
Tellurium (Te)-Total	mg/L			<0.00020	<0.0010	<0.0010	<0.00020	<0.00020	2.08	<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
Thorium (Th)-Total	mg/L			<0.00010	<0.0010	<0.0010	<0.00010	<0.00010	<0.00020	<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
Titanium (Ti)-Total	mg/L			0.00029	<0.0010	<0.0010	0.00026	0.00052	<0.00010	<0.00050	0.00062
Tungsten (W)-Total	mg/L			<0.0010	<0.0020	<0.0020	<0.00010	<0.00010	<0.00020	<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
Vanadium (V)-Total	mg/L			<0.00020	<0.0020	<0.0020	<0.00020	<0.00020	<0.00010	<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	<0.0020
Zirconium (Zr)-Total	mg/L			<0.00040	<0.0010	<0.0010	<0.00040	<0.00040	<0.00020	<0.00040	<0.00040
Alkalinity, Total (as CaCO3)	mg/L			15.80	17.30	17.70	10.9	15.8	<0.0020	24	24
Bicarbonate (HCO3)	mg/L			19.20	21.10	21.60	13.3	19.3	<0.00040	30	29
Carbonate (CO3)	mg/L			<0.60	<0.60	<0.60	<0.60	<1.2	<1.2	<12	<12
Hydroxide (OH)	mg/L			<0.40	<0.40	<0.40	<0.34	<0.68	<0.68	<6.8	<6.8
Chloride	mg/L			2.66	3.41	3.66	2.4	2.95	3.04	4.17	11.5
Conductivity	umhos/cm			46.60	55.40	63.00	42	50	51	73	124
Calcium (Ca)-Dissolved	mg/L			-	7.13	7.61	4.23	5.85	6.12	8.4	11.8
Magnesium (Mg)-Dissolved	mg/L			-	0.776	0.9	0.58	0.66	0.704	1.01	2
Potassium (K)-Dissolved	mg/L			-	0.96	0.96	0.54	0.68	0.735	0.926	1.29
Sodium (Na)-Dissolved	mg/L			-	2.03	2.23	1.96	1.97	1.91	2.41	4.67
Fluoride	mg/L	0.12		<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	25.1	42.6
Ion Balance	%			-	Low EC	-	Low EC	-	-	Low EC	94.9
Nitrate-N	mg/L	13		<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
Nitrite-N	mg/L	0.197		<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	7.1	11.7
TDS (Calculated)	mg/L			22.5	29.6	33.3	19.3	36	33	48	81
Turbidity	NTU			0.78	0.51	0.48	0.69	0.62	0.65	0.34	1.2
pH	pH units	6.5-9.0		7.49	7.59	7.56	7.64	7.46	7.41	7.24	7.69

Waterbody	Units	CCME Limits	2BB-MEL0914 Limits	KM 13.3							
Year				2011			2012				
Date Sampled				12/07/2011	29/08/2012	14/09/2011	25/06/2012	29/07/2012	18/08/2012	22/09/2012	01/10/2012
GPS Coordinates				546287-6979542	546287-6979542	546287-6979542	546287-6979542	546287-6979542	546287-6979542	546287-6979543	541245-6985578
LAB				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	1.8	3.6
pH	pH units			7.1	6.9	7.38	7.92	8.05	7.96	7.03	7.67
Conductivity	(µS/cm)			-	0	79	29	56	66	85	50
Laboratory-Measured											
Ammonia, Total (as N)	mg/L	2.33		<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Biochemical Oxygen Demand	mg/L			1.5	-	-	<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
Phosphorus (P)-Total	mg/L	0.004 - 0.01		0.016	<0.010	<0.010	<0.010	-	-	-	<0.010
Phosphorus (P)-Total Reactive	mg/L			-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium Adsorption Ratio	%	0.03		-	-	-	0.15	0.25	0.24	0.27	0.26
Total Kjeldahl Nitrogen	mg/L			-	0.58	0.52	0.23	0.51	0.59	0.47	0.46
Phosphorus (P)-Total	mg/L			-	-	-	0.0024	0.0084	0.0055	0.0049	0.0027
Total Suspended Solids	mg/L			<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	0.0148	0.0073
Antimony (Sb)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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	0.0004	0.00034
Barium (Ba)-Total	mg/L			0.0239	0.019	0.0200	0.011	0.0182	0.0151	0.0198	0.0215
Beryllium (Be)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Boron (B)-Total	mg/L	1.5		<0.010	<0.030	<0.030	<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	<0.000010
Calcium (Ca)-Total	mg/L			9.25	10.8	11.70	4.34	8.6	9.01	13.3	12.9
Cesium (Cs)-Total	mg/L			<0.00010	<0.00050	<0.00050	<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
Cobalt (Co)-Total	mg/L			<0.00020	<0.00050	<0.00050	<0.00020	0.00026	<0.00020	<0.00020	<0.00020
Copper (Cu)-Total	mg/L	Equation		0.00211	<0.0020	<0.0020	0.00093	0.00207	0.00166	0.00164	0.00224
Iron (Fe)-Total	mg/L	0.3		0.41	0.17	0.21	0.18	0.51	0.22	0.18	0.13
Lead (Pb)-Total	mg/L	Equation		<0.000090	<0.0010	<0.0010	<0.000090	0.000207	<0.000090	<0.000090	<0.000090
Lithium (Li)-Total	mg/L			<0.0020	0.0121	<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	1.73	1.43
Manganese (Mn)-Total	mg/L			0.0273	0.0045	0.0076	0.00685	0.0394	0.00466	0.00575	0.00454
Molybdenum (Mo)-Total	mg/L	0.073		<0.00020	<0.00050	<0.00050	<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
Phosphorus (P)-Total	mg/L			<0.20	<0.50	<0.50	<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	1.72	1.64
Rubidium (Rb)-Total	mg/L			0.00149	0.00242	0.00229	0.00091	0.00175	0.00189	0.00287	0.00249
Selenium (Se)-Total	mg/L	0.001		<0.0010	<0.0050	<0.0050	<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	0.66	0.547
Silver (Ag)-Total	mg/L	0.0001		<0.00010	<0.0010	<0.0010	<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	4.24	4.05
Strontium (Sr)-Total	mg/L			0.0434	0.0473	0.0477	0.019	0.0355	0.0378	0.0533	0.0489
Tellurium (Te)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Thorium (Th)-Total	mg/L			<0.00010	<0.0010	<0.0010	<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
Titanium (Ti)-Total	mg/L			0.00036	<0.0010	<0.0010	0.00034	0.00075	<0.00050	0.00064	<0.00050
Tungsten (W)-Total	mg/L			<0.0010	<0.0020	<0.0020	<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
Vanadium (V)-Total	mg/L			<0.00020	<0.0020	<0.0020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	0.03		<0.0050	<0.020	<0.020	0.0022	0.0044	<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
Alkalinity, Total (as CaCO3)	mg/L			28.90	28.00	27.50	12.1	21	27	33	31
Bicarbonate (HCO3)	mg/L			35.30	34.10	33.60	14.8	26	33	40	38
Carbonate (CO3)	mg/L			<0.60	<0.60	<0.60	<0.60	<12	<12	<12	<12
Hydroxide (OH)	mg/L			<0.40	<0.40	<0.40	<0.34	<6.8	<6.8	<6.8	<6.8
Chloride	mg/L			4.29	5.86	5.75	2.93	4.35	5.35	6.45	6.49
Conductivity	umhos/cm			75.50	81.50	87.60	39	65	73	94	104
Calcium (Ca)-Dissolved	mg/L			-	10.4	10.9	4.31	7.64	9.15	10.9	11.1
Magnesium (Mg)-Dissolved	mg/L			-	1.3	1.5	0.644	0.97	1.17	1.51	1.57
Potassium (K)-Dissolved	mg/L			-	1.49	1.3	0.57	0.87	1.14	1.41	1.38
Sodium (Na)-Dissolved	mg/L			-	3.11	3.34	1.27	2.71	2.94	3.58	3.53
Fluoride	mg/L	0.12		<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	33.5	38.1
Ion Balance	%			-	Low EC	-	Low EC	-	-	Low EC	95.6
Nitrate-N	mg/L	13		<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
Nitrite-N	mg/L	0.197		<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	4.49	5.09
TDS (Calculated)	mg/L			38.0	43.5	45.7	19	44	48	61	68
Turbidity	NTU			1.00	0.63	0.74	0.61	0.87	1.18	0.53	1.46
pH	pH units	6.5-9.0		7.80	7.81	7.79	7.62	7.57	7.59	7.35	7.82

Waterbody	Units	CCME Limits	2BB-MEL0914 Limits	KM 22.6							
Year				2011			2012				
Date Sampled				12/07/2011	29/08/2012	14/09/2011	25/06/2012	29/07/2012	18/08/2012	22/09/2012	01/10/2012
GPS Coordinates				541245-6985577	541245-6985577	541245-6985577	541245-6985577	541245-6985577	541245-6985577	541245-6985578	541245-6985578
LAB				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements											
Water Temperature	oC			17.4	11.9	7.4	17.4	10.4	11.7	1	3.3
pH	pH units			7.5	7.5	7.25	7.76	7.93	7.94	6.7	7.79
Conductivity	(µS/cm)			-	0	168	72	80	68	88	130
Laboratory-Measured											
Ammonia, Total (as N)	mg/L	2.33		<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Biochemical Oxygen Demand	mg/L			1.2	-	-	<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
Phosphorus (P)-Total	mg/L	0.004 - 0.01		<0.010	<0.010	<0.010	<0.010	-	0.011	-	<0.010
Phosphorus (P)-Total Reactive	mg/L			-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium Adsorption Ratio	%	0.03		-	-	-	0.2	0.17	0.16	0.18	0.18
Total Kjeldahl Nitrogen	mg/L			-	0.77	0.57	0.3	0.22	0.36	0.34	0.35
Phosphorus (P)-Total	mg/L			<0.010	-	-	0.0016	0.0019	-	0.0096	0.0032
Total Suspended Solids	mg/L			<5.0	-	-	<5.0	<5.0	6	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1		<0.0050	0.02	<0.020	0.0055	<0.0050	<0.0050	0.006	<0.0050
Antimony (Sb)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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	0.00152	0.00202
Barium (Ba)-Total	mg/L			0.0212	0.0325	0.0307	0.0158	0.0169	0.0113	0.015	0.0307
Beryllium (Be)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Boron (B)-Total	mg/L	1.5		<0.010	<0.030	<0.030	<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	<0.000010
Calcium (Ca)-Total	mg/L			15.7	26.9	28.0	11.7	14	10.5	14.8	29
Cesium (Cs)-Total	mg/L			<0.00010	<0.00050	<0.00050	<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
Cobalt (Co)-Total	mg/L			<0.00020	<0.00050	<0.00050	<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	0.00109	0.0014
Iron (Fe)-Total	mg/L	0.3		<0.10	0.24	0.29	<0.10	<0.10	<0.10	0.14	0.33
Lead (Pb)-Total	mg/L	Equation		<0.000090	<0.0010	<0.0010	0.000091	<0.000090	<0.000090	<0.000090	<0.000090
Lithium (Li)-Total	mg/L			<0.0020	0.0126	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Magnesium (Mg)-Total	mg/L			1.37	3.09	3.33	1.21	1.41	1.04	1.39	2.28
Manganese (Mn)-Total	mg/L			0.0251	0.0212	0.0218	0.00828	0.00572	0.024	0.0417	0.0177
Molybdenum (Mo)-Total	mg/L	0.073		<0.00020	<0.00050	<0.00050	<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
Phosphorus (P)-Total	mg/L			<0.20	<0.50	<0.50	<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	1.04	1.53
Rubidium (Rb)-Total	mg/L			0.00082	0.00228	0.00191	0.00099	0.00115	0.0011	0.00139	0.00158
Selenium (Se)-Total	mg/L	0.001		0.0015	<0.0050	<0.0050	<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	0.478	1.11
Silver (Ag)-Total	mg/L	0.0001		<0.00010	<0.0010	<0.0010	<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	2.78	3.92
Strontium (Sr)-Total	mg/L			0.0580	0.1030	0.0974	0.044	0.0494	0.0394	0.056	0.0797
Tellurium (Te)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Thorium (Th)-Total	mg/L			<0.00010	<0.0010	<0.0010	<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
Titanium (Ti)-Total	mg/L			<0.00020	<0.0010	<0.0010	0.0004	<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
Uranium (U)-Total	mg/L	0.015		<0.00010	<0.00050	<0.00050	<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
Zinc (Zn)-Total	mg/L	0.03		0.0092	<0.020	<0.020	<0.0020	<0.0020	<0.0020	<0.0020	0.0025
Zirconium (Zr)-Total	mg/L			<0.00040	<0.0010	<0.0010	<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	39	71
Bicarbonate (HCO3)	mg/L			51.00	89.20	84.80	41.00	46.00	39.00	47	86
Carbonate (CO3)	mg/L			<0.60	<0.60	<0.60	<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
Chloride	mg/L			3.68	11	9.88	3.87	3.8	3.79	4.2	6.95
Conductivity	umhos/cm			92.40	165.00	168.00	83.00	90.00	73.00	91	183
Calcium (Ca)-Dissolved	mg/L			-	25.7	25.9	11.5	13.4	10.6	12.7	24.2
Magnesium (Mg)-Dissolved	mg/L			-	2.71	2.9	1.23	1.2	1	1.22	2.52
Potassium (K)-Dissolved	mg/L			-	1.87	1.63	0.83	0.79	<2.0	0.913	1.3
Sodium (Na)-Dissolved	mg/L			-	5.65	5.19	2.68	2.36	2.07	2.45	3.48
Fluoride	mg/L	0.12		<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	36.7	81.8
Ion Balance	%			-	97.8	-	Low EC	-	-	Low EC	94.4
Nitrate-N	mg/L	13		<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
Nitrite-N	mg/L	0.197		<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	2.16	4.31
TDS (Calculated)	mg/L			50.1	94.0	92.7	42.2	68	48	59	119
Turbidity	NTU			0.30	0.83	1.32	0.38	0.32	1.02	2.25	1.39
pH	pH units	6.5-9.0		7.87	8.25	8.20	7.98	7.76	7.65	7.39	8.22

Waterbody	Units	CCME Limits	ZBB-MEL0914 Limits	KM 23.6							
Year				2011			2012				
Date Sampled				12/07/2011	29/08/2012	14/09/2011	25/06/2012	29/07/2012	18/08/2012	22/09/2012	01/10/2012
GPS Coordinates				541188-6986363	541188-6986363	541188-6986363	541188-6986363	541188-6986363	541188-6986363	541188-6986364	541188-6986364
LAB				ALS	ALS	ALS	ALS	ALS	ALS	ALS	ALS
Field Measurements											
Water Temperature	oC			17.1	13	6.9	13	11.5	12.3	1.3	4.2
pH	pH units			8.1	7.6	7.18	7.86	7.77	7.66	6.3	7.55
Conductivity	(µS/cm)			-	0	232	161	212	206	262	140
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
Biochemical Oxygen Demand	mg/L			1.2	-	-	<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
Phosphorus (P)-Total	mg/L	0.004 - 0.01		0.014	<0.010	<0.010	<0.010	-	-	-	<0.010
Phosphorus (P)- Total Reactive	mg/L			-	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010
Sodium Adsorption Ratio	%	0.03		-	-	-	0.26	0.26	0.23	0.25	0.23
Total Kjeldahl Nitrogen	mg/L			-	0.39	0.42	0.21	0.31	0.29	0.21	0.3
Phosphorus (P)-Total	mg/L			-	-	-	0.0021	0.0025	0.0036	0.0034	0.0036
Total Suspended Solids	mg/L			-	-	-	<5.0	<5.0	5	<5.0	<5.0
Aluminum (Al)-Total	mg/L	0.1		<0.0050	0.022	<0.020	<0.0050	<0.0050	<0.0050	0.0062	<0.0050
Antimony (Sb)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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	0.00238	0.00171
Barium (Ba)-Total	mg/L			0.0242	0.0255	0.0244	0.0245	0.0253	0.0265	0.0272	0.019
Beryllium (Be)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Boron (B)-Total	mg/L	1.5		<0.010	<0.030	<0.030	<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	0.000043	<0.000010
Calcium (Ca)-Total	mg/L			26.0	33.2	36.4	22.2	31	29.5	42.7	24.2
Cesium (Cs)-Total	mg/L			<0.00010	<0.00050	<0.00050	<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
Cobalt (Co)-Total	mg/L			<0.00020	<0.00050	<0.00050	<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	0.00247	0.00086
Iron (Fe)-Total	mg/L	0.3		0.12	0.21	0.16	0.11	<0.10	0.32	0.11	<0.10
Lead (Pb)-Total	mg/L	Equation		<0.000090	<0.0010	<0.0010	<0.000090	<0.000090	<0.000090	0.000151	<0.000090
Lithium (Li)-Total	mg/L			0.0075	0.0235	0.0058	0.0077	0.009	0.0067	0.0073	0.0047
Magnesium (Mg)-Total	mg/L			3.18	4.34	5.03	2.76	3.88	3.56	4.96	2.25
Manganese (Mn)-Total	mg/L			0.0176	0.0261	0.0159	0.012	0.00554	0.0639	0.00775	0.0279
Molybdenum (Mo)-Total	mg/L	0.073		<0.00020	<0.00050	<0.00050	<0.00020	0.0002	<0.00020	<0.00020	<0.00020
Nickel (Ni)-Total	mg/L	Equation		<0.00020	<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
Potassium (K)-Total	mg/L			1.39	1.95	1.72	1.2	1.53	1.35	2.14	1.21
Rubidium (Rb)-Total	mg/L			0.00162	0.0021	0.00192	0.0013	0.00175	0.00161	0.00237	0.00131
Selenium (Se)-Total	mg/L	0.001		<0.0010	<0.0050	<0.0050	<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	1.16	0.497
Silver (Ag)-Total	mg/L	0.0001		<0.00010	<0.0010	<0.0010	<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	7.09	4.49
Strontium (Sr)-Total	mg/L			0.154	0.194	0.178	0.15	0.19	0.156	0.223	0.108
Tellurium (Te)-Total	mg/L			<0.00020	<0.0010	<0.0010	<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
Thorium (Th)-Total	mg/L			<0.00010	<0.0010	<0.0010	<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
Titanium (Ti)-Total	mg/L			<0.00020	<0.0010	<0.0010	0.00028	<0.00050	<0.00050	<0.00050	<0.00050
Tungsten (W)-Total	mg/L			<0.0010	<0.0020	<0.0020	0.00017	<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
Vanadium (V)-Total	mg/L			<0.00020	<0.0020	<0.0020	<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	0.0037	<0.0020
Zirconium (Zr)-Total	mg/L			<0.00040	<0.0010	<0.0010	<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	62	42
Bicarbonate (HCO3)	mg/L			46.50	64.00	72.00	35	47	56	76	52
Carbonate (CO3)	mg/L			<0.60	<0.60	<0.60	<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
Chloride	mg/L			31.4	40.2	36.9	30.6	38	34.3	40.7	22.8
Conductivity	umhos/cm			176.00	213.00	229.00	172	210	172	269	185
Calcium (Ca)-Dissolved	mg/L			-	32.4	33.1	21.7	28.6	30	34.2	22.2
Magnesium (Mg)-Dissolved	mg/L			-	3.99	4.4	2.91	3.51	3.3	5.09	2.73
Potassium (K)-Dissolved	mg/L			-	1.82	1.63	1.27	1.51	1.41	1.54	1.1
Sodium (Na)-Dissolved	mg/L			-	6.03	5.99	4.83	5.53	4.9	5.83	4.25
Fluoride	mg/L	0.12		<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	106	69.8
Ion Balance	%			-	100	-	103	-	-	94.8	96.3
Nitrate-N	mg/L	13		<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
Nitrite-N	mg/L	0.197		<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	7.57	5.23
TDS (Calculated)	mg/L			93.0	119.0	123.0	82.5	156	112	175	120
Turbidity	NTU			0.56	0.5	0.57	0.51	0.37	0.89	0.36	1.12
pH	pH units	6.5-9.0		7.99	8.13	8.12	7.79	7.91	7.77	7.79	7.97

Noise Monitoring

Date	2012-07-22	2012-07-29	2012-09-09	2012-09-30	2012-10-08	2012-11-12	2012-11-18	2012-12-10
Location	Char River	Char River	Meliadine River	Esker B13	Char River	Station 7+200	Station 7+500	Quarry R14
Edge of the road (dB)	79.9	59	68.4	86.1	82.1	78.5	77.5	86.8
50 m of the road (dB)	67.6	55	63.2	68.7	71.9	70.1	72.1	83.1
100 m of the road(dB)	57.2	55	57.3	60.2	66.2	61.6	63.5	73.5
200 m of the road(dB)	47.3	54	54.4	53.1	57.1	50.2	56.2	62.2
300 m of the road (dB)	47	53	47.8	47.3	50.1	45.4	48.4	56.9
400 m of the road (dB)	45.8	53	42.1	40.9	45.2	41.8	45.2	51.5

Dust Monitoring

		1ST SAMPLE			2ND SAMPLE			3RD SAMPLE		
		START		END	START		END	START		END
		16/06/2012		16/07/2012	16/07/2012		16/08/2012	16/08/2012		16/09/2012
		1	2	3	1	2	3	1	2	3
PARAMETERS	UNITS									
Total Dustfall	mg	<2	<3	4	1	4	2	9	6	7
Total Dustfall (30 day)	mg/cm2/30day	0.019	0.024	0.048	0.014	0.043	0.028	0.017	0.075	0.078
Total Fixed Dustfall	mg	<2	<3	<3	1	2	2	2	3	2
Total Fixed Dustfall (30 day)	mg/cm2/30day	<0.002	<0.003	<0.003	0.014	0.028	0.028	0.021	0.032	0.026

Wildlife Monitoring

Date	Location	Type of animal
20/07/2012	1+740	Caribou Heard
21/07/2012	1+740	Approx 50 caribous
22/07/2012	Char river bridge	1 Arctic Fox
09/09/2012	Along the a.w.a.r	Geeses
30/09/2012	Along the a.w.a.r	Some Sik-Sik
08/10/2012	Char river office	Arctic fox & Sik-Sik
07/11/2012	Rankin village	1 Polar Bear

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/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

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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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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