WOLVERINE MINE

TYPE A WATER USE LICENCE QZ04-065

ANNUAL REPORT 2014

Prepared for:

Yukon Water Board

Type A Water Use Licence QZ04-065 Condition 33

Prepared by:

Yukon Zinc Corporation

Vancouver, British Columbia

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1 Introduction

This annual report has been prepared to satisfy requirements contained within Yukon Water Board Type A Water Licence QZ04-065 (Licence), and specifically provides information with respect to Licence Conditions 12, 13, 16, 33, 34, 41 & 42 and Schedule A for the year 2014. The conditions are as follows:

Condition 12: Annual reports shall be submitted to the Board by the Licensee. The first report shall be for the period from the effective date of the licence to December 31, 2008. Subsequent reports shall be for each calendar year. Annual reports will be submitted to the Board on or before February 28 of the following year.

Condition 13: Annual reports shall include the information required by this licence and by the Regulation, including but not necessarily limited to:

a) Summaries of all data generated as a result of the monitoring requirements of this licence, including analysis and interpretation by a qualified individual or firm and a discussion of any variances from baseline conditions or from previous years' data, and

b) a detailed record of any major maintenance work carried out or planned to be carried out that could have an impact on water.

Condition 16: The Licensee shall immediately contact the 24-hour Yukon Spill Report telephone number (867) 667-7244 and implement the most recent Spill Response Plan that has been filed with the board, should a spill or unauthorized waste discharge occur. A detailed written report on any such event, including but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be delivered to the board no later than 10 days after its occurrence.

Condition 33: As-constructed (record) drawings and construction reports, including quality assurance and quality control documentation, for all structures and facilities shall be submitted to the Board within 90 days of the completion of construction. Each submission shall be sealed by a Professional Engineer licenced to practice is Yukon.

Condition 34: As part of each annual report, the Licensee shall report on the status of the Decommissioning and Reclamation Plan and shall submit any updates to the Plan that have occurred since the previous submission.

Condition 41: Monitoring and inspection of all water retaining structure shall be carried out by a Professional Engineer licenced to practice in the Yukon and in accordance with the monitoring plan submitted as part of the Application. A report on the monitoring and inspection, prepared by the Professional Engineer, shall be submitted as part of each annual report. The report shall document in the inspection locations and methodologies, the results of the inspection, all problems identified, and remedial measures recommended in the previous year's report shall be appended to the report together with an explanation regarding any recommendation not implemented.

Condition 42: Details of any maintenance, inspection and/or surveillance activities undertaken in the previous year in relation to dam safety shall be included in the annual report.

1.1 2014 A Licence Submissions

In 2014, Yukon Zinc Corporation (YZC) submitted documents to the Yukon Water Board as per Licence requirements. The documents and the corresponding Licence conditions and submission dates are summarized by licence condition in Table 1-1.

Table 1-1 Document Submissions under Licence QZ04-065

A Licence Condition No.	Submission Requirements and Details	Date Submitted
#10	Annual Report - 2013	24-Feb-14
#14	Monthly Monitoring Report (Dec 13)	26-Jan-14
#14	Monthly Monitoring Report (Jan 14)	20-Feb-14
#14	Monthly Monitoring Report (Feb 14)	30-Mar-14
#14	Monthly Monitoring Report (March 14)	21-Apr-14
#14	Monthly Monitoring Report (April 14)	31-May-14
#14	Monthly Monitoring Report (May 14)	30-Jun-14
#14	Monthly Monitoring Report (June 14)	30-Jul-14
#15	Monthly Monitoring Report (July 14)	30-Aug-14
#14	Monthly Monitoring Report (Aug 14)	30-Sep-14
#14	Monthly Monitoring Report (Sept 14)	26-Oct-14
#14	Monthly Monitoring Report (Oct 14)	30-Nov-14
#14	Monthly Monitoring Report (Nov 14)	20-Dec-14
#16	RPT: Spill Report on Copper Sulphate Spill January 13, 2014	16-Jan-14
#16	RPT: Spill Report on Unauthorized Discharge April 9, 2014	15-Apr-14
#16	RPT: Update to April 9 Unauthorized Discharge	30-Apr-14
#16	RPT: Spill Report on Copper Concentrate Spill May 14, 2014	25-May-14
#16	RPT: Update to November 26 Copper Concentrate Spill	30-Jun-14
#16	RPT: Spill Report on Zinc Concentrate Spill October 13, 2014	13-Oct-14
#16	RPT: Spill Report on Glycol Spill November 24, 2014	02-Dec-14
#41	Earthen Structures Inspection by P. Eng	01-Aug-14
#33, #41, #42	RPT: TF and WRP Inspection by P. Eng	01-Aug-14

2 Water Quality Monitoring Program

The water quality monitoring program and results, as per Schedule A of the Licence, for 2014 are summarized below.

2.1 Monitoring Stations and Monitoring Schedule Frequency

The intent of the Monitoring and Surveillance Program (Program) is to monitor and report on water used from Go Creek and water discharged to either Go Creek or Wolverine Creek from activities associated with the quartz mining and milling.

Monitoring station locations, water quality sampling frequency, flow monitoring requirements and parameter sampling requirements are summarized in Table 2-1. Monitoring station locations for surface water quality and flow, and groundwater are provided in Figure 2-1 and Figure 2-2, respectively.

Water quality sample parameters are as follows:

- FP – Field physical parameters (temperature, conductivity, specific conductivity, pH)
- LP – Laboratory physical parameters (temperature, conductivity[1], specific conductivity, pH)
- TSS – Total Suspended Solids
- CN – Total cyanide and WAD cyanide
- MA – Major anions (Total Alkalinity, Total Acidity, Bromide, Chloride, Fluoride, Sulphate)
- NP – Nutrient parameters (Ammonia-N, Nitrate-N, Nitrite-N, Dissolved ortho-phosphate)
- TM – ICP Trace Metals Scan (Total Metals) plus Hardness. Metals include Al, Sb, As, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, P, K, Se, Si, Ag, Na, Sr, Tl, V, Zn
- DM - ICP Trace Metals Scan (Dissolved Metals). Metals include Al, Sb, As, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, P, K, Se, Si, Ag, Na, Sr, Tl, V, Zn
- DOC – Dissolved Organic Carbon
- Ra 226 – Radium 226

[1] Accredited laboratories are only able to analyze for specific conductivity (conductivity standardized to a specific temperature), and as such, specific conductivity, and not conductivity, will be measured in the laboratory.

Table 2-1 Surveillance Network Monitoring Sampling Requirements

Component and Station No.	Sampling Frequency	Sample Parameters	Flow Monitoring Frequency
Wolverine Creek Watershed – W82, W9, W1, L1, W21, W8	Monthly[1]	FP, LP, TSS, MA, NP, TM, DM, DOC[2]	Continuous/Monthly[3]
Go Creek Watershed – W31, W16, W15, W81, W80, W12	Monthly[4]	FP, LP, TSS, CN[5], MA, NP, TM, DM, DOC[5]	Monthly/Continuous[6]
Money Creek Watershed – W14, W22, W40	Monthly	FP, LP, TSS, MA, NP, TM, DM	Continuous[7]
Road Route – W71, W72, W73	Monthly	FP, LP, TSS, MA, NP, TM, DM	N/A
Tailings Facility – T1, R1, R2	Monthly/Daily[8]	FP, LP, TSS, CN, MA, NP, TM, DM, DOC[9], Ra226[9]	Monthly/Continuous[10]
Groundwater Wells	Quarterly/Monthly[11]	FP, LP, MA, NP, TM[12], DM	Water level – Quarterly/Monthly/Annually[11]

Notes:

1. Sampling requirements for W82 and W9 are weekly when discharging into Wolverine Creek.
2. DOC is not required for W8 and W21.
3. Continuous flow monitoring is required at W82, W9 and W21, and monthly at W8.
4. Daily water quality sampling is required at W80 when discharging from the retention pond.
5. CN and DOC only required at W31 and W16.
6. Monthly flow monitoring is required at W31, W16, W15 and W81, and continuously at W80 and W12.
7. Continuous flow monitoring is only required at W22 in the Money Creek Watershed.
8. Monthly water quality sampling is required at T1, and daily at R1 when discharging from the retention pond.
9. DOC and Ra226 only required at R1
10. T1 - Monthly water level monitoring; R1 - Continuous water level and volume monitoring; R2 - continuous flow monitoring when discharging from the retention pond.
11. Quarterly during construction, monthly during operations, quarterly during temporary closure and annually during permanent closure.
12. All groundwater samples are filtered to remove impurities caused by sampling, and hence will not be analyzed for total metals (TM).



Figure 2-1 Monitoring Stations – Surface water

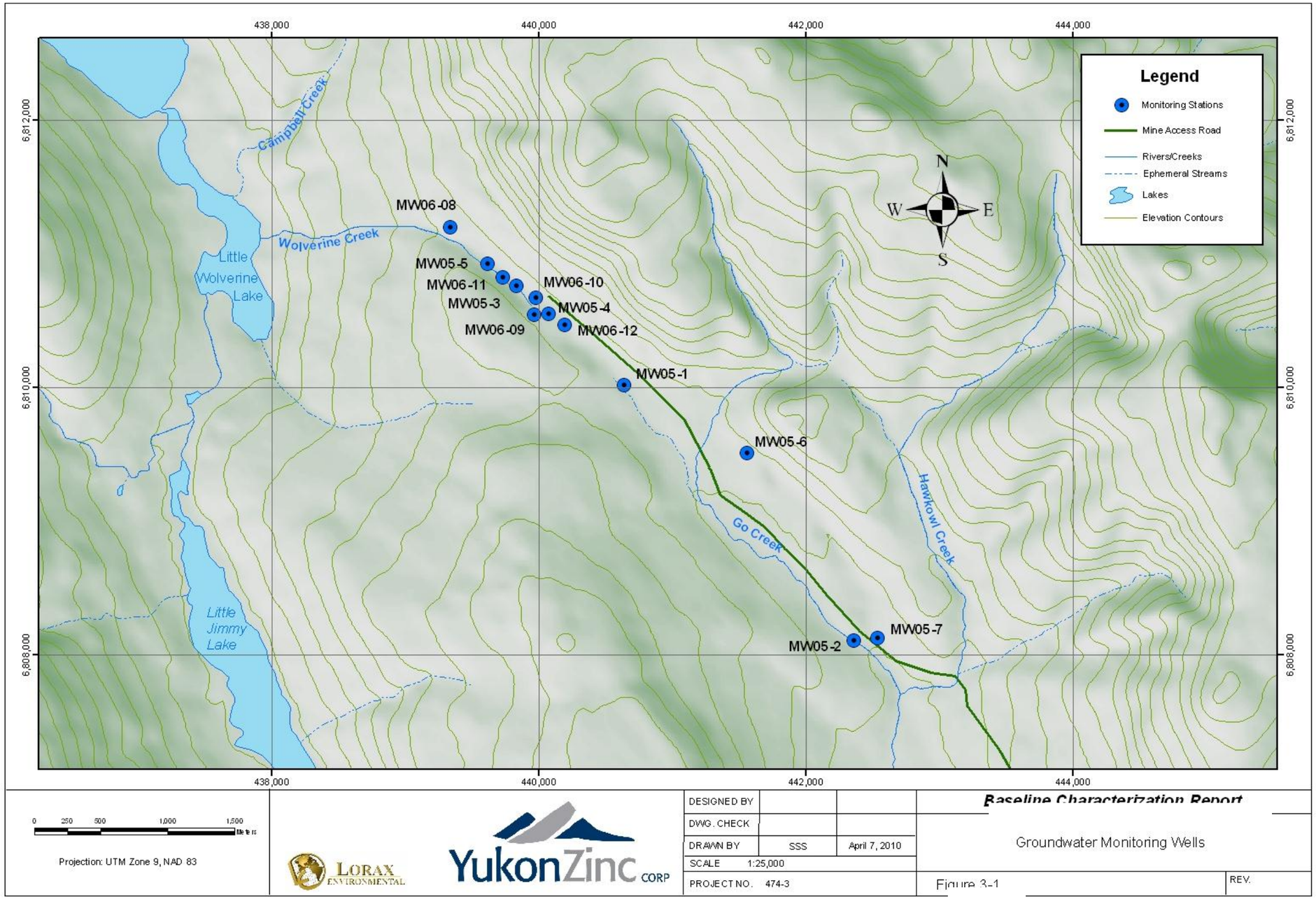


Figure 2-2 Monitoring Stations – Groundwater wells

2.2 Waste Discharges

No discharges were conducted under the Licence or under Type B Licence QZ01-051. Pumping of underground water discharge and tailings from the mill to the tailings storage facility was on-going in 2014. Volumes discharged to the facility are summarized in Section 4.

2.3 Monitoring Results

This section summarizes the results of the surface water quality sampling, flow monitoring, and groundwater quality and level sampling activities for 2014.

2.3.1 Surface Water Monitoring Station Water Quality Results

The surface water quality monitoring sites and dates sampled are presented in Table 2-2. Certain sites were not sampled in the January to May and October to December periods due to lack of safe access with off road vehicles (i.e., snowmobiles or ATVs), vehicles being under repair, or Wolverine Lake not being completely frozen (i.e., L1 and W1), or else for lack of flow (i.e., W8, W9 & W31).

Water quality results for surface water are summarized in Tables 2-3, 2-4, 2-5 and 2-6 for the Wolverine Creek, Go Creek and Money Creek watersheds and the road route sites, respectively. The symbol “n/a” indicates that a parameter (i.e. DOC, cyanide + thiocynate) does not require analysis, as summarized in Table 2-1. Gaps in the data indicate where parameters were either not taken by field staff, or not analyzed by the analytical laboratory. The full Maxxam Analytics lab reports are provided in Appendix A.

All sites were sampled as per Table 2-1, with the exception of R1, as the retention pond was not yet constructed. Analysis and interpretation of the collected data will be conducted as part of the annual data analysis report required for the Quartz Mining Licence QML-0006 Monitoring and Surveillance Plan (to be submitted in early spring 2015).

Table 2-2 Surface Water Quality Monitoring Sites and 2014 Dates Sampled

Sampling Site	L1	W1	W8	W9	W12	W14	W15	W16	W21	W22	W31	W40	W71	W72	W73	W80	W81	W82	W85	T1
January	11-Jan	A	11-Jan	D	08-Jan	08-Jan	15-Jan	13-Jan	10-Jan	10-Jan	D	10-Jan	10-Jan	10-Jan	10-Jan	07-Jan	12-Jan	14-Jan	12-Jan	14-Jan
February	08-Feb	A	08-Feb	D	10-Feb	10-Feb	19-Feb	25-Feb	03-Feb	03-Feb	D	03-Feb	05-Feb	05-Feb	05-Feb	10-Feb	19-Feb	11-Feb	11-Feb	05-Feb
March	10-Mar	A	A	D	A	11-Mar	29-Mar	29-Mar	07-Mar	07-Mar	D	A	A	04-Mar	04-Mar	11-Mar	30-Mar	10-Mar	29-Mar	05-Mar
April	02-Apr	A	A	D	A	08-Apr	05-Apr	05-Apr	06-Apr	A	D	A	06-Apr	06-Apr	06-Apr	08-Apr	09-Apr	10-Apr	05-Apr	14-Apr
May	A	A	26-May	26-May	A	A	24-May	24-May	06-May	06-May	11-May	06-May	06-May	06-May	06-May	A	24-May	20-May	24-May	10-May
June	21-Jun	21-Jun	21-Jun	21-Jun	01-Jun	01-Jun	29-Jun	20-Jun	28-Jun	28-Jun	20-Jun	28-Jun	18-Jun	18-Jun	18-Jun	01-Jun	29-Jun	20-Jun	20-Jun	07-Jun
July	26-Jul	26-Jul	26-Jul	26-Jul	01-Jul	01-Jul	08-Jul	16-Jul	21-Jul	21-Jul	02-Jul	21-Jul	02-Jul	02-Jul	02-Jul	01-Jul	08-Jul	16-Jul	16-Jul	06-Jul
August	22-Aug	22-Aug	E	22-Aug	04-Aug	04-Aug	08-Aug	08-Aug	20-Aug	20-Aug	13-Aug	20-Aug	12-Aug	12-Aug	12-Aug	04-Aug	08-Aug	E	E	01-Aug
September	13-Sep	13-Sep	13-Sep	13-Sep	01-Sep	01-Sep	23-Sep	05-Sep	12-Sep	12-Sep	02-Sep	12-Sep	12-Sep	12-Sep	07-Sep	01-Sep	22-Sep	25-Sep	25-Sep	02-Sep
October	A	A	D	D	A	A	06-Oct	12-Oct	19-Oct	19-Oct	22-Oct	19-Oct	19-Oct	19-Oct	19-Oct	A	06-Oct	07-Oct	12-Oct	12-Oct
November	A	A	D	D	01-Nov	01-Nov	08-Nov	08-Nov	21-Nov	21-Nov	17-Nov	21-Nov	21-Nov	21-Nov	21-Nov	01-Nov	09-Nov	09-Nov	08-Nov	17-Nov
December	20-Dec	A	D	D	21-Dec	21-Dec	10-Dec	08-Dec	19-Dec	A	D	19-Dec	03-Dec	03-Dec	03-Dec	21-Dec	10-Dec	10-Dec	10-Dec	08-Dec

A = Site not sampled due to lack of safe access

D = Site dry (i.e., all water tied up in storage) or frozen through to ground

E = Transportation equipment under repair

Table 2-3 2014 Wolverine Creek Watershed Surface Water Quality Results

Sample Location	L1	L1	L1	L1	L1	L1	L1	L1	L1	W1	W1	W1	W1	W8	W8
Sampling Date	11-Jan-14	08-Feb-14	10-Mar-14	02-Apr-14	21-Jun-14	26-Jul-14	22-Aug-14	13-Sep-14	20-Dec-14	21-Jun-14	26-Jul-14	22-Aug-14	13-Sep-14	11-Jan-14	08-Feb-14
Lab Report ID	B403951	B412072	B420331	B426604	B454396	B466101	B476271	B482546	B4B6324	B454396	B466101	B476271	B482546	B403951	B412072
Field Physical Parameters															
Temperature	0.54	0.28	0.26	0.29	11.51	16.49	13.71	7.93	0.53	11.5	15.59	13.11	8.02	0.11	0.07
pH	7.77	7.81	*	7.35	7.70	*	*	8.03	6.37	*	*	8.94	8.37	7.62	7.63
Specific conductivity	126	145	164	150	99	114	119	129	151	141	150	142	160	190	207
Conductivity	67	73	86	80	73	96	93	87	80	105	123	110	108	100	108
Laboratory Parameters															
Physical Parameters															
Temperature (°C)	0.5	1	1	1.7	2.2	6.7	3.3	8	1	2.2	6.7	3.3	8	0.5	1
Conductivity (µS/cm)	127	144	161	155	99	116	120	129	152	136	152	145	160	220	224
Hardness (mg/L)	64.8	69.4	75.2	72	47.5	55.3	60.1	65.9	75.3	67.8	74	69.7	82.2	113	112
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<5.0
pH	7.8	7.88	7.76	7.84	7.77	7.89	8.01	7.87	7.77	7.92	7.91	8.12	8.02	8	8.04
DOC	2.70	*	3.26	3.81	4.59	3.30	3.91	1.37	3.23	5.97	3.99	4.85	2.88	n/a	n/a
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Major Anions (mg/L)															
Alkalinity-Total	51.5	60.1	66.5	63	38.7	48	51.9	55.6	62.7	58.7	62.9	61.4	70.4	89	93.9
Acidity-Total	1.22	<0.50	2.09	1.91	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.35	<0.50
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.55	<0.50	<0.50	<0.50	<0.50	0.51	<0.50	<0.50	<0.50
Fluoride	0.069	0.086	0.092	0.083	0.073	0.064	0.07	0.075	0.07	0.1	0.1	0.096	0.12	0.041	0.048
Sulphate	11.4	12.2	13.7	12.3	8.97	9.31	9.91	10.6	13.1	10.9	11.9	11.4	11.8	21.3	22.3
Nutrient Parameters (mg/L)															
Ammonial Nitrogen	0.032	0.057	0.14	0.089	0.013	0.068	0.031	0.016	0.051	0.021	0.013	0.035	0.017	0.01	0.019
Nitrate Nitrogen	<0.20	<0.20	<0.20	0.0639	<0.20	<0.20	<0.20	<0.0020	0.22	<0.20	0.31	0.27	0.0053	<0.20	0.31
Nitrite Nitrogen	<0.20	<0.20	<0.20	<0.0020	0.28	<0.20	0.21	<0.0020	<0.20	0.41	<0.20	<0.20	<0.0020	<0.20	<0.20
Total Phosphate	0.028	0.0331	0.0435	0.0435	0.0165	0.0166	0.0178	0.0199	0.0217	0.0156	0.0198	0.0142	0.0189	<0.0050	<0.0050
Dissolved Ortho-Phosphate	0.02	0.024	0.032	0.03	0.0035	0.0059	0.006	0.0032	0.015	0.0018	0.011	0.0055	0.0033	0.0023	0.0018
Total Metals (mg/L)															
Aluminum (Al)	0.00544	0.00606	0.00758	0.00683	0.0351	0.0152	0.0335	0.0111	0.0066	0.0176	0.0129	0.0406	0.0273	0.00291	0.07
Antimony (Sb)	0.00004	0.000036	0.000045	0.000055	0.000049	0.000059	0.000047	0.000047	0.000052	0.00004	0.00051	0.000048	0.000055	0.00009	0.00009
Arsenic (As)	0.00162	0.00179	0.00221	0.00234	0.00121	0.00198	0.0022	0.00158	0.00181	0.0014	0.00243	0.00184	0.00203	0.00012	0.000273
Cadmium (Cd)	0.000017	0.000017	0.000016	0.000015	0.000021	0.00002	0.000012	0.000014	0.0000315	0.000012	0.000012	0.000023	0.000007	0.000062	0.00012
Calcium (Ca)	18.9	20.7	22.1	21.3	14.1	16.3	18.1	19.8	22.3	17.7	19.3	18.6	21.5	36.1	35.9
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	<0.00010	0.0001	0.00012	<0.00010	0.00024	<0.00010	<0.00010	0.00016
Cobalt (Co)	0.000033	0.000044	0.000041	0.000036	0.000021	0.000024	0.000019	0.000019	0.000032	0.00003	0.000025	0.000036	0.000017	0.000013	0.000118
Copper (Cu)	0.000313	0.000313	0.000323	0.000357	0.000694	0.000664	0.000598	0.000399	0.000461	0.000826	0.000673	0.00227	0.000533	0.000659	0.00159
Iron (Fe)	0.251	0.397	0.43	0.415	0.0701	0.0973	0.0915	0.0825	0.223	0.0727	0.0588	0.0476	0.0446	0.035	0.278
Lead (Pb)	0.000023	0.000037	0.000041	0.000039	0.000054	0.000092	0.000049	0.000028	0.000223	0.000061	0.000026	0.000319	0.000041	0.000007	0.000298
Magnesium (Mg)	4.28	4.33	4.85	4.54	3.01	3.54	3.6	4.01	4.77	5.73	6.24	5.67	6.91	5.6	5.36
Manganese (Mn)	0.0823	0.0948	0.111	0.103	0.0164	0.0177	0.0106	0.0151	0.0775	0.0102	0.0119	0.00792	0.00997	0.00402	0.018
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00112	0.00107	0.0011	0.00109	0.000912	0.0011	0.00103	0.00105	0.00113	0.00101	0.00108	0.00107	0.00118	0.000541	0.000457
Nickel (Ni)	0.000385	0.000447	0.000535	0.000477	0.000528	0.000522	0.000404	0.00041	0.00051	0.00145	0.00119	0.00128	0.00112	0.000538	0.00105
Phosphorus (P)	0.0274	0.0332	0.0435	0.0415	0.0165	0.0189	0.0208	0.0176	0.0324	0.0158	0.0226	0.0211	0.0166	0.0029	0.0172
Potassium (K)	0.984	0.971	1.07	1.06	0.709	0.661	0.717	0.749	0.994	1.15	1.06	1.17	1.13	0.501	0.507
Selenium (Se)	0.000321	0.000322	0.000342	0.000369	0.000317	0.000421	0.000396	0.000393	0.000342	0.000352	0.000395	0.000352	0.000275	0.00129	0.00151
Silicon (Si)	4.06	4.25	4.69	4.8	2.57	2.04	1.6	2.59	3.98	2.12	1.58	1.1	1.65	3.32	3.28
Silver (Ag)	<0.0000050	0.000006	<0.0000050	<0.0000050	0.00001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000006	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000007
Sodium (Na)	1.13	1.17	1.28	1.22	0.879	1.02	1.04	1.05	1.36	1.13	1.17	1.3	1.23	1.29	1.16
Strontium (Sr)	0.0483	0.0495	0.0612	0.0517	0.0377	0.0437	0.0455	0.0456	0.058	0.0587	0.067	0.0641	0.0691	0.0829	0.0806
Thallium (Tl)	<0.0000020	0.000002	<0.0000020	<0.0000020	0.000003	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00024	0.00022	<0.00020	0.00027
Zinc (Zn)	0.00247	0.00263	0.00301	0.00276	0.00383	0.0024	0.00226	0.00146	0.00781	0.00178	0.00118	0.00661	0.00229	0.0034	0.00918
Dissolved Metals (mg/L)															
Aluminum (Al)	0.00311	0.00268	0.00269	0.00473	0.0151	0.0108	0.0408	0.00369	0.0031	0.00921	0.0077	0.0454	0.00459	0.00263	0.00225
Antimony (Sb)	0.000039	0.000042	0.000042	0.000048	0.000038	0.000044	0.000057	0.000046	0.000047	0.000045	0.000051	0.000054	0.000051	0.000098	0.000097
Arsenic (As)	0.00144	0.00163	0.00174	0.00174	0.00109	0.00178	0.0021	0.00149	0.00188	0.00127	0.00231	0.00191	0.0019	0.000108	0.000126
Cadmium (Cd)	0.000013	0.000013	0.00001	0.000011	0.000016	0.000011	0.000019	0.000006	0.0000186	0.000008	0.000008	0.000027	0.000006	0.000061	0.00006
Calcium (Ca)	19	21.9	22.4	20.9	13.7	15.6	17.4	21.1	24.2	17.6	19.1	19.2	22.5	39	37.8
Chromium (Cr)	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	0.00011	0.00015	<0.00010	<0.00010	0.00012
Cobalt (Co)	0.000035	0.00004	0.000038	0.000037	0.000011	0.000014	0.000025	0.000015	0.0000269	0.000019	0.00002	0.000028	0.000013	0.000014	0.00003
Copper (Cu)	0.000404	0.000336	0.000302	0.000298	0.00208	0.000587	0.000718	0.000375	0.000316	0.000698	0.000627	0.00118	0.000512	0.000623	0.000623
Iron (Fe)	0.144	0.238	0.258	0.223	0.04	0.0353	0.0717	0.0492	0.129	0.0434	0.0212	0.0432	0.023	0.0308	0.0326
Lead (Pb)	0.000025	0.000027	0.000019	0.000031	0.000027	0.000079	0.000204	0.000016	0.0000543	0.000021	0.000056	0.000257	0.00001	<0.0000050	0.000006

Sample Location	L1	L1	L1	L1	L1	L1	L1	L1	L1	W1	W1	W1	W1	W8	W8
Sampling Date	11-Jan-14	08-Feb-14	10-Mar-14	02-Apr-14	21-Jun-14	26-Jul-14	22-Aug-14	13-Sep-14	20-Dec-14	21-Jun-14	26-Jul-14	22-Aug-14	13-Sep-14	11-Jan-14	08-Feb-14
Lab Report ID	B403951	B412072	B420331	B426604	B454396	B466101	B476271	B482546	B4B6324	B454396	B466101	B476271	B482546	B403951	B412072
Magnesium (Mg)	4.15	4.72	4.84	4.65	2.99	3.34	3.67	3.95	4.38	5.49	6.07	5.86	6.84	5.85	5.82
Manganese (Mn)	0.0812	0.101	0.108	0.102	0.00808	0.00419	0.00845	0.00688	0.0711	0.00671	0.00327	0.0034	0.00172	0.0042	0.00482
Mercury (Hg)	<0.00001	<0.00001	<0.00001	0.000023	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00108	0.00119	0.00112	0.00112	0.000911	0.00109	0.00112	0.00101	0.00118	0.00101	0.00108	0.00113	0.00117	0.000563	0.000542
Nickel (Ni)	0.000417	0.000503	0.000473	0.000478	0.000558	0.00054	0.000481	0.000394	0.000482	0.00128	0.0011	0.0013	0.0011	0.000579	0.000561
Phosphorus (P)	0.0224	0.0261	0.0272	0.0292	0.0099	0.0109	0.0184	0.0122	0.023	0.0099	0.0173	0.0204	0.0119	<0.0020	0.0036
Potassium (K)	1.01	1.15	1.11	1.08	0.707	0.646	0.741	0.802	1.1	1.13	1.03	1.16	1.17	0.53	0.533
Selenium (Se)	0.00034	0.00036	0.000358	0.000311	0.000335	0.000389	0.000377	0.000373	0.000345	0.00036	0.000397	0.000328	0.000329	0.0014	0.00155
Silicon (Si)	4	4.46	4.77	4.59	2.47	1.92	1.5	2.27	4.14	2.19	1.48	1.14	1.61	3.64	3.36
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000005	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.17	1.26	1.3	1.27	0.842	1	1.14	1.1	1.16	1.14	1.19	1.41	1.25	1.3	1.29
Strontium (Sr)	0.0493	0.0543	0.0581	0.0509	0.0349	0.0423	0.0463	0.0463	0.058	0.0584	0.0648	0.0656	0.0679	0.086	0.0852
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000003	<0.0000020	0.000002	<0.0000020	<0.0000020	0.000002	0.000002	0.000002	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	<0.00020	<0.00020	0.00025	0.0002	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00253	0.00278	0.00274	0.00311	0.00235	0.00259	0.00365	0.00099	0.00437	0.00121	0.00091	0.00721	0.00106	0.00346	0.00382

*Sample not taken/analysed due to instrumentation malfunction or lab error

Sample Location	W8	W8	W8	W8	W9	W9	W9	W9	W9	W21	W21	W21	W21	W21	W21
Sampling Date	26-May-14	21-Jun-14	26-Jul-14	13-Sep-14	26-May-14	21-Jun-14	26-Jul-14	22-Aug-14	13-Sep-14	10-Jan-14	03-Feb-14	07-Mar-14	06-Apr-14	06-May-14	28-Jun-14
Lab Report ID	B443871	B454396	B466101	B482546	B443871	B454396	B466101	B476271	B482546	B403951	B410106	B420331	B428622	B437231	B456550
Field Physical Parameters															
Temperature	2.25	2.8	4.36	3.03	1.45	2.3	2.63	2.38	2.17	-0.03	-0.01	-0.03	-0.04	0	13.46
pH	7.96	*	*	8.08	8.13	7.94	*	8.03	8.13	*	8.14	*	7.64	7.49	*
Specific conductivity	171	107	195	188	286	275	308	332	330	222	221	260	255	173	164
Conductivity	97	62	119	109	157	156	176	188	186	115	118	136	132	90	128
Laboratory Parameters															
Physical Parameters															
Temperature (°C)	5	2.2	6.7	8	5	2.2	6.7	3.3	8	0.5	1.7	1	0.5	2.7	6
Conductivity (µS/cm)	174	106	192	187	293	272	318	325	331	216	236	257	247	170	163
Hardness (mg/L)	82.9	52.6	97.4	97.2	147	134	157	166	171	116	123	129	124	89.9	82.3
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<8.0	<4.0	<4.0	<4.0	<4.0	<8.0	<4.0	<1.0	<4.0	<4.0	12.8	22.3
pH	8.07	7.85	8.02	7.99	8.04	8.02	7.93	8.34	8.14	8.04	8.13	8.09	8.08	7.93	7.95
DOC	n/a	n/a	n/a	n/a	5.65	5.88	1.75	2.01	1.34	n/a	n/a	n/a	n/a	n/a	n/a
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Major Anions (mg/L)															
Alkalinity-Total	69.4	46.5	78.6	76.3	110	92.5	108	123	123	89.2	101	105	105	71	69.1
Acidity-Total	<0.50	<0.50	<0.50	<0.50	1.07	<0.50	<0.50	<0.50	<0.50	0.7	<0.50	<0.50	<0.50	<0.50	<0.50
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010
Chloride	0.59	<0.50	<0.50	<0.50	0.62	0.62	<0.50	0.81	0.91	<0.50	<0.50	<0.50	<0.50	0.8	0.6
Fluoride	0.039	0.03	0.038	0.04	0.1	0.11	0.099	0.095	0.097	0.11	0.12	0.14	0.12	0.078	0.096
Sulphate	16	8.97	16.4	18	35	41.8	45.7	48.1	46.7	20.6	24.5	25.5	23.2	8.76	14.7
Nutrient Parameters (mg/L)															
Ammonial Nitrogen	0.017	0.012	0.01	0.0081	0.0066	0.017	0.01	0.025	0.013	0.017	0.026	0.031	0.013	0.014	0.46
Nitrate Nitrogen	0.129	<0.20	<0.20	0.0514	0.182	<0.20	<0.20	0.21	0.0767	<0.20	<0.20	<0.20	0.112	<0.20	<0.20
Nitrite Nitrogen	<0.0020	<0.20	<0.20	<0.0020	0.0026	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.20
Total Phosphate	<0.0050	<0.0050	<0.0050	<0.0050	0.0063	0.006	<0.0050	<0.0050	<0.0050	0.0176	0.0194	0.0174	0.0146	0.0469	0.0169
Dissolved Ortho-Phosphate	0.001	<0.0010	0.0011	<0.0010	0.0031	0.0021	0.0042	0.0037	0.002	0.011	0.011	0.0079	0.0099	0.0069	0.0048
Total Metals (mg/L)															
Aluminum (Al)	0.0248	0.0598	0.00843	0.0304	0.00853	0.025	0.00458	0.0257	0.00315	0.0108	0.00845	0.00981	0.00573	0.0706	0.0216
Antimony (Sb)	0.000053	0.000049	0.000051	0.000039	0.000172	0.000251	0.000147	0.000137	0.000132	0.000063	0.000069	0.000095	0.000068	0.000067	0.000054
Arsenic (As)	0.000138	0.000156	0.000095	0.000112	0.000253	0.000275	0.000218	0.00026	0.000237	0.00148	0.00163	0.0013	0.00145	0.00178	0.0013
Cadmium (Cd)	0.000034	0.000031	0.000035	0.000032	0.00136	0.00151	0.00136	0.0013	0.00128	0.000013	0.00001	0.000031	0.000013	0.000053	0.000016
Calcium (Ca)	27.7	17.7	32.4	32.6	42	39.1	46.1	48.4	50.5	29.2	31.7	32.2	31.3	22.1	21.3
Chromium (Cr)	0.00014	0.00024	<0.00010	0.00012	<0.00010	0.00085	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	0.00098	<0.00010	0.00029	0.0002
Cobalt (Co)	0.000029	0.000102	0.000017	0.000013	0.000015	0.000042	0.000011	0.000012	0.000009	0.00003	0.000024	0.000028	0.000024	0.000172	0.000053
Copper (Cu)	0.00153	0.00268	0.000793	0.000765	0.00154	0.00204	0.000751	0.000779	0.000626	0.000644	0.000638	0.00103	0.00096	0.00154	0.00146
Iron (Fe)	0.0383	0.104	0.0105	0.0055	0.013	0.0649	0.0068	0.008	0.0035	0.0956	0.121	0.124	0.0852	0.391	0.0981
Lead (Pb)	0.000065	0.000099	0.000027	0.000028	0.000031	0.000297	0.000028	0.000049	0.000019	0.00002	0.00002	0.00255	0.000032	0.000233	0.000054
Magnesium (Mg)	3.33	2.07	3.99	3.85	10.3	8.73	10.3	10.9	11	10.5	10.6	11.7	11	8.44	7.08
Manganese (Mn)	0.00106	0.00442	0.00059	0.000279	0.000612	0.00496	0.000545	0.000982	0.000309	0.0103	0.00865	0.00718	0.00579	0.0734	0.0145
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000534	0.000401	0.000591	0.000527	0.000787	0.000795	0.000863	0.000946	0.000973	0.00132	0.00134	0.00146	0.00139	0.000851	0.00103
Nickel (Ni)	0.000807	0.000846	0.000655	0.000608	0.00378	0.00481	0.00314	0.00289	0.00292	0.00154	0.00155	0.00171	0.00161	0.00361	0.00163
Phosphorus (P)	0.0034	0.006	0.0026	0.0034	0.0075	0.0099	0.0079	0.0073	0.007	0.0158	0.0183	0.014	0.0153	0.0383	0.0154
Potassium (K)	0.441	0.281	0.35	0.363	1.2	1.04	1.07	1.13	1.16	1.23	1.19	1.21	1.27	1.29	1.16
Selenium (Se)	0.000634	0.000337	0.000573	0.000476	0.0038	0.00302	0.00318	0.00337	0.00343	0.000488	0.000539	0.000581	0.000541	0.000295	0.000335

Sample Location	W8	W8	W8	W8	W9	W9	W9	W9	W9	W21	W21	W21	W21	W21	W21
Sampling Date	26-May-14	21-Jun-14	26-Jul-14	13-Sep-14	26-May-14	21-Jun-14	26-Jul-14	22-Aug-14	13-Sep-14	10-Jan-14	03-Feb-14	07-Mar-14	06-Apr-14	06-May-14	28-Jun-14
Lab Report ID	B443871	B454396	B466101	B482546	B443871	B454396	B466101	B476271	B482546	B403951	B410106	B420331	B428622	B437231	B456550
Silicon (Si)	2.67	2.27	2.86	3.1	3.21	3.4	3.3	3.43	3.76	3.67	3.77	3.51	3.66	2.96	2.76
Silver (Ag)	<0.0000050	0.000011	<0.0000050	<0.0000050	<0.0000050	0.000019	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000005
Sodium (Na)	1.06	0.843	1.22	1.27	1.36	3.31	2.33	2.17	2.23	1.63	1.63	1.92	1.79	1.06	1.3
Strontium (Sr)	0.0595	0.0374	0.0665	0.0608	0.126	0.117	0.14	0.149	0.137	0.106	0.114	0.124	0.124	0.0821	0.0762
Thallium (Tl)	<0.0000020	0.000003	<0.0000020	<0.0000020	0.000003	0.000007	0.000005	0.000003	0.000002	<0.0000020	<0.0000020	0.000004	<0.0000020	0.000003	<0.0000020
Vanadium (V)	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00033	0.00022
Zinc (Zn)	0.00372	0.00384	0.00352	0.00495	0.12	0.143	0.105	0.0945	0.0926	0.00145	0.00109	0.00429	0.00105	0.00579	0.00166
Dissolved Metals (mg/L)															
Aluminum (Al)	0.0158	0.0295	0.0069	0.0287	0.0046	0.021	0.00313	0.0289	0.00228	0.00309	0.004	0.00311	0.00255	0.0176	0.0212
Antimony (Sb)	0.000045	0.000044	0.000051	0.000042	0.000172	0.000255	0.000154	0.000142	0.000137	0.000071	0.000067	0.000083	0.000068	0.000062	0.00006
Arsenic (As)	0.000117	0.000118	0.000119	0.000106	0.000259	0.000286	0.000263	0.00028	0.000233	0.00129	0.00136	0.00116	0.00128	0.00102	0.00129
Cadmium (Cd)	0.000029	0.00002	0.000033	0.000034	0.00127	0.00156	0.00127	0.00131	0.00129	0.000008	0.000005	0.000014	0.00001	0.000039	0.000022
Calcium (Ca)	28.2	18.2	31.2	33.5	40.9	39.5	44.9	50.5	49	29.1	31	32.8	31.4	21.7	21.7
Chromium (Cr)	0.0001	0.00015	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00078	0.00011	0.00021	0.00019
Cobalt (Co)	0.000016	0.000025	0.000014	0.000017	0.00001	0.000034	0.00001	0.000019	0.000009	0.000014	0.000013	0.000016	0.000015	0.000077	0.000044
Copper (Cu)	0.00135	0.00219	0.000983	0.000773	0.00157	0.00201	0.000853	0.000711	0.000598	0.00058	0.000602	0.000873	0.000611	0.00134	0.000963
Iron (Fe)	0.0105	0.0253	0.0084	0.0039	0.0058	0.0472	0.0026	0.0041	0.0015	0.0413	0.0562	0.0539	0.0518	0.124	0.081
Lead (Pb)	0.000024	0.000013	0.000013	0.000027	0.00002	0.000293	0.000024	0.000087	0.000009	<0.0000050	0.000005	0.000218	0.000022	0.000116	0.000072
Magnesium (Mg)	3.24	2.01	3.76	3.78	9.57	8.36	10.3	11.1	11.4	10.3	10.1	11.8	10.5	8.5	6.82
Manganese (Mn)	0.000476	0.000701	0.00051	0.000196	0.000086	0.00446	0.000096	0.000623	0.000087	0.00412	0.00295	0.00394	0.00275	0.024	0.011
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00052	0.000352	0.000581	0.000488	0.00083	0.000653	0.000886	0.000951	0.00093	0.00134	0.00136	0.00148	0.00143	0.000859	0.00112
Nickel (Ni)	0.000765	0.000787	0.000606	0.000723	0.00372	0.00483	0.00334	0.003	0.00283	0.00155	0.00143	0.00164	0.00157	0.00313	0.00171
Phosphorus (P)	<0.0020	0.0042	0.0054	0.0027	0.0048	0.0092	0.0084	0.0075	0.006	0.012	0.0132	0.0118	0.012	0.031	0.0143
Potassium (K)	0.464	0.275	0.325	0.348	1.18	1.02	1.06	1.17	1.17	1.22	1.18	1.26	1.32	1.3	1.14
Selenium (Se)	0.000645	0.000308	0.000556	0.000532	0.00344	0.00339	0.00314	0.00335	0.0035	0.000513	0.000491	0.000499	0.000537	0.000311	0.000359
Silicon (Si)	2.61	2.42	2.66	3.11	3.14	3.37	3.14	3.65	3.65	3.54	3.6	3.71	3.6	2.76	2.75
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000009	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.07	0.841	1.11	1.24	1.25	3.16	2.39	2.36	2.31	1.55	1.6	1.93	1.69	0.976	1.31
Strontium (Sr)	0.0554	0.0352	0.0677	0.065	0.12	0.117	0.142	0.149	0.143	0.106	0.111	0.119	0.12	0.0811	0.0752
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000004	0.000004	0.000003	0.000003	0.000002	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	0.00023	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0002	<0.00020	<0.00020	<0.00020	0.00024
Zinc (Zn)	0.00382	0.00284	0.00276	0.00538	0.112	0.161	0.1	0.0997	0.0979	0.00132	0.00081	0.00187	0.00093	0.00586	0.00118

*Sample not taken/analysed due to instrumentation malfunction or lab error

Sample Location	W21	W21	W21	W21	W21	W21	W82	W82	W82	W82	W82	W82	W82	W82	W82
Sampling Date	21-Jul-14	20-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	19-Dec-14	14-Jan-14	10-Apr-14	20-May-14	20-Jun-14	16-Jul-14	25-Sep-14	07-Oct-14	09-Nov-14	10-Dec-14
Lab Report ID	B463574	B473730	B482546	B496571	B4A8453	B4B6324	B403951	B430993	B441335	B454396	B461068	B486588	B491947	B4A3962	B4B2815
Field Physical Parameters															
Temperature	13.97	10.9	4.85	*	-0.11	-0.11	0.12	0.07	5.94	5.64	6.82	3.54	0.23	-0.04	-0.1
pH	*	8.27	8.28	*	7.97	7.26	7.65	7.17	7.84	*	7.96	7.37	7.36	7.28	7.35
Specific conductivity	194	223	231	*	230	238	264	296	151	286	272	285	274	284	285
Conductivity	153	162	142	*	120	124	139	155	96	181	119	168	144	148	148
Laboratory Parameters															
Physical Parameters															
Temperature (°C)	5	3	8	1.5	1.7	1	0.5	1	3.7	2.2	8	2.2	7	1	1
Conductivity (µS/cm)	195	240	224	218	231	237	260	295	163	287	289	281	264	279	284
Hardness (mg/L)	99.7	122	123	113	114	121	132	136	72.7	124	133	153	125	125	125
Total Suspended Solids (mg/L)	<4.0	<8.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	14.5	<4.0	<4.0	<4.0	<4.0	8
pH	8.11	8.07	8.06	8.13	8.16	8.05	7.83	8.02	7.89	7.82	8.01	7.85	7.88	7.89	7.97
DOC	n/a	n/a	n/a	n/a	n/a	n/a	<0.50	2.24	6.06	4.34	1.16	2.17	2.34	1.72	3.07
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Major Anions (mg/L)															
Alkalinity-Total	83.4	97.3	102	97	101	100	80.9	85.7	47	67.2	88.9	76.3	77.9	77.9	81.9
Acidity-Total	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.97	14.3	<0.50	0.63	<0.50	2.77	<0.50	0.65	2.29
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	0.53	<0.50	<0.50	<0.50	0.55	0.73	1.8	0.95	0.72	0.71	1.2	0.96	0.72	1.9
Fluoride	0.11	0.076	0.11	0.11	0.1	0.11	0.2	0.2	0.17	0.12	0.12	0.19	0.023	0.16	0.17
Sulphate	15.7	25.5	18.2	20.1	20.9	21.5	46.3	57.4	25.7	64.3	56.1	60.3	49	58.3	58
Nutrient Parameters (mg/L)															
Ammonial Nitrogen	0.012	0.016	0.018	0.012	0.038	0.015	0.028	0.036	0.013	0.018	0.012	0.0096	0.011	0.017	0.024
Nitrate Nitrogen	0.0058	<0.20	<0.0020	<0.20	0.0397	<0.20	<0.20	0.196	<0.20	1.16	0.184	<0.20	0.42	0.45	0.3
Nitrite Nitrogen	<0.0020	<0.20	<0.0020	<0.20	<0.0020	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20
Total Phosphate	0.0178	<0.0050	0.0145	0.016	0.0114	0.0181	0.0214	0.0145	0.0338	0.0328	0.0167	0.0212	0.0106	0.0116	0.0269
Dissolved Ortho-Phosphate	0.0084	<0.0010	0.0044	0.0042	0.004	0.0086	0.0048	0.0045	0.015	0.0071	0.0092	0.017	0.0054	0.0075	0.0067
Total Metals (mg/L)															

Sample Location	W21	W21	W21	W21	W21	W21	W82	W82	W82	W82	W82	W82	W82	W82	W82
Sampling Date	21-Jul-14	20-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	19-Dec-14	14-Jan-14	10-Apr-14	20-May-14	20-Jun-14	16-Jul-14	25-Sep-14	07-Oct-14	09-Nov-14	10-Dec-14
Lab Report ID	B463574	B473730	B482546	B496571	B4A8453	B4B6324	B403951	B430993	B441335	B454396	B461068	B486588	B491947	B4A3962	B4B2815
Aluminum (Al)	0.0298	0.00433	0.00898	0.0122	0.0172	0.011	0.0685	0.0219	0.0611	0.377	0.0334	0.0364	0.0193	0.019	0.0511
Antimony (Sb)	0.000077	0.000066	0.000085	0.000071	0.000071	0.000082	0.000324	0.000514	0.000435	0.00107	0.000364	0.000333	0.000332	0.000273	0.000324
Arsenic (As)	0.00204	0.000244	0.00162	0.00157	0.00108	0.00138	0.000242	0.000156	0.000611	0.00147	0.000211	0.000218	0.000149	0.000083	0.000243
Cadmium (Cd)	0.000019	0.000012	0.000011	0.000011	0.000016	0.0000189	0.00448	0.00329	0.00189	0.00528	0.00457	0.00579	0.00433	0.00376	0.00339
Calcium (Ca)	26.3	32.4	30.6	28.5	27.6	30	42	44.9	23	42.3	46.1	51.8	41.8	41.5	41.3
Chromium (Cr)	0.00021	0.00022	0.00019	0.00016	0.0002	0.00016	0.00015	<0.00010	0.00011	0.00101	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.000062	0.000017	0.000031	0.000032	0.000036	0.000033	0.00142	0.000705	0.000506	0.00154	0.00117	0.000658	0.000359	0.000502	0.000854
Copper (Cu)	0.00101	0.000436	0.000668	0.000611	0.000728	0.000698	0.00577	0.003	0.00431	0.0106	0.00443	0.00411	0.00263	0.0025	0.00399
Iron (Fe)	0.12	0.0168	0.0866	0.104	0.0931	0.101	0.387	0.191	0.472	0.987	0.204	0.301	0.128	0.13	0.348
Lead (Pb)	0.000108	0.000006	0.000022	0.000032	0.000186	0.000462	0.00112	0.000415	0.0016	0.0276	0.000756	0.000765	0.000446	0.000446	0.00174
Magnesium (Mg)	8.27	10	11.2	10.1	11.1	11.1	6.52	5.74	3.71	4.5	4.29	5.81	4.88	5.14	5.34
Manganese (Mn)	0.0201	0.00247	0.0107	0.00974	0.00671	0.0101	0.323	0.179	0.12	0.759	0.62	0.426	0.283	0.192	0.245
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000017	0.000036	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00135	0.000775	0.00122	0.00129	0.00122	0.0013	0.000374	0.00048	0.000466	0.000663	0.000434	0.000355	0.000332	0.000319	0.00039
Nickel (Ni)	0.00187	0.000667	0.00189	0.00165	0.00175	0.00159	0.0294	0.0191	0.0131	0.0114	0.0146	0.0218	0.0134	0.0151	0.0188
Phosphorus (P)	0.0198	0.0027	0.0159	0.0126	0.0135	0.0176	0.0267	0.0172	0.0395	0.0379	0.0152	0.0256	0.0096	0.006	0.0287
Potassium (K)	1.06	0.883	0.989	0.988	1.04	1.31	1.03	1.25	0.584	1.25	1.22	1.27	1.13	1.14	1.25
Selenium (Se)	0.000325	0.000609	0.000317	0.000343	0.00045	0.000429	0.00294	0.00525	0.00267	0.00474	0.0024	0.00237	0.00264	0.00236	0.00257
Silicon (Si)	2.59	4.34	2.71	2.76	2.95	3.17	4.53	4.42	3.15	3.77	3.12	4.47	3.64	3.96	3.75
Silver (Ag)	<0.0000050	<0.0000050	0.000009	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000017	0.000118	0.000005	<0.0000050	<0.0000050	<0.0000050	0.0000127
Sodium (Na)	1.39	1.73	1.54	1.46	1.6	1.64	1.41	2.24	0.949	7.88	5.08	4.51	3.59	3.92	3.54
Strontium (Sr)	0.0963	0.143	0.105	0.105	0.108	0.117	0.123	0.124	0.0642	0.111	0.121	0.126	0.116	0.117	0.12
Thallium (Tl)	<0.0000020	0.000002	0.000005	<0.0000020	<0.0000020	<0.0000020	0.000004	0.000003	0.000007	0.000033	0.000009	0.00001	0.000009	0.000007	0.0000079
Vanadium (V)	0.0003	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00096	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00327	0.00061	0.00125	0.00095	0.00136	0.00274	0.415	0.338	0.187	0.329	0.272	0.364	0.287	0.255	0.307
Dissolved Metals (mg/L)															
Aluminum (Al)	0.00495	0.00306	0.00505	0.00329	0.00469	0.00279	0.0231	0.00764	0.0355	0.0201	0.0178	0.0416	0.0121	0.00999	0.0101
Antimony (Sb)	0.000081	0.000064	0.00009	0.000077	0.000093	0.000072	0.000307	0.000529	0.000384	0.000651	0.000352	0.000307	0.000332	0.000302	0.000316
Arsenic (As)	0.00178	0.000227	0.00152	0.00135	0.00101	0.00119	0.000076	0.000067	0.000339	0.000232	0.00017	0.00019	0.000139	0.000057	0.000435
Cadmium (Cd)	0.000012	0.000008	0.000023	0.000007	0.000167	0.0000096	0.00257	0.00187	0.00139	0.00352	0.004	0.00419	0.00348	0.00279	0.00242
Calcium (Ca)	26.2	31.3	31	28.1	27.3	32.7	42	44.6	21.5	41.3	46.9	46.5	41.8	40.2	39.4
Chromium (Cr)	0.00012	0.00016	0.00016	0.00013	0.00017	0.00017	<0.00010	<0.00010	<0.00010	<0.00010	0.00016	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.000038	0.000008	0.000022	0.000019	0.000013	0.0000112	0.00102	0.000673	0.000232	0.000798	0.00105	0.000591	0.000311	0.000505	0.000577
Copper (Cu)	0.00748	0.000505	0.000897	0.000585	0.00108	0.000571	0.00192	0.00125	0.0034	0.00228	0.0031	0.00277	0.00181	0.00158	0.00173
Iron (Fe)	0.0471	0.008	0.0572	0.0522	0.0338	0.0407	0.034	0.0255	0.222	0.0534	0.127	0.143	0.0639	0.0399	0.0548
Lead (Pb)	0.000023	0.000006	0.000221	0.000054	0.000538	0.0000637	0.000045	0.00004	0.000331	0.00103	0.000363	0.000316	0.000119	0.0000939	0.000349
Magnesium (Mg)	8.4	9.98	10.4	9.9	10.4	9.76	6.47	6.29	4.06	4.2	4.55	5.72	4.93	5.05	5.18
Manganese (Mn)	0.00427	0.000807	0.00412	0.00409	0.00186	0.00184	0.236	0.17	0.0684	0.62	0.612	0.392	0.276	0.181	0.178
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00009	0.000027	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00128	0.000704	0.00124	0.00129	0.00124	0.00131	0.000424	0.000538	0.000463	0.000644	0.000496	0.000339	0.000332	0.000319	0.000372
Nickel (Ni)	0.00165	0.000667	0.0018	0.00155	0.00173	0.00151	0.0272	0.0193	0.0141	0.00956	0.0143	0.0209	0.0129	0.015	0.0171
Phosphorus (P)	0.0144	0.0032	0.0122	0.0113	0.0185	0.0133	0.0061	0.0055	0.0261	0.0108	0.0099	0.0188	0.0082	0.0076	0.0232
Potassium (K)	1.04	0.896	1.66	1.03	1	1.17	1.03	1.35	0.616	1.16	1.19	1.25	1.18	1.12	1.29
Selenium (Se)	0.000353	0.00062	0.000368	0.000391	0.000469	0.000445	0.00295	0.00534	0.00263	0.00466	0.00243	0.00218	0.00257	0.00232	0.00239
Silicon (Si)	2.58	4.03	2.54	2.63	2.71	3.39	4.48	4.27	3.04	3.44	3.27	4.07	3.75	3.93	3.54
Silver (Ag)	0.000009	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000008	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.3	1.78	1.5	1.44	1.62	1.42	1.37	2.47	1.05	7.41	5.22	4.45	3.57	3.83	3.59
Strontium (Sr)	0.0951	0.142	0.11	0.105	0.108	0.114	0.124	0.127	0.0631	0.105	0.121	0.116	0.118	0.114	0.112
Thallium (Tl)	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	0.000004	0.000004	0.000009	0.00001	0.000008	0.000009	0.0000082	0.0000055
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.0008	0.00053	0.00294	0.0007	0.00322	0.00137	0.364	0.321	0.177	0.229	0.253	0.318	0.258	0.243	0.262

*Sample not taken/analysed due to instrumentation malfunction or lab error

Table 2-4 2014 Go Creek Watershed Surface Water Quality Results

Sample Location	W12	W12	W12	W12	W12	W12	W12	W12	W15	W15	W15	W15	W15	W15	W15	W15	W15	W15
Sampling Date	08-Jan-14	10-Feb-14	01-Jun-14	01-Jul-14	04-Aug-14	01-Sep-14	01-Nov-14	21-Dec-14	15-Jan-14	19-Feb-14	29-Mar-14	05-Apr-14	24-May-14	29-Jun-14	08-Jul-14	08-Aug-14	23-Sep-14	06-Oct-14
Lab Report ID	B402057	B412072	B446782	B456550	B468484	B478365	B4A1983	B4B6324	B403951	B414013	B425804	B428622	B443871	B456550	B458712	B470976	B486436	B491947
Field Physical Parameters																		
Temperature	-0.13	-0.02	5.83	8.74	11.55	7.51	0.04	-0.08	0.13	0	-0.03	*	2.27	5.86	6.14	5.96	3.36	2
pH	*	8.32	8.48	8.09	7.84	8.00	*	7.08	7.09	8.17	8.01	*	7.59	*	*	7.83	7.52	7.76
Specific conductivity	172	175	112	148	169	165	175	186	126	132	130	*	105	104	108	126	128	117
Conductivity	90	39	70	102	123	108	92	97	66	69	68	*	60	66	69	80	75	66
Laboratory Parameters																		
Physical Parameters																		
Temperature (°C)	3.3	1	4	6	3	2.3	3.3	1	0.5	1	1	0.5	5	6	5.3	4.9	3.7	7
Conductivity (µS/cm)	175	182	110	148	178	168	168	176	126	128	127	127	110	105	108	126	126	126
Hardness (mg/L)	86.4	87.7	54.5	75.9	90.2	80.8	81.7	91.1	61.9	60.9	60.6	61.2	51.4	47.8	52.7	62.7	67.2	60.7
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	4	<4.0	<4.0	<4.0	<4.0	<4.0	7.3
pH	8	8.08	7.77	7.87	7.92	8.03	7.85	7.89	7.89	7.87	7.93	7.9	7.92	7.83	7.82	7.94	7.9	7.83
DOC	1.75	2.05	2.05	2.10	1.26	1.74	1.66	1.55	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Major Anions (mg/L)																		
Alkalinity-Total	68.1	72.8	42.9	59.8	68.5	69.3	63.8	68	51.1	51.2	54.7	53.2	43	41.6	45.9	55.4	53.4	51.1
Acidity-Total	<0.50	<0.50	<0.50	<0.50	0.69	<0.50	<0.50	0.59	0.62	<0.50	<0.50	0.59	0.76	<0.50	0.9	<0.50	8	<0.50
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	<0.50	<0.50	1.1	<0.50	1.6	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.4	<0.50
Fluoride	0.049	0.056	0.041	0.042	0.052	0.057	0.043	0.043	0.027	0.036	0.035	0.029	0.028	0.026	0.027	0.026	0.021	0.021
Sulphate	20.3	20.8	10.7	15.8	18.3	15.6	19.7	18.8	11.5	11.8	10.3	10.5	9.49	9.71	9.6	11.1	11.3	12.1
Nutrient Parameters (mg/L)																		
Ammonial Nitrogen	0.0059	0.016	0.13	0.017	0.03	0.037	0.011	0.006	0.007	<0.0050	<0.0050	0.11	0.007	0.018	0.024	0.021	0.0096	0.0079
Nitrate Nitrogen	0.21	<0.20	<0.20	<0.20	<0.20	0.0025	0.24	0.35	<0.20	<0.20	0.173	0.181	0.0774	<0.20	<0.20	<0.20	<0.20	<0.20
Nitrite Nitrogen	<0.20	<0.20	0.21	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.0020	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.20
Total Phosphate	<0.0050	<0.0050	0.0054	<0.0050	0.0081	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0073	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Ortho-Phosphate	0.0014	0.0017	0.0018	0.0016	0.0044	0.0019	0.0014	0.003	0.0018	0.003	0.0015	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0019
Total Metals (mg/L)																		
Aluminum (Al)	0.00271	0.0041	0.0257	0.02	0.00959	0.0279	0.00411	0.00395	0.0126	0.00252	0.00604	0.0116	0.0187	0.0224	0.00897	0.038	0.00369	0.0272
Antimony (Sb)	0.000047	0.000053	0.000041	0.000044	0.000078	<0.000020	0.000033	0.000041	<0.000020	<0.000020	<0.000020	0.000027	0.000026	0.00002	0.000021	0.000023	<0.000020	0.000022
Arsenic (As)	0.000156	0.000189	0.000212	0.000242	0.000309	0.000308	0.000183	0.000167	0.000092	0.000083	0.000077	0.000099	0.000145	0.00013	0.000122	0.000129	0.000084	0.000085
Cadmium (Cd)	0.000014	0.000013	0.000021	0.000023	0.00002	0.000019	0.0000141	0.0000152	<0.0000050	<0.0000050	<0.0000050	0.000005	0.000007	0.000005	<0.0000050	0.000005	<0.0000050	0.000012
Calcium (Ca)	26.1	26.5	17.3	23.9	28.2	24.6	25.2	27.5	22.1	21.8	21.8	22.1	18.5	17.8	19.1	22.6	24.4	21.9
Chromium (Cr)	<0.00010	<0.00010	0.00012	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	0.00015	0.00017	0.00019	0.00014	0.00016	0.00012	0.00015	0.00024	0.00015
Cobalt (Co)	0.00002	0.00003	0.000055	0.000049	0.000036	0.000037	0.0000296	0.0000293	0.000011	0.00001	0.000009	0.000024	0.000036	0.000046	0.00002	0.000035	0.000017	0.000045
Copper (Cu)	0.000391	0.000362	0.00132	0.00235	0.000607	0.00128	0.000417	0.000347	0.000292	0.000315	0.000593	0.000413	0.00117	0.000885	0.000712	0.000711	0.000473	0.000667
Iron (Fe)	0.053	0.068	0.0767	0.096	0.122	0.117	0.0428	0.0887	0.0036	0.0023	0.0054	0.026	0.0185	0.034	0.0096	0.0391	0.0063	0.039
Lead (Pb)	0.00001	0.000071	0.000053	0.000061	0.000019	0.000069	0.0000187	0.000029	0.000037	0.000032	0.000216	0.000074	0.000233	0.000073	0.00002	0.000096	0.000021	0.000253
Magnesium (Mg)	5.15	5.2	2.75	3.97	4.77	4.71	4.58	5.42	1.63	1.53	1.53	1.48	1.26	1.16	1.23	1.51	1.53	1.45
Manganese (Mn)	0.0164	0.0156	0.0138	0.0171	0.0201	0.0227	0.016	0.02	0.00012	0.000126	0.000303	0.00108	0.000879	0.00233	0.00053	0.00193	0.000353	0.00203
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000365	0.000433	0.000363	0.000348	0.000808	0.000443	0.000391	0.000421	0.000289	0.000293	0.000307	0.000274	0.000251	0.000214	0.000279	0.000248	0.000232	0.000245
Nickel (Ni)	0.00024	0.000231	0.00036	0.000856	0.000357	0.000362	0.000295	0.000283	0.000085	0.000084	0.00013	0.000133	0.000209	0.000168	0.000147	0.00018	0.00017	0.00043
Phosphorus (P)	0.0036	0.0036	0.0062	0.0104	0.0086	0.0083	0.0087	0.0051	<0.0020	<0.0020	<0.0020	<0.0020	0.0038	0.0054	0.0035	0.0037	0.0031	<0.0020
Potassium (K)	0.582	0.614	0.514	0.534	0.641	0.637	0.51	0.616	0.449	0.433	0.458	0.472	0.476	0.321	0.311	0.381	0.436	0.401
Selenium (Se)	0.00138	0.00148	0.00083	0.00088	0.000785	0.000656	0.000881	0.00106	0.000354	0.000348	0.000444	0.000379	0.000328	0.000233	0.000217	0.000285	0.000287	0.000277
Silicon (Si)	3.68	3.75	2.38	3.13	3.87	3.48	3.45	3.87	3.13	3.18	3.2	3.19	2.61	2.42	2.5	2.92	3.07	2.81
Silver (Ag)	<0.0000050	0.000005	<0.0000050	<0.0000050	<0.0000050	0.000008	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000006	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.27	1.33	0.846	1.05	1.15	1.1	1.07	1.3	1.12	1.07	1.11	1.05	0.893	0.857	0.912	0.99	1.05	0.984
Strontium (Sr)	0.0554	0.0549	0.032	0.0452	0.0545	0.0481	0.0487	0.0555	0.0364	0.036	0.0346	0.0361	0.0287	0.0279	0.0306	0.0364	0.0351	0.0349
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	0.00025	0.00035	0.00028	0.00027	0.00023	<0.00020	<0.00020
Zinc (Zn)	0.00061	0.00068	0.00146	0.00093	0.00054	0.00241	0.00039	0.00063	0.00117	0.00065	0.0012	0.00061	0.00112	0.00066	0.00041	0.00224	0.00056	0.00214
Dissolved Metals (mg/L)																		
Aluminum (Al)	0.00162	0.00167	0.01	0.0209	0.00501	0.00611	0.00173	0.00264	0.0124	0.00177	0.00162	0.00205	0.0137	0.00548	0.00521	0.00335	0.00276	0.0037
Antimony (Sb)	0.000045	0.000048	0.000043	0.000058	0.000049	0.000045	0.000036	0.000043	<0.000020	<0.000020	<0.000020	0.000023	0.000022	<0.000020	0.000022	0.000022	<0.000020	0.000022
Arsenic (As)	0.000165	0.000173	0.000172	0.000267	0.000297	0.000296	0.000152	0.00018	0.000078	0.000097	0.000086	0.000103	0.000125	0.000107	0.000113	0.000096	0.0001	0.00009
Cadmium (Cd)	0.000011	0.000011	0.000012	0.000063	0.000014	0.000013	0.0000161	0.0000121	<0.0000050	<0.0000050	<0.0000050	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000007
Calcium (Ca)	26.4	29.2	17.2	23.1	26.1	26.1	25.9	28.7	22	21.9	22.6	22	17.6	17.2	18.2	22.3	24.8	23.3
Chromium (Cr)	<0.00010	<0.00010	<0.00010	0.00019	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	0.00015	0.00015	0.00015	0.00013	0.0001	<0.00010	<0.00010	0.00015	<0.00010
Cobalt (Co)	0.000016	0.000028	0.000023	0.000035	0.000027	0.000027	0.0000209	0.0000181	0.000011	0.000008	0.000008	0.000013	0.000025	0.000017	0.000016	0.000011	0.000015	0.000014
Copper (Cu)	0.000399	0.000389	0.00119	0.00137	0.00058	0.000522	0.000353	0.000358	0.000305	0.000293	0.000297	0.000341	0.00102	0.000747	0.000812	0.000534	0.000487	0.000436
Iron (Fe)	0.0222	0.0226	0.0359	0.0491	0.0734	0.0806	0.0238	0.0327	0.0022	<0.0010	0.0015	0.0015	0.0063	0.0021	0.0033	0.0023	0.0021	0.0051
Lead (Pb)	0.000012	0.000005	0.000014	0.00005	0.000023	0.000041	0.0000116	0.00011	0.00002	0.000008	0.000036	0.000023	0.000027	0.000008	0.000024	0.000019	0.000007	0.00006
Magnesium (Mg)	5.29	5.59	2.65	3.62	4.9	4.83	4.71	4.87	1.74	1.53	1.53	1.52	1.17	1.16	1.23	1.45	1.6	1.43

Sample Location	W12	W12	W12	W12	W12	W12	W12	W12	W15	W15	W15	W15	W15	W15	W15	W15	W15	W15
Sampling Date	08-Jan-14	10-Feb-14	01-Jun-14	01-Jul-14	04-Aug-14	01-Sep-14	01-Nov-14	21-Dec-14	15-Jan-14	19-Feb-14	29-Mar-14	05-Apr-14	24-May-14	29-Jun-14	08-Jul-14	08-Aug-14	23-Sep-14	06-Oct-14
Lab Report ID	B402057	B412072	B446782	B456550	B468484	B478365	B4A1983	B4B6324	B403951	B414013	B425804	B428622	B443871	B456550	B458712	B470976	B486436	B491947
Manganese (Mn)	0.012	0.0065	0.00535	0.00909	0.00853	0.0106	0.0108	0.013	0.000059	<0.000050	0.000081	0.000148	0.000295	0.000103	0.000189	0.000198	0.000155	0.000302
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000461	0.000468	0.000348	0.000394	0.000454	0.000422	0.000391	0.000447	0.000291	0.00031	0.000298	0.000287	0.000238	0.000222	0.000229	0.000268	0.000208	0.000277
Nickel (Ni)	0.000275	0.000239	0.00032	0.000452	0.00034	0.000416	0.000239	0.000239	0.000174	0.000073	0.000113	0.000107	0.000189	0.000189	0.000167	0.000201	0.000253	0.000187
Phosphorus (P)	0.0027	0.0034	0.0031	0.0111	0.0079	0.0056	0.009	0.0064	<0.0020	0.0036	<0.0020	<0.0020	<0.0020	<0.0020	0.0028	0.0025	0.0028	<0.0020
Potassium (K)	0.646	0.671	0.531	0.585	0.663	0.676	0.494	0.639	0.468	0.413	0.446	0.493	0.486	0.333	0.308	0.36	0.446	0.404
Selenium (Se)	0.00145	0.00157	0.000926	0.000891	0.000751	0.000688	0.000938	0.00116	0.000426	0.000407	0.000412	0.00045	0.000297	0.000231	0.000253	0.000278	0.000231	0.000313
Silicon (Si)	3.71	4.14	2.57	3.02	3.58	3.72	3.48	3.94	3.13	3.13	3.27	3.11	2.52	2.26	2.4	2.85	3.14	2.99
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	0.000018	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.39	1.35	0.813	1.2	1.21	1.13	1.04	1.17	1.11	1.08	1.11	1.07	0.843	0.809	0.862	1.01	1.1	0.975
Strontium (Sr)	0.0566	0.0583	0.0332	0.0454	0.0532	0.0522	0.0494	0.0558	0.0372	0.0341	0.0342	0.0362	0.0285	0.0272	0.0311	0.0348	0.0356	0.0353
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	0.000003	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	0.00024	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00183	0.00061	0.00051	0.00253	0.00195	0.00262	0.00043	0.00125	0.00125	0.00054	0.00045	0.00061	0.00084	0.00031	0.00049	0.00053	0.00045	0.00065

* Sample not taken/analysed due to instrumentation malfunction or lab error

Sample Location	W15	W15	W16	W16	W16	W16	W16	W16	W16	W16	W16	W16	W16	W16	W31	W31	W31	W31
Sampling Date	08-Nov-14	10-Dec-14	13-Jan-14	25-Feb-14	29-Mar-14	05-Apr-14	24-May-14	20-Jun-14	16-Jul-14	08-Aug-14	05-Sep-14	12-Oct-14	08-Nov-14	08-Dec-14	11-May-14	20-Jun-14	02-Jul-14	13-Aug-14
Lab Report ID	B4A3962	B4B2815	B403951	B416144	B425804	B428622	B443871	B454396	B461068	B470976	B480018	B494116	B4A3962	B4B2815	B438624	B454396	B456550	B470976
Field Physical Parameters																		
Temperature	-0.02	0.05	0.1	0.03	0.01	0.06	1.81	4.65	5.21	7.35	3.3	1.82	0.03	0.04	-0.05	2.77	4.83	6.79
pH	7.71	7.36	7.67	7.95	7.90	7.51	*	*	7.81	7.80	7.15	7.43	7.82	7.24	7.22	6.78	8.10	7.95
Specific conductivity	130	130	153	159	157	158	117	141	120	162	151	141	177	174	112	95	119	150
Conductivity	68	68	80	83	82	83	65	85	78	105	98	79	92	91	58	54	73	98
Laboratory Parameters																		
Physical Parameters																		
Temperature (°C)	1	1	0.5	1.3	1	0.5	5	2.2	8	4.9	5.3	3.7	1	1	5.7	2.2	6	4.9
Conductivity (µS/cm)	126	129	154	152	154	156	120	128	161	161	167	168	177	176	109	94.7	116	154
Hardness (mg/L)	57.5	55.5	78.4	76.1	77.7	76.3	58	65.8	79.7	81.7	87.3	83.8	71.7	78.7	54.9	46	61.2	81.1
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<10	9.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
pH	7.82	7.87	7.98	7.91	8	7.94	7.92	7.68	8	7.95	7.88	7.96	7.87	7.96	7.82	7.83	7.91	8
DOC	n/a	n/a	0.66	1.53	0.77	0.98	6.47	3.93	1.31	0.51	1.82	2.58	2.44	0.93	4.13	4.89	1.85	0.74
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	<0.00050	0.00082	0.00069	0.00079	0.00112	<0.00050	*	0.00079	0.00125	*	<0.00050	*	0.00063	<0.00050	<0.00050	<0.00050
Major Anions (mg/L)																		
Alkalinity-Total	52.8	53.8	67.7	69.9	68.4	69.5	47.6	54.6	70.9	70.1	68.6	67.5	67.1	70	51.8	43.9	53.9	69.9
Acidity-Total	<0.50	1.18	0.85	0.91	<0.50	0.54	<0.50	<0.50	<0.50	<0.50	<0.50	0.81	<0.50	1.45	<0.50	<0.50	<0.50	<0.50
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	0.54	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.51	<0.50	0.57	0.51	1.2	1.6	<0.50	0.7	<0.50
Fluoride	0.026	0.029	0.028	0.034	0.037	0.034	0.038	0.03	0.035	0.033	0.034	0.029	0.031	0.038	0.032	0.021	0.021	0.018
Sulphate	11	11.3	10.3	11.2	9.77	9.7	11.4	10.8	10.9	11.4	12.9	16.8	21.4	20.8	3.79	5.82	7.5	9.12
Nutrient Parameters (mg/L)																		
Ammonial Nitrogen	0.0088	<0.0050	0.0073	0.016	<0.0050	0.0057	0.01	0.022	0.012	0.021	0.017	0.012	0.0073	0.0095	0.025	0.047	0.02	0.062
Nitrate Nitrogen	0.33	<0.20	<0.20	<0.20	0.109	0.115	0.0433	<0.20	0.0823	<0.20	0.0418	0.6	0.34	<0.20	<0.20	<0.20	<0.20	<0.20
Nitrite Nitrogen	<0.20	<0.20	<0.20	0.23	<0.0020	<0.0020	<0.0020	0.27	<0.0020	<0.20	0.0095	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Phosphate	<0.0050	<0.0050	0.006	0.0074	0.0067	0.0052	0.0184	0.0276	0.0069	<0.0050	0.0093	<0.0050	<0.0050	0.005	0.0072	<0.0050	<0.0050	<0.0050
Dissolved Ortho-Phosphate	<0.0010	0.0021	0.0051	0.0051	0.0049	0.005	0.0023	0.0024	0.0025	0.0013	0.0011	0.0016	0.0012	0.0022	0.0013	<0.0010	<0.0010	<0.0010
Total Metals (mg/L)																		
Aluminum (Al)	0.00455	0.0112	0.0195	0.00427	0.00334	0.00285	0.0573	0.372	0.00864	0.0156	0.00931	0.00557	0.00498	0.00677	0.0296	0.0233	0.0251	0.0402
Antimony (Sb)	<0.000020	0.000038	0.000039	0.000033	0.000033	0.000042	0.000058	0.000198	0.000059	0.000043	0.000038	0.000052	0.000037	0.000042	0.000038	0.000021	0.000026	<0.000020
Arsenic (As)	0.000036	0.000074	0.000113	0.000105	0.000112	0.000137	0.000188	0.000414	0.00013	0.000126	0.000098	0.00012	0.000086	0.00012	0.000176	0.000159	0.000157	0.000145
Cadmium (Cd)	<0.0000050	0.0000086	0.000108	0.000092	0.000098	0.000097	0.000071	0.000244	0.00009	0.000094	0.000102	0.000095	0.000121	0.000114	0.00001	<0.0000050	0.000026	<0.0000050
Calcium (Ca)	20.7	19.8	26.2	26.2	26.6	26.2	19.2	21.6	26.3	27.5	29.5	27.9	23.6	26.7	20.2	16.8	22.5	29.7
Chromium (Cr)	<0.00010	0.00018	0.00014	0.00011	0.00012	<0.00010	0.00017	0.00113	<0.00010	<0.00010	<0.00010	0.00016	<0.00010	0.00012	0.00012	0.00014	0.00014	<0.00010
Cobalt (Co)	0.0000116	0.0000213	0.000038	0.000026	0.00002	0.00003	0.000085	0.000611	0.000038	0.000044	0.000034	0.000036	0.0000465	0.000041	0.000063	0.000029	0.000034	0.000019
Copper (Cu)	0.000398	0.000449	0.000467	0.000367	0.000453	0.000361	0.00176	0.00538	0.000697	0.000644	0.000434	0.000543	0.000396	0.000401	0.0028	0.00196	0.00197	0.00102
Iron (Fe)	0.003	0.0163	0.0381	0.0332	0.0376	0.0309	0.0871	0.598	0.0288	0.0483	0.0368	0.0239	0.0128	0.0297	0.0205	0.0079	0.0131	0.0072
Lead (Pb)	0.0000677	0.000489	0.000027	0.00001	0.000047	0.000007	0.000077	0.00511	0.000041	0.000018	0.000012	0.000058	0.000056	0.000281	0.000393	0.00004	0.000249	0.000075
Magnesium (Mg)	1.38	1.44	3.14	2.6	2.71	2.63	2.45	2.86	3.38	3.16	3.33	3.4	3.08	2.94	1.07	0.996	1.24	1.7
Manganese (Mn)	0.000209	0.000895	0.0155	0.0152	0.0186	0.0176	0.0207	0.0353	0.0165	0.0173	0.033	0.057	0.13	0.114	0.0024	0.000308	0.00123	0.000243
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000254	0.00027	0.000369	0.000355	0.000393	0.000387	0.000334	0.000362	0.000449	0.000437	0.000697	0.00039	0.000385	0.000404	0.000267	0.000302	0.000386	0.000343
Nickel (Ni)	0.000084	0.000237	0.000226	0.000139	0.000196	0.000148	0.000562	0.00153	0.000276	0.000229	0.000176	0.000243	0.000195	0.000233	0.000255	0.000142	0.000296	0.000186
Phosphorus (P)	0.0053	0.0176	0.0067	0.0074	0.0071	0.007	0.0119	0.0229	0.0056	0.0057	0.006	0.0028	<0.0020	0.0053	0.0056	0.0029	0.0392	0.0028
Potassium (K)	0.354	0.408	0.545	0.498	0.52	0.505	0.625	0.522	0.481	0.52	0.609	0.561	0.511	0.526	0.566	0.365	0.44	0.451
Selenium (Se)	0.000325	0.000336	0.000498	0.000556	0.000563	0.000573	0.00117	0.000966	0.00114	0.00104	0.0014	0.00161	0.00218	0.00194	0.000261	0.000201	0.000176	0.000183
Silicon (Si)	2.86	2.87	3.55	3.5	3.56	3.42	2.6	3.13	3.26	3.21	3.76	3.25	2.85	3.26	2.68	2.36	2.93	3.26

Sample Location	W15	W15	W16	W16	W16	W16	W16	W16	W16	W16	W16	W16	W16	W16	W31	W31	W31	W31
Sampling Date	08-Nov-14	10-Dec-14	13-Jan-14	25-Feb-14	29-Mar-14	05-Apr-14	24-May-14	20-Jun-14	16-Jul-14	08-Aug-14	05-Sep-14	12-Oct-14	08-Nov-14	08-Dec-14	11-May-14	20-Jun-14	02-Jul-14	13-Aug-14
Lab Report ID	B4A3962	B4B2815	B403951	B416144	B425804	B428622	B443871	B454396	B461068	B470976	B480018	B494116	B4A3962	B4B2815	B438624	B454396	B456550	B470976
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000023	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	0.913	1.06	1.25	1.17	1.16	1.15	1.1	1.05	1.29	1.3	1.44	1.53	1.67	1.65	0.796	0.849	1.14	1.21
Strontium (Sr)	0.0329	0.0301	0.0406	0.0366	0.0371	0.0394	0.0362	0.0411	0.0526	0.0493	0.0483	0.0528	0.0459	0.042	0.0132	0.0113	0.0152	0.0182
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000005	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00035	0.00122	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00046	0.00039	0.00045	0.00043
Zinc (Zn)	0.00107	0.00339	0.00551	0.00415	0.00517	0.00454	0.00413	0.0281	0.00464	0.0044	0.00432	0.00477	0.00459	0.00578	0.00062	0.00042	0.00724	0.00159
Dissolved Metals (mg/L)																		
Aluminum (Al)	0.00241	0.00615	0.0118	0.00197	0.00124	0.00182	0.024	0.0216	0.00487	0.00506	0.00298	0.00296	0.00175	0.00188	0.0239	0.0232	0.0399	0.0095
Antimony (Sb)	0.000023	0.000032	0.000037	0.000035	0.000033	0.000048	0.000055	0.000124	0.000055	0.000046	0.000038	0.000041	0.00004	0.00004	0.000047	0.000021	0.000023	0.000021
Arsenic (As)	0.000046	0.000082	0.000109	0.000112	0.000107	0.000137	0.000159	0.000146	0.000156	0.000117	0.000114	0.000117	0.00009	0.000106	0.000187	0.000147	0.000166	0.000141
Cadmium (Cd)	<0.0000050	0.0000075	0.000097	0.000084	0.000093	0.000089	0.000052	0.000075	0.000082	0.000083	0.000091	0.000093	0.000101	0.000103	0.000006	<0.0000050	0.000008	<0.0000050
Calcium (Ca)	20.1	21	27.4	26.4	26	26.4	19.1	21.6	27.4	28.1	28.4	27.3	26.1	26.8	20	17.1	20.9	29.5
Chromium (Cr)	<0.00010	<0.00010	0.00016	<0.00010	0.0001	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	0.00013	0.00017	<0.00010
Cobalt (Co)	0.0000137	0.0000151	0.000026	0.000024	0.000023	0.000029	0.000047	0.000052	0.000032	0.000032	0.000028	0.000033	0.0000404	0.0000346	0.000056	0.000031	0.000035	0.00002
Copper (Cu)	0.000462	0.000495	0.000367	0.000353	0.000369	0.000338	0.00137	0.00213	0.00119	0.000564	0.00037	0.000534	0.000406	0.000309	0.0026	0.00216	0.00158	0.000986
Iron (Fe)	0.0021	0.0037	0.0144	0.0148	0.0158	0.0163	0.0304	0.0502	0.0218	0.0178	0.0152	0.0132	0.0091	0.0113	0.0117	0.0064	0.0131	0.002
Lead (Pb)	0.0000225	0.000168	0.00002	0.000007	0.000014	0.000707	0.00003	0.000198	0.000016	0.000009	0.000011	0.000033	0.000033	0.00001	0.000104	0.000037	0.000115	0.000016
Magnesium (Mg)	1.4	1.44	3.06	2.64	2.69	2.61	2.25	2.73	3.3	3.11	3.21	3.52	2.85	2.9	1.2	1.01	1.15	1.6
Manganese (Mn)	0.000068	0.000559	0.0119	0.0143	0.0168	0.0168	0.0173	0.0103	0.015	0.0144	0.0287	0.0567	0.12	0.105	0.00189	0.000158	0.000347	0.000052
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000273	0.000272	0.00037	0.000401	0.000387	0.000426	0.00035	0.00041	0.000449	0.000434	0.000412	0.000423	0.000407	0.0004	0.000306	0.000294	0.000336	0.000393
Nickel (Ni)	0.00004	0.000151	0.000196	0.000139	0.000162	0.000156	0.000517	0.000383	0.000272	0.000313	0.00024	0.000205	0.000198	0.000198	0.000254	0.000167	0.000208	0.00009
Phosphorus (P)	0.0028	0.0319	0.0053	0.0057	0.005	0.0061	0.0056	0.0042	0.0033	0.0042	0.0031	0.002	0.006	0.0054	0.0056	0.0021	0.0047	0.0026
Potassium (K)	0.374	0.452	0.616	0.501	0.494	0.545	0.631	0.509	0.462	0.514	0.606	0.602	0.472	0.527	0.633	0.352	0.371	0.442
Selenium (Se)	0.000262	0.000321	0.000563	0.000539	0.00057	0.000541	0.00116	0.000993	0.00114	0.00115	0.00131	0.00163	0.00251	0.00202	0.000307	0.000194	0.00018	0.000155
Silicon (Si)	2.75	2.64	3.77	3.44	3.49	3.37	2.54	2.84	3.42	3.35	3.56	3.16	3.23	3.01	2.59	2.52	2.73	3.23
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000008	<0.0000050
Sodium (Na)	0.949	1.11	1.35	1.21	1.12	1.13	1.04	1.05	1.24	1.35	1.46	1.6	1.58	1.62	0.854	0.843	1.01	1.22
Strontium (Sr)	0.0323	0.0319	0.0409	0.0361	0.0376	0.0387	0.035	0.04	0.0516	0.0477	0.0484	0.0509	0.0439	0.042	0.0134	0.0113	0.0137	0.0184
Thallium (Tl)	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00053	0.0003	0.00047	0.00044
Zinc (Zn)	0.00097	0.00664	0.00576	0.00411	0.00461	0.00559	0.00377	0.00535	0.0039	0.00404	0.00415	0.00456	0.00409	0.00511	0.0004	0.00046	0.00137	0.00021

* Sample not taken/analysed due to instrumentation malfunction

Sample Location	W31	W31	W31	W80	W80	W80	W80	W80	W80	W80	W80	W80	W80	W81	W81	W81	W81	W81
Sampling Date	02-Sep-14	22-Oct-14	17-Nov-14	07-Jan-14	10-Feb-14	11-Mar-14	08-Apr-14	01-Jun-14	01-Jul-14	04-Aug-14	01-Sep-14	01-Nov-14	21-Dec-14	12-Jan-14	19-Feb-14	30-Mar-14	09-Apr-14	24-May-14
Lab Report ID	B478365	B496571	B4A6190	B402057	B412072	B420331	B428622	B446782	B456550	B468484	B478365	B4A1983	B4B6324	B403951	B414013	B425804	B428622	B443871
Field Physical Parameters																		
Temperature	5.47	0.85	-0.11	0.05	0	-0.01	0	7.26	10.25	12.7	7.71	-0.1	-0.07	-0.03	0.05	-0.02	0.13	2.73
pH	8.04	7.61	6.89	*	8.04	*	6.79	8.60	8.04	8.04	7.97	7.32	6.50	8.13	7.79	7.52	7.18	7.48
Specific conductivity	156	138	152	182	21	185	182	111	149	169	169	159	184	56	153	157	155	112
Conductivity	98	75	79	95	11	97	95	73	107	129	114	83	96	29	80	82	81	64
Laboratory Parameters																		
Physical Parameters																		
Temperature (°C)	2.3	1.5	1.3	3.3	1	1	0.5	4	6	3	2.3	3.3	1	0.5	1	1	0.5	5
Conductivity (µS/cm)	154	148	154	178	185	182	178	109	149	171	168	170	180	154	153	153	153	116
Hardness (mg/L)	75.2	80.7	74.2	87.9	89.8	90.1	86.3	57.5	73.5	86.7	83	81.7	96.6	74.1	73.4	75.5	75.2	54.5
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	8.8	<1.0	<4.0	<4.0	17
pH	8.06	8.01	8.06	7.99	8.04	7.92	7.85	7.72	7.91	7.89	8.01	7.99	7.85	7.95	7.96	7.97	7.97	7.91
DOC	1.3	1.39	2.51	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Weak Acid Dissoc. Cyanide (CN)	0.00052	0.00051	<0.00050	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Major Anions (mg/L)																		
Alkalinity-Total	70.5	67.6	71.3	68.1	73.1	70.8	70	41.5	56.2	67.8	69.8	67.4	69.2	58.6	62.3	63.8	63.6	44.4
Acidity-Total	<0.50	<0.50	<0.50	<0.50	<0.50	0.92	0.91	<0.50	<0.50	1.22	<0.50	<0.50	<0.50	0.68	0.76	<0.50	<0.50	<0.50
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.56	0.76	<0.50	0.94	0.93	0.56	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride	0.024	0.022	0.013	0.046	0.055	0.057	0.052	0.038	0.04	0.049	0.05	0.044	0.044	0.027	0.032	0.037	0.03	0.033
Sulphate	8.42	9.85	10.3	20.6	21.4	20.5	21	10.8	16.2	16.7	15.5	20.2	20.4	18.4	17.9	13.4	14.7	10.4
Nutrient Parameters (mg/L)																		
Ammonial Nitrogen	0.037	0.016	0.0073	0.01	0.021	0.035	0.011	0.02	0.022	0.038	0.036	0.012	0.0063	0.013	0.011	0.0051	0.011	0.0077
Nitrate Nitrogen	0.0028	<0.20	0.43	<0.20	0.21	0.25	0.0986	<0.20	<0.20	0.25	<0.0020	<0.20	0.23	<0.20	<0.20	0.148	0.15	0.061
Nitrite Nitrogen	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.0020	<0.0020
Total Phosphate	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0064	<0.0050	<0.0050	0.0055	0.0087	<0.0050	<0.0050	0.0054	<0.0050	<0.0050	<0.0050	0.0056	0.0091
Dissolved Ortho-Phosphate	<0.0010	0.0048	<0.0010	0.0017	0.0029	0.0018	0.0026	0.0015	0.0021	0.0056	0.0034	0.0029	0.0033	0.0037	0.003	0.004	0.002	0.0023
Total Metals (mg/L)																		
Aluminum (Al)	0.00891	0.0073	0.00562	0.00225	0.00286	0.00285	0.00338	0.0277	0.0156	0.0103	0.0087	0.00638	0.00853	0.0136	0.00277	0.00395	0.00272	0.0407

Sample Location	W31	W31	W31	W80	W80	W80	W80	W80	W80	W80	W80	W80	W80	W81	W81	W81	W81	W81
Sampling Date	02-Sep-14	22-Oct-14	17-Nov-14	07-Jan-14	10-Feb-14	11-Mar-14	08-Apr-14	01-Jun-14	01-Jul-14	04-Aug-14	01-Sep-14	01-Nov-14	21-Dec-14	12-Jan-14	19-Feb-14	30-Mar-14	09-Apr-14	24-May-14
Lab Report ID	B478365	B496571	B4A6190	B402057	B412072	B420331	B428622	B446782	B456550	B468484	B478365	B4A1983	B4B6324	B403951	B414013	B425804	B428622	B443871
Antimony (Sb)	<0.000020	0.000025	<0.000020	0.000055	0.000044	0.000046	0.000044	0.000045	0.00005	0.000063	0.000031	0.000042	0.000056	0.000029	0.000036	0.000038	0.000037	0.000045
Arsenic (As)	0.000174	0.000149	0.000125	0.0002	0.000218	0.000194	0.000272	0.000223	0.000246	0.000376	0.000373	0.000204	0.00024	0.000098	0.0001	0.000101	0.000117	0.000159
Cadmium (Cd)	0.000021	0.000005	0.000005	0.000022	0.000027	0.000025	0.000059	0.000025	0.000023	0.00002	0.000028	0.0000226	0.000037	0.00004	0.000035	0.000032	0.00003	0.000039
Calcium (Ca)	27.6	29.8	27.2	26.5	27.2	27.1	26.1	18.6	22.9	26.8	25.3	25.2	29.6	25.5	25.5	26.2	26.3	18.9
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	0.00013	0.00015	<0.00010	<0.00010	<0.00010	0.00016	0.00012	0.00012	0.00011	<0.00010	0.00016
Cobalt (Co)	0.000025	0.00002	0.000017	0.000052	0.00006	0.000064	0.000089	0.000058	0.000051	0.000057	0.000062	0.0000535	0.0000649	0.000043	0.000032	0.000021	0.000029	0.000064
Copper (Cu)	0.000873	0.000827	0.000715	0.000409	0.000447	0.000383	0.000374	0.00377	0.000955	0.000638	0.000665	0.000623	0.000611	0.000434	0.000338	0.00036	0.000313	0.00134
Iron (Fe)	0.0017	0.0043	0.0021	0.106	0.117	0.123	0.179	0.0758	0.081	0.154	0.146	0.0722	0.147	0.0252	0.0223	0.0214	0.0209	0.0622
Lead (Pb)	0.000049	0.000062	0.000101	0.000019	0.000062	0.00008	0.000028	0.000123	0.00004	0.000027	0.000095	0.0000486	0.000383	0.000045	0.000006	0.000022	0.000016	0.00005
Magnesium (Mg)	1.52	1.54	1.53	5.26	5.33	5.47	5.11	2.7	3.96	4.82	4.81	4.57	5.5	2.53	2.37	2.48	2.29	1.79
Manganese (Mn)	0.000447	0.000192	0.00009	0.0598	0.064	0.0768	0.132	0.0138	0.0192	0.0351	0.0439	0.0422	0.0707	0.044	0.0347	0.0267	0.022	0.0134
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000376	0.000422	0.000384	0.000457	0.000454	0.000442	0.000418	0.000379	0.000383	0.000699	0.000592	0.000399	0.000455	0.000374	0.000384	0.000377	0.000357	0.000293
Nickel (Ni)	0.000146	0.000127	0.000394	0.000263	0.000286	0.000341	0.000421	0.000448	0.000404	0.000285	0.000369	0.000419	0.000419	0.000177	0.000135	0.000199	0.000211	0.00038
Phosphorus (P)	<0.0020	0.008	0.0024	0.0056	0.0058	0.0045	0.0049	0.0074	0.0081	0.0103	0.0106	0.0061	0.0278	0.0031	0.0043	0.0047	0.0038	0.0078
Potassium (K)	0.435	0.39	0.391	0.589	0.653	0.633	0.648	0.516	0.538	0.633	0.596	0.492	0.683	0.531	0.517	0.524	0.524	0.536
Selenium (Se)	0.000178	0.000232	0.000255	0.00147	0.00152	0.00146	0.00143	0.000812	0.000872	0.000743	0.000635	0.000869	0.00111	0.00131	0.00112	0.00115	0.00119	0.00078
Silicon (Si)	3.18	3.29	2.84	3.69	3.73	3.9	3.91	2.61	3.02	3.69	3.57	3.34	3.76	3.49	3.46	3.66	3.46	2.66
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000006	<0.0000050	<0.0000050	<0.0000050	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.12	1.27	1.11	1.34	1.29	1.33	1.27	0.843	0.999	1.18	1.16	1.08	1.53	1.53	1.37	1.46	1.39	0.97
Strontium (Sr)	0.017	0.0171	0.0176	0.0559	0.0554	0.0594	0.0618	0.0329	0.0463	0.0529	0.0507	0.0501	0.057	0.0412	0.0402	0.0402	0.0414	0.0327
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	0.00046	0.00049	0.00034	<0.00020	<0.00020	<0.00020	<0.00020	0.00023	0.0002	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00028
Zinc (Zn)	0.00055	0.00055	0.00042	0.00071	0.00122	0.00119	0.00165	0.00179	0.00117	0.00113	0.00162	0.00143	0.00779	0.00268	0.00182	0.0018	0.00156	0.00275
Dissolved Metals (mg/L)																		
Aluminum (Al)	0.00853	0.00625	0.00535	0.0112	0.00164	0.00134	0.00128	0.0111	0.0243	0.00484	0.0042	0.00183	0.00316	0.0131	0.00164	0.00143	0.00813	0.0142
Antimony (Sb)	0.00003	<0.000020	<0.000020	0.00005	0.000051	0.000041	0.000043	0.000041	0.000055	0.000047	0.000045	0.000044	0.000047	0.00004	0.000033	0.000042	0.000034	0.000043
Arsenic (As)	0.000144	0.000137	0.000121	0.000185	0.000207	0.00017	0.000197	0.000185	0.000231	0.000324	0.000307	0.000179	0.000258	0.000126	0.000099	0.000093	0.000136	0.000143
Cadmium (Cd)	0.000008	<0.0000050	0.000005	0.000021	0.000028	0.00002	0.000019	0.000016	0.000022	0.000017	0.000016	0.0000241	0.0000258	0.000043	0.000036	0.000028	0.000022	0.000027
Calcium (Ca)	29	25.5	26.8	27.3	29	26.7	26	19.4	22.2	26.9	26.2	25.8	31.7	30.9	25.3	26.6	25.9	18.2
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	0.00022	<0.00010	<0.00010	0.00014	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	0.00014	0.00011	0.00011	0.00011
Cobalt (Co)	0.00002	0.000018	0.000017	0.000056	0.000071	0.00006	0.00005	0.000031	0.000035	0.00004	0.000041	0.0000509	0.0000743	0.000045	0.000027	0.000025	0.000024	0.000036
Copper (Cu)	0.0016	0.000731	0.00063	0.000625	0.000473	0.000321	0.000396	0.00127	0.000933	0.000587	0.00056	0.00039	0.000485	0.000436	0.000286	0.000304	0.00032	0.00109
Iron (Fe)	0.0028	0.0015	0.0015	0.0453	0.0452	0.065	0.0508	0.0486	0.0488	0.103	0.104	0.0445	0.0614	0.0121	0.0074	0.0088	0.0089	0.0188
Lead (Pb)	0.000051	0.000023	0.000035	0.000035	0.000013	0.000008	0.000022	0.000038	0.000053	0.000018	0.00004	0.0000141	0.0000955	0.00004	<0.0000050	0.000022	0.000014	0.000033
Magnesium (Mg)	1.59	1.59	1.48	5.22	5.79	5.1	5.05	2.75	3.75	4.49	4.77	4.5	6.44	2.88	2.45	2.43	2.27	1.75
Manganese (Mn)	0.000174	0.000051	0.000076	0.0596	0.0665	0.075	0.0675	0.00885	0.0143	0.0289	0.037	0.0403	0.0775	0.0498	0.0326	0.0253	0.0194	0.0101
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000341	0.000406	0.000414	0.000457	0.000501	0.000476	0.000457	0.000354	0.00039	0.000488	0.000468	0.000396	0.000484	0.00045	0.000345	0.000415	0.000396	0.000304
Nickel (Ni)	0.000147	0.000153	0.000168	0.0003	0.00036	0.000301	0.000301	0.000353	0.000382	0.00037	0.000342	0.000276	0.000482	0.000185	0.000144	0.000184	0.000136	0.000308
Phosphorus (P)	0.0025	0.0036	0.0033	<0.0020	0.0041	<0.0020	0.0032	0.0022	0.0052	0.0062	0.006	0.0065	0.0109	0.0039	0.0055	0.0035	0.0044	0.0028
Potassium (K)	0.481	0.436	0.409	0.626	0.705	0.641	0.702	0.521	0.522	0.613	0.603	0.475	0.833	0.676	0.477	0.517	0.541	0.554
Selenium (Se)	0.000195	0.000236	0.000306	0.00151	0.00157	0.00138	0.00149	0.00094	0.000914	0.00075	0.000702	0.000912	0.00122	0.00159	0.00126	0.00119	0.00118	0.000721
Silicon (Si)	3.17	2.81	2.81	3.86	4.2	3.95	3.78	2.84	2.89	3.61	3.59	3.3	4.09	4.17	3.44	3.54	3.37	2.45
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000007	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.16	1.19	1.08	1.29	1.5	1.26	1.23	0.847	1.03	1.12	1.11	1.04	1.53	1.87	1.45	1.47	1.37	0.951
Strontium (Sr)	0.0184	0.0173	0.0177	0.0574	0.0615	0.0579	0.0594	0.0336	0.044	0.0522	0.0531	0.0511	0.0648	0.0495	0.0392	0.0402	0.0414	0.0298
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020	0.0000022	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	0.00044	0.00036	0.0004	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00063	0.00034	0.00034	0.0015	0.0024	0.00356	0.00116	0.00093	0.00139	0.00078	0.00066	0.00105	0.00305	0.00383	0.00167	0.00161	0.00531	0.00148

* Sample not taken/analysed due to instrumentation malfunction

Sample Location	W81	W81	W81	W81	W81	W81	W81	W85	W85	W85	W85	W85	W85	W85	W85	W85	W85	W85
Sampling Date	29-Jun-14	08-Jul-14	08-Aug-14	22-Sep-14	06-Oct-14	09-Nov-14	10-Dec-14	12-Jan-14	11-Feb-14	29-Mar-14	05-Apr-14	24-May-14	20-Jun-14	16-Jul-14	25-Sep-14	12-Oct-14	08-Nov-14	10-Dec-14
Lab Report ID	B456550	B458712	B470976	B486436	B491947	B4A3962	B4B2815	B403951	B412072	B425804	B428622	B443871	B454396	B461068	B486588	B494116	B4A3962	B4B2815
Field Physical Parameters																		
Temperature	7.29	7.95	6.71	4.04	1.25	0.39	0.09	0.44	0.01	0.59	1.03	1.82	*	5.41	3.37	2.39	0.45	0.94
pH	*	*	7.84	7.98	7.79	7.56	7.43	7.15	7.32	7.96	7.55	*	6.76	7.44	7.62	7.57	7.51	7.42
Specific conductivity	124	128	142	149	149	155	157	149	151	154	151	109	127	121	152	156	152	154
Conductivity	82	87	93	89	81	82	82	79	79	82	83	61	76	79	89	89	81	83
Laboratory Parameters																		
Physical Parameters																		
Temperature (°C)	6	5.3	4.9	3.7	7	1	1	0.5	1	1	0.5	5	2.2	8	2.2	3.7	1	1
Conductivity (µS/cm)	121	127	145	144	143	155	157	151	149	147	149	111	129	157	150	154	153	154
Hardness (mg/L)	59.5	67.7	75.3	80.3	70.1	77.9	68.5	74.8	71.9	74.1	73.8	52.6	64.6	79.7	87.5	79.7	68.7	69.7
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	12.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	7.5	<4.0	<8.0	<4.0	<4.0	<4.0

pH	7.85	7.88	7.9	7.91	7.87	7.91	7.92	7.94	8	7.97	7.93	7.92	7.82	7.93	7.83	7.92	7.72	7.93
DOC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.85	2.09	0.64	0.96	4.51	3.18	1.19	1.90	3.23	0.81	1.71
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.00	<0.00050	0.0007	0.00	0.00	<0.00050	*	<0.00050	0.00055	<0.00050	*
Major Anions (mg/L)																		
Alkalinity-Total	52.9	54.4	62.6	62	60.1	60.5	63	65.5	66.4	65.5	67.1	49	55.2	70	67.2	66.6	63	68.8
Acidity-Total	<0.50	1.07	<0.50	<0.50	<0.50	<0.50	1.45	0.82	<0.50	<0.50	0.65	0.63	<0.50	<0.50	1.36	<0.50	<0.50	2.52
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	<0.50	0.59	0.63	0.52	0.71	0.73	<0.50	<0.50	<0.50	<0.50	0.52	<0.50	<0.50	0.95	1.1	<0.50	0.6
Fluoride	0.027	0.03	0.026	0.031	0.13	0.03	0.029	0.027	0.032	0.037	0.029	0.034	0.031	0.031	0.031	0.026	0.031	0.029
Sulphate	11.2	10.4	10.7	12.9	13.6	16.6	15.3	10.3	10.1	9.7	9.25	7.61	9.47	9.18	9.59	10.8	10.8	11.1
Nutrient Parameters (mg/L)																		
Ammonial Nitrogen	0.015	0.028	0.042	0.0095	0.01	0.012	0.013	0.011	0.014	0.005	0.011	0.009	0.019	0.011	0.014	0.013	0.01	<0.0050
Nitrate Nitrogen	0.26	<0.20	<0.20	<0.20	<0.20	<0.20	0.27	<0.20	0.37	0.115	0.111	0.0319	<0.20	0.114	<0.20	0.69	0.45	0.29
Nitrite Nitrogen	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.0020	<0.0020	0.2	<0.0020	<0.20	<0.20	<0.20	<0.20
Total Phosphate	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0104	0.0135	0.0083	0.0113	0.0196	0.0203	0.0071	0.0052	0.0059	0.0053	0.012
Dissolved Ortho-Phosphate	0.0018	0.0012	0.0017	0.0012	0.001	0.0017	0.0024	0.0082	0.0072	0.0063	0.0057	0.0025	0.0026	0.0031	0.0032	0.0032	0.004	0.0067
Total Metals (mg/L)																		
Aluminum (Al)	0.0156	0.0129	0.00655	0.00749	0.0073	0.008	0.00906	0.0171	0.0244	0.00404	0.00875	0.0783	0.226	0.0107	0.0447	0.00991	0.00507	0.0154
Antimony (Sb)	0.000037	0.000087	0.000033	0.000036	0.000033	0.00003	0.000047	0.000042	0.000038	0.000035	0.00004	0.000049	0.000094	0.000052	0.000047	0.000043	0.000035	0.000048
Arsenic (As)	0.000131	0.000155	0.000106	0.000107	0.000092	0.000063	0.000103	0.000126	0.000141	0.000099	0.000134	0.000179	0.000266	0.000137	0.000137	0.000103	0.000062	0.000127
Cadmium (Cd)	0.000033	0.000032	0.000041	0.000042	0.000042	0.0000553	0.0000563	0.000057	0.000064	0.000048	0.000052	0.000054	0.000105	0.000058	0.000062	0.000057	0.0000498	0.00006
Calcium (Ca)	20.8	23.8	26.2	27.7	24.1	27.3	23.5	25.4	24.8	25.5	25.6	17.3	21.2	26.5	29.7	26.4	23	23.7
Chromium (Cr)	0.00019	0.00013	<0.00010	0.00014	0.0001	<0.00010	0.00012	0.00016	0.00019	0.00011	0.00014	0.00021	0.00066	0.00012	0.00017	0.00012	<0.00010	0.00019
Cobalt (Co)	0.000036	0.000038	0.000026	0.000029	0.000025	0.0000408	0.0000353	0.000038	0.000069	0.00002	0.000036	0.000099	0.000305	0.000042	0.000044	0.000036	0.0000287	0.0000475
Copper (Cu)	0.000921	0.00157	0.000545	0.000577	0.000534	0.000407	0.000411	0.000571	0.000708	0.000498	0.000537	0.00198	0.00301	0.000919	0.000724	0.000669	0.000524	0.000795
Iron (Fe)	0.035	0.03	0.0256	0.0269	0.0185	0.0251	0.031	0.0368	0.089	0.0396	0.0567	0.111	0.336	0.042	0.069	0.0373	0.0252	0.0922
Lead (Pb)	0.000032	0.00202	0.000007	0.000037	0.000053	0.0000289	0.0000255	0.00014	0.000076	0.000013	0.000024	0.000071	0.0019	0.000033	0.000083	0.000041	0.000134	0.000178
Magnesium (Mg)	1.85	2	2.37	2.73	2.42	2.37	2.38	2.75	2.44	2.52	2.42	2.29	2.82	3.29	3.25	3.32	2.73	2.57
Manganese (Mn)	0.00752	0.00814	0.0101	0.0215	0.0269	0.0594	0.0484	0.00828	0.0122	0.00862	0.0108	0.00435	0.016	0.00584	0.00771	0.00707	0.00653	0.0142
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000301	0.000682	0.000308	0.000347	0.000375	0.000314	0.000373	0.000391	0.000372	0.000401	0.000324	0.000315	0.000357	0.000528	0.000366	0.000384	0.000369	0.00042
Nickel (Ni)	0.000212	0.000248	0.000189	0.000284	0.000155	0.000167	0.000155	0.000182	0.000206	0.000173	0.000178	0.000585	0.000809	0.000307	0.000327	0.000209	0.000189	0.000219
Phosphorus (P)	0.0046	0.0062	0.004	0.007	<0.0020	<0.0020	0.0075	0.0114	0.0145	0.0085	0.01	0.0147	0.0178	0.0054	0.0075	0.0054	0.0038	0.0358
Potassium (K)	0.394	0.568	0.431	0.608	0.481	0.454	0.469	0.543	0.5	0.495	0.5	0.598	0.508	0.479	0.623	0.58	0.478	0.533
Selenium (Se)	0.000625	0.01	0.000767	0.000799	0.00103	0.00161	0.00139	0.00057	0.000572	0.00054	0.000548	0.000628	0.000572	0.000692	0.000617	0.000679	0.000494	0.000504
Silicon (Si)	2.76	2.77	3.23	3.35	2.9	3.65	3.14	3.44	3.34	3.4	3.27	2.48	3.04	3.24	3.63	3.21	3.06	3.17
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000008	<0.0000050	<0.0000050	<0.0000050	0.000009	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.02	1.77	1.22	1.38	1.22	1.37	1.36	1.25	1.17	1.2	1.17	0.691	0.883	1.07	1.16	1.11	1.06	1.21
Strontium (Sr)	0.0362	0.0464	0.0429	0.0439	0.0432	0.0396	0.038	0.0367	0.0326	0.0333	0.033	0.0341	0.0401	0.0528	0.0484	0.0482	0.0391	0.036
Thallium (Tl)	<0.0000020	0.000005	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000003	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	0.00023	0.00025	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	0.00029	<0.00020	<0.00020	0.00031	0.00079	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00222	0.00187	0.00161	0.00256	0.00262	0.00256	0.00325	0.00238	0.00202	0.00138	0.0014	0.00279	0.0121	0.00243	0.00364	0.00207	0.00147	0.00494
Dissolved Metals (mg/L)																		
Aluminum (Al)	0.008	0.00689	0.00445	0.00366	0.00356	0.00189	0.00223	0.0118	0.00137	0.00136	0.00163	0.0173	0.0205	0.00761	0.00403	0.00298	0.00182	0.00327
Antimony (Sb)	0.000035	0.000035	0.000031	0.000032	0.000034	0.000026	0.000032	0.000038	0.000046	0.000033	0.000038	0.000054	0.000091	0.00005	0.00005	0.000053	0.000035	0.000042
Arsenic (As)	0.00013	0.000139	0.000102	0.000106	0.000103	0.000091	0.000086	0.000111	0.000134	0.000112	0.000129	0.000142	0.000127	0.000129	0.000123	0.000112	0.000086	0.000099
Cadmium (Cd)	0.000027	0.00003	0.000037	0.000037	0.000039	0.0000518	0.0000479	0.000053	0.000048	0.000045	0.000043	0.000045	0.000061	0.000052	0.000051	0.000053	0.0000404	0.0000465
Calcium (Ca)	21.9	20.8	24.3	28.1	27	23.6	24.2	27.5	25.9	25.4	25.5	17.1	21.5	24.8	27.2	25.2	22.4	24.2
Chromium (Cr)	<0.00010	<0.00010	<0.00010	0.00013	0.00011	<0.00010	<0.00010	0.00016	0.00018	0.00011	0.00013	<0.00010	0.00012	<0.00010	0.00012	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.000029	0.000026	0.000023	0.000024	0.000021	0.00003	0.0000226	0.000029	0.000042	0.00003	0.000026	0.000037	0.000047	0.000037	0.000031	0.000034	0.0000282	0.0000298
Copper (Cu)	0.000847	0.000777	0.000573	0.000482	0.000478	0.000283	0.000312	0.000511	0.000585	0.000461	0.00052	0.0014	0.00128	0.000783	0.00053	0.000655	0.00056	0.000441
Iron (Fe)	0.0133	0.0131	0.0132	0.0168	0.0132	0.0077	0.0097	0.0212	0.0297	0.0267	0.0232	0.0305	0.0255	0.0244	0.0239	0.0241	0.0166	0.0274
Lead (Pb)	0.000006	0.000048	0.000023	0.000028	0.000014	<0.0000050	0.0000332	0.000017	0.000023	0.000011	0.000015	0.000061	0.000238	0.000011	0.000032	0.000009	0.0000268	0.0000349
Magnesium (Mg)	1.97	2.04	2.46	2.71	2.45	2.32	2.3	2.97	2.47	2.38	2.22	2.27	2.64	3.3	3.1	3.23	2.62	2.57
Manganese (Mn)	0.006	0.00728	0.00919	0.0185	0.0257	0.0544	0.0413	0.00855	0.00963	0.00844	0.00888	0.00234	0.00514	0.00571	0.00675	0.00705	0.00632	0.0117
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000277	0.000329	0.000332	0.000302	0.000417	0.000347	0.000356	0.000453	0.000359	0.000373	0.000382	0.000346	0.000377	0.000364	0.000392	0.000402	0.000368	0.000538
Nickel (Ni)	0.000178	0.000219	0.000184	0.000181	0.000226	0.000119	0.000148	0.000214	0.000149	0.000166	0.000194	0.000475	0.000359	0.000335	0.00109	0.000205	0.000149	0.000171
Phosphorus (P)	0.0025	0.0054	0.0046	0.0033	0.0024	0.0036	0.0057	0.0098	0.0102	0.0075	0.0088	0.0053	0.0056	0.0062	0.0055	0.0042	0.0064	0.0193
Potassium (K)	0.4	0.389	0.444	0.59	0.478	0.437	0.475	0.606	0.561	0.522	0.53	0.624	0.516	0.489	0.588	0.575	0.479	0.511
Selenium (Se)	0.000675	0.000567	0.000648	0.00075	0.00108	0.00154	0.00133	0.000633	0.000585	0.000645	0.000553	0.000602	0.000676	0.000669	0.000573	0.000615	0.000506	0.000518
Silicon (Si)	2.81	2.62	3.15	3.42	3.34	3.14	2.77	3.72	3.42	3.37	3.22	2.39	2.93	3.18	3.22	3.12	2.99	2.84
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.08	1.01	1.16	1.26	1.22	1.32	1.37	1.35	1.23	1.14	1.07	0.68	0.964	1.03	1.14	1.17	1.03	1.18
Strontium (Sr)	0.0346	0.0381	0.0427	0.043	0.0445	0.0393	0.0372	0.0388	0.0333	0.0325	0.0335	0.0334	0.0406	0.0497	0.043	0.0469	0.0386	0.0346
Thallium (Tl)	0.000003	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00024	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00151	0.0013	0.0017	0.00226	0.00196	0.00206	0.00291	0.00223	0.00208	0.00144	0.0015	0.00324	0.00433	0.00192	0.00166	0.00168	0.00139	0.00189

* Sample not taken/analysed due to instrumentation malfunction

Table 2-5 2014 Money Creek Watershed Surface Water Quality Results

Sample Location	W14	W14	W14	W14	W14	W14	W14	W14	W14	W14	W22	W22	W22	W22	W22
Sampling Date	08-Jan-14	10-Feb-14	11-Mar-14	08-Apr-14	01-Jun-14	01-Jul-14	8/04/14	01-Sep-14	01-Nov-14	21-Dec-14	10-Jan-14	2/03/14	07-Mar-14	5/06/14	6/28/14
Lab Report ID	B402057	B412072	B420331	B428622	B446782	B456550	B468484	B478365	B4A1983	B4B6324	B403951	B410106	B420331	B437231	B456550
Field Physical Parameters															
Temperature	-0.01	-0.03	-0.01	-0.02	4.87	8.85	14.44	8.7	-0.07	-0.1	-0.03	-0.03	-0.03	0.07	9.72
pH	-	8.19		6.69	8.23	8.17	7.67	7.64	7.37	6.92	*	7.71	*	7.85	*
Specific conductivity	140	135	154	158	88	125	128	130	133	144	289	244	331	176	155
Conductivity	73	70	80	82	54	85	102	89	69	75	151	120	173	92	110
Laboratory Parameters															
Physical Parameters															
Temperature (°C)	3.3	1	1	0.5	4	6	3	2.3	3.3	1	0.5	1.7	1	2.7	6
Conductivity (µS/cm)	141	146	152	154	82.1	118	129	131	128	142	284	284	326	173	158
Hardness (mg/L)	68	66.8	69.8	73.8	43.1	57.9	63.6	62.6	59.5	70	150	151	162	89.4	76.9
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	12.5	<4.0
pH	7.91	7.97	7.85	7.9	7.61	7.63	7.83	7.93	7.92	7.75	8.17	8.2	8.15	7.96	7.94
DOC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Major Anions (mg/L)															
Alkalinity-Total	51.7	56.5	60.5	61.5	30	44.3	46.4	50.8	45.2	53.9	113	119	127	71.6	61.8
Acidity-Total	0.9	<0.50	0.97	0.87	<0.50	<0.50	0.69	<0.50	0.71	0.57	<0.50	<0.50	0.73	<0.50	<0.50
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	<0.50	<0.50	<0.50	0.63	<0.50	<0.50	<0.50	0.89	<0.50	<0.50	<0.50	<0.50	<0.50	0.5
Fluoride	0.068	0.089	0.094	0.089	0.046	0.051	0.074	0.072	0.068	0.067	0.07	0.078	0.085	0.059	0.061
Sulphate	16.8	16.5	16.1	15.9	8.44	13.5	14.2		16.9	16.3	33.5	35.3	40.8	14.5	18.8
Nutrient Parameters (mg/L)															
Ammonial Nitrogen	<0.0050	0.013	0.025	0.0092	0.04	0.012	0.023	<0.0050	0.01	0.0057	0.006	0.031	0.015	0.013	0.021
Nitrate Nitrogen	<0.20	0.28	0.38	0.094	<0.20	<0.20	<0.20	0.0033	0.23	0.29	<0.20	<0.20	<0.20	<0.20	<0.20
Nitrite Nitrogen	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Phosphate	<0.0050	<0.0050	0.0051	<0.0050	<0.0050	<0.0050	<0.0050	*	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0287	<0.0050
Dissolved Ortho-Phosphate	<0.0010	<0.0010	0.0011	0.0012	0.001	0.0015	0.0027	*	<0.0010	0.0017	0.0018	0.0017	0.0027	0.0022	<0.0010
Total Metals (mg/L)															
Aluminum (Al)	0.00756	0.00531	0.0069	0.00454	0.0459	0.0194	0.0122	0.00848	0.012	0.00938	0.00495	0.00223	0.00263	0.0482	0.017
Antimony (Sb)	<0.000020	<0.000020	0.00003	0.00002	0.000027	0.000026	0.000031	<0.000020	<0.000020	0.000046	0.000063	0.000062	0.000072	0.000048	0.000054
Arsenic (As)	0.000123	0.000121	0.000154	0.000135	0.000159	0.000189	0.000283	0.000261	0.000112	0.000156	0.0002	0.000211	0.000211	0.000402	0.000189
Cadmium (Cd)	0.000006	0.000006	0.000016	0.000005	0.000029	0.000016	0.000008	0.000008	0.0000107	0.0000186	0.000014	0.00001	0.000015	0.000044	0.000018
Calcium (Ca)	18.4	18.3	19.1	20	12.9	17.2	18.1	17.6	16.8	19	38.4	39.6	40.9	23.6	20.7
Chromium (Cr)	<0.00010	<0.00010	0.00021	0.00025	0.00325	0.00014	0.00018	<0.00010	0.00029	0.00021	0.0002	0.0002	0.00032	0.00024	0.00016
Cobalt (Co)	0.000014	0.000021	0.000016	0.000013	0.000127	0.000032	0.00002	0.000015	0.0000174	0.0000222	0.00002	0.000012	0.000015	0.000152	0.000026
Copper (Cu)	0.000258	0.000243	0.000413	0.000272	0.00484	0.000632	0.000356	0.00029	0.000292	0.000922	0.000333	0.000298	0.000459	0.00124	0.000697
Iron (Fe)	0.0437	0.0396	0.049	0.0429	0.141	0.0726	0.075	0.0749	0.0525	0.0417	0.0173	0.0087	0.0089	0.194	0.0491
Lead (Pb)	0.000008	0.000011	0.000185	0.000007	0.000349	0.000035	0.00001	0.000072	0.000199	0.000549	0.000065	0.000014	0.000076	0.000172	0.000032
Magnesium (Mg)	5.35	5.12	5.35	5.76	2.65	3.65	4.47	4.56	4.27	5.49	13.1	12.6	14.6	7.36	6.1
Manganese (Mn)	0.0092	0.00667	0.00907	0.00754	0.00954	0.0105	0.00796	0.00585	0.00742	0.00811	0.00213	0.00131	0.00108	0.032	0.0047
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000403	0.000375	0.000442	0.000454	0.000512	0.000338	0.000662	0.000525	0.00033	0.000382	0.000779	0.000794	0.00088	0.000514	0.000472
Nickel (Ni)	0.000478	0.000419	0.000597	0.000482	0.00678	0.000562	0.000572	0.000458	0.000595	0.000595	0.000627	0.000622	0.000675	0.00168	0.000822
Phosphorus (P)	0.0022	0.002	0.0029	0.0025	0.0282	0.008	0.005	0.0042	0.0056	0.0164	<0.0020	<0.0020	0.0021	0.0204	0.0036
Potassium (K)	0.833	0.866	1.04	0.985	0.615	0.65	0.895	0.804	0.675	0.983	0.951	0.94	0.953	1.22	0.733
Selenium (Se)	0.000305	0.000417	0.000425	0.00044	0.000421	0.000379	0.000266	0.000142	0.000182	0.000355	0.000887	0.000873	0.00106	0.000439	0.000336
Silicon (Si)	4.62	4.5	4.65	4.97	2.75	3.25	3.93	3.5	4.09	4.56	5.06	5.13	4.73	3.69	3.38
Silver (Ag)	<0.0000050	0.000007	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.57	1.53	1.72	1.78	0.951	0.99	1.2	1.19	1.19	1.81	2.23	2.08	2.42	1.43	1.2
Strontium (Sr)	0.0552	0.0529	0.0585	0.0634	0.0282	0.0417	0.0519	0.0489	0.0477	0.0571	0.172	0.174	0.205	0.0965	0.0822
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	0.000003	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	0.00025	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00054	0.00046	0.0029	0.00044	0.00507	0.00094	0.00022	0.00064	0.00094	0.00343	0.00137	0.00086	0.00145	0.00275	0.00087
Dissolved Metals (mg/L)															
Aluminum (Al)	0.00424	0.00355	0.00315	0.0026	0.0322	0.0271	0.00986	0.0465	0.0055	0.00409	0.00156	0.0116	0.00131	0.00961	0.00817
Antimony (Sb)	<0.000020	0.000023	0.000028	0.000028	0.000032	0.000045	0.000024	0.000027	<0.000020	<0.000020	0.000059	0.000057	0.000067	0.000046	0.000047
Arsenic (As)	0.000118	0.00013	0.000145	0.000165	0.000145	0.000229	0.000282	0.000316	0.000096	0.000103	0.000194	0.000226	0.000204	0.000254	0.000199
Cadmium (Cd)	0.000007	0.000008	0.000011	0.000007	0.00002	0.000011	0.000015	0.000028	<0.0000050	<0.0000050	0.000014	0.000009	0.000014	0.000022	0.00001
Calcium (Ca)	19.7	18.5	20.4	19.8	13	18	17.4	18.3	16.4	19.8	37.9	38.4	43.3	22.5	20.3
Chromium (Cr)	<0.00010	0.0001	0.00025	0.00011	0.00024	0.0002	<0.00010	0.00017	<0.00010	<0.00010	0.00021	0.00018	0.00024	0.00013	0.00017
Cobalt (Co)	0.000009	0.000012	0.000013	0.000012	0.000036	0.000035	0.00005	0.000034	0.0000117	0.0000116	0.000011	0.000007	0.00001	0.000032	0.000016
Copper (Cu)	0.000241	0.000278	0.000372	0.00033	0.00151	0.00067	0.000384	0.00051	0.000264	0.000244	0.000323	0.000275	0.000367	0.000922	0.000687
Iron (Fe)	0.0225	0.02	0.0205	0.021	0.0492	0.0455	0.0537	0.101	0.0288	0.0184	0.0038	0.0041	0.0021	0.0538	0.0182
Lead (Pb)	0.000007	0.000016	0.00009	0.000019	0.000342	0.000036	0.000019	0.000595	0.0000076	0.0000129	0.000043	0.000035	0.000032	0.000025	0.000033

Sample Location	W14	W14	W14	W14	W14	W14	W14	W14	W14	W14	W22	W22	W22	W22	W22
Sampling Date	08-Jan-14	10-Feb-14	11-Mar-14	08-Apr-14	01-Jun-14	01-Jul-14	8/04/14	01-Sep-14	01-Nov-14	21-Dec-14	10-Jan-14	2/03/14	07-Mar-14	5/06/14	6/28/14
Lab Report ID	B402057	B412072	B420331	B428622	B446782	B456550	B468484	B478365	B4A1983	B4B6324	B403951	B410106	B420331	B437231	B456550
Magnesium (Mg)	5.43	5.17	5.51	5.58	2.68	3.62	4.49	4.74	4.48	4.82	13.3	12.4	14.2	7.13	6.13
Manganese (Mn)	0.00788	0.00509	0.00672	0.00584	0.00457	0.00623	0.00618	0.00906	0.00446	0.0055	0.000583	0.000443	0.000435	0.00839	0.00109
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000403	0.000426	0.000483	0.000438	0.000607	0.00034	0.000465	0.000419	0.000339	0.000397	0.000815	0.000785	0.000875	0.000502	0.000562
Nickel (Ni)	0.0005	0.000416	0.000554	0.000468	0.000742	0.000666	0.000659	0.000548	0.000511	0.000658	0.000694	0.000626	0.000697	0.00125	0.000823
Phosphorus (P)	<0.0020	<0.0020	0.0026	0.0023	0.0358	0.007	0.0048	0.0188	0.0051	0.0057	<0.0020	<0.0020	<0.0020	0.0085	<0.0020
Potassium (K)	0.95	0.882	1.05	1.06	0.706	0.716	0.884	0.865	0.67	0.933	0.979	0.938	0.932	1.19	0.73
Selenium (Se)	0.000371	0.000415	0.000473	0.000414	0.000437	0.000482	0.000235	0.000194	0.000195	0.000349	0.0009	0.000889	0.00109	0.000504	0.000372
Silicon (Si)	4.94	4.6	4.91	4.79	2.72	3.09	3.57	3.55	3.92	4.5	4.98	4.98	5.07	3.37	3.48
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000011	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.69	1.57	1.77	1.74	1.24	0.981	1.27	1.32	1.18	1.43	2.24	2.09	2.36	1.29	1.23
Strontium (Sr)	0.06	0.0533	0.0568	0.062	0.0285	0.0412	0.0506	0.0521	0.0484	0.0569	0.175	0.172	0.199	0.094	0.0794
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	0.000002	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00064	0.00048	0.00219	0.00084	0.00404	0.00155	0.0122	0.00512	0.00021	0.00129	0.00135	0.00152	0.00131	0.00167	0.00088

* Sample not taken/analysed due to instrumentation malfunction

Sample Location	W22	W22	W22	W22	W22	W40	W40	W40	W40	W40	W40	W40	W40	W40	W40
Sampling Date	21-Jul-14	20-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	10-Jan-14	03-Feb-14	06-May-14	28-Jun-14	21-Jul-14	20-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	19-Dec-14
Lab Report ID	B463574	B473730	B482546	B496571	B4A8453	B403951	B410106	B437231	B456550	B463574	B473730	B482546	B496571	B4A8453	B4B6324
Field Physical Parameters															
Temperature	9.8	9.68	3.75	*	-0.1	-0.03	-0.03	0.03	8.98	9.5	9.28	3.69	*	-0.11	-0.12
pH	*	8.36	8.22	*	8.11	*	7.83	7.65	*	*	8.12	8.08	*	7.84	7.67
Specific conductivity	210	240	232	*	274	284	252	175	161	212	240	230	*	274	296
Conductivity	149	170	137	*	145	149	146	92	111	150	168	136	*	143	154
Laboratory Parameters															
Physical Parameters															
Temperature (°C)	5	3	8	1.5	1.7	0.5	1.7	2.7	6	5	3	8	1.5	1.7	1
Conductivity (µS/cm)	207	218	227	223	276	281	281	175	159	207	242	230	218	273	290
Hardness (mg/L)	106	113	119	110	131	149	147	89.9	76.4	110	124	116	108	133	155
Total Suspended Solids (mg/L)	<4.0	<4.0	18	<4.0	<4.0	<4.0	<1.0	14.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
pH	8.16	7.92	8.12	8.11	8.17	8.12	8.22	7.99	7.91	8.13	8.08	8.09	8.1	8.2	8.09
DOC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Major Anions (mg/L)															
Alkalinity-Total	84.3	91	92.7	90	110	113	118	70.7	62	84.2	95.3	91.9	89.4	112	116
Acidity-Total	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	<0.50	0.56	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.61	0.58	0.53	<0.50
Fluoride	0.078	0.11	0.068	0.071	0.068	0.071	0.08	0.06	0.062	0.077	0.074	0.067	0.077	0.07	0.07
Sulphate	22.9	17.3	25.3	28.6	29.1	33.3	36.7	14.9	18.8	22.5	26.1	24.9	28.4	29.4	33.6
Nutrient Parameters (mg/L)															
Ammonial Nitrogen	0.0085	0.039	0.017	0.013	0.066	0.0073	0.02	0.015	0.023	0.011	0.02	0.016	0.015	0.019	<0.0050
Nitrate Nitrogen	0.0116	<0.20	0.0107	<0.20	0.112	<0.20	<0.20	<0.20	<0.20	0.0163	0.33	0.0156	<0.20	0.103	<0.20
Nitrite Nitrogen	<0.0020	<0.20	<0.0020	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.0020	<0.20	<0.0020	<0.20
Total Phosphate	<0.0050	0.0213	0.0209	<0.0050	<0.0050	<0.0050	0.0096	0.0229	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved Ortho-Phosphate	0.0014	0.0044	<0.0010	<0.0010	<0.0010	0.0021	<0.0010	0.0025	0.0014	0.0013	0.0011	<0.0010	<0.0010	0.0011	<0.0010
Total Metals (mg/L)															
Aluminum (Al)	0.0101	0.0179	0.0095	0.00922	0.00724	0.00334	0.0025	0.0498	0.00873	0.0414	0.0128	0.0193	0.00606	0.00386	0.00431
Antimony (Sb)	0.000062	0.000069	0.000055	0.000048	0.00008	0.000059	0.000064	0.00005	0.000048	0.000072	0.000059	0.000058	0.000051	0.000059	0.000064
Arsenic (As)	0.00025	0.00186	0.000222	0.000218	0.000219	0.000198	0.000222	0.000395	0.000177	0.000295	0.000252	0.00023	0.00021	0.000171	0.000181
Cadmium (Cd)	0.000011	0.000013	0.000012	0.000012	0.000024	0.000012	0.000009	0.000044	0.000011	0.000039	0.00001	0.000022	0.000009	0.000014	0.0000167
Calcium (Ca)	28.5	28.8	31.4	28.3	32.7	38	38.7	23.7	20.8	29.9	32.3	30.7	28	33.6	39.9
Chromium (Cr)	0.00051	0.00018	0.00019	0.00023	0.00038	0.0002	0.00017	0.00026	0.00017	0.00036	0.00019	0.00022	0.00018	0.0002	0.00021
Cobalt (Co)	0.000025	0.000032	0.000028	0.000033	0.000015	0.000017	0.000011	0.000159	0.000014	0.000077	0.000018	0.000055	0.000024	0.000011	0.0000129
Copper (Cu)	0.000546	0.000847	0.000497	0.000408	0.000639	0.000295	0.000281	0.00125	0.000911	0.00128	0.000547	0.00054	0.000361	0.000377	0.000348
Iron (Fe)	0.0356	0.0789	0.0415	0.0429	0.0159	0.0132	0.0083	0.193	0.0186	0.07	0.0093	0.0608	0.0323	0.0103	0.0109
Lead (Pb)	0.000016	0.000033	0.000034	0.000072	0.000709	0.000007	0.000017	0.000178	0.000014	0.000322	0.000024	0.000247	0.000025	0.000109	0.0000298
Magnesium (Mg)	8.47	9.89	9.74	9.49	12	13.2	12.3	7.48	5.96	8.67	10.4	9.5	9.34	12	13.4
Manganese (Mn)	0.00327	0.0123	0.00431	0.00401	0.000869	0.00193	0.00121	0.0309	0.000999	0.00569	0.000903	0.00449	0.00281	0.00101	0.00134
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000716	0.00121	0.000664	0.000585	0.000677	0.000792	0.000777	0.000545	0.000485	0.00092	0.000733	0.00061	0.00061	0.000696	0.000759
Nickel (Ni)	0.000786	0.00156	0.000841	0.000822	0.00111	0.000628	0.000608	0.00161	0.000775	0.00105	0.000676	0.000897	0.000765	0.000883	0.000636
Phosphorus (P)	0.0046	0.0147	0.0056	0.0032	0.0071	<0.0020	<0.0020	0.019	0.0021	0.091	0.0024	0.0075	0.0021	0.0032	0.0046
Potassium (K)	0.833	1.05	0.853	0.79	0.865	0.972	0.931	1.23	0.725	1	0.904	0.837	0.774	0.843	0.921
Selenium (Se)	0.000447	0.000393	0.00045	0.000433	0.000755	0.000914	0.000906	0.000456	0.000402	0.000454	0.000569	0.000461	0.000432	0.000802	0.000769

Sample Location	W22	W22	W22	W22	W22	W40	W40	W40	W40	W40	W40	W40	W40	W40	W40
Sampling Date	21-Jul-14	20-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	10-Jan-14	03-Feb-14	06-May-14	28-Jun-14	21-Jul-14	20-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	19-Dec-14
Lab Report ID	B463574	B473730	B482546	B496571	B4A8453	B403951	B410106	B437231	B456550	B463574	B473730	B482546	B496571	B4A8453	B4B6324
Silicon (Si)	3.95	2.25	4.44	3.9	4.13	5.09	5.01	3.62	3.43	4.13	4.3	4.44	3.87	4.41	4.92
Silver (Ag)	<0.0000050	<0.0000050	0.000012	<0.0000050	0.000015	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.00004	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.49	1.41	1.69	1.67	2.06	2.19	2.13	1.32	1.19	1.81	1.76	1.6	1.64	2.01	2.15
Strontium (Sr)	0.118	0.11	0.121	0.124	0.149	0.174	0.174	0.0948	0.0817	0.123	0.145	0.119	0.119	0.151	0.182
Thallium (Tl)	<0.0000020	0.000002	0.000008	<0.0000020	0.000002	<0.0000020	<0.0000020	0.000003	<0.0000020	<0.0000020	0.000002	0.000018	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	0.00027	<0.00020	<0.00020	0.00021	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00077	0.00143	0.00122	0.00115	0.00346	0.00093	0.00088	0.00286	0.00073	0.00914	0.00186	0.00205	0.00065	0.00137	0.00093
Dissolved Metals (mg/L)															
Aluminum (Al)	0.00411	0.0139	0.00275	0.00342	0.00196	0.00219	0.0014	0.0126	0.00885	0.00412	0.00685	0.0034	0.00295	0.0214	0.00131
Antimony (Sb)	0.000054	0.000076	0.00006	0.000044	0.000063	0.000059	0.000053	0.000048	0.000052	0.000064	0.000064	0.000059	0.000057	0.000057	0.000065
Arsenic (As)	0.000269	0.00169	0.000193	0.000195	0.000163	0.000182	0.000228	0.000285	0.000178	0.000228	0.000241	0.000198	0.000198	0.000139	0.000202
Cadmium (Cd)	0.000011	0.000009	0.00001	0.000009	0.000013	0.000011	0.000008	0.000022	0.000008	0.000012	0.000009	0.000009	0.000008	0.000018	0.0000099
Calcium (Ca)	28.1	28.6	31.2	29.2	34	38.9	38.3	23.6	21.4	27.7	32.4	31.4	28.5	30.5	40.4
Chromium (Cr)	0.00017	0.00015	0.00016	0.00017	0.0003	0.00018	0.00018	0.00012	0.00019	0.00013	0.00017	0.00016	0.00017	0.00019	0.00028
Cobalt (Co)	0.000012	0.000015	0.000014	0.000016	0.000012	0.000009	0.000007	0.000043	0.000015	0.000014	0.000008	0.000016	0.000016	0.000011	0.0000082
Copper (Cu)	0.000548	0.0009	0.000501	0.000374	0.000489	0.000305	0.000281	0.00102	0.000704	0.000561	0.0005	0.000425	0.000364	0.000506	0.000301
Iron (Fe)	0.015	0.0456	0.0145	0.0176	0.0115	0.0068	0.0046	0.0563	0.0184	0.0138	0.0101	0.0154	0.0179	0.005	0.0028
Lead (Pb)	0.000032	0.000089	<0.0000050	0.000019	0.000093	0.000009	0.000007	0.00012	0.000011	0.000041	0.000019	<0.0000050	0.000008	0.0000848	0.000158
Magnesium (Mg)	8.52	10.1	9.65	9.54	11.7	13.4	12.3	7.19	6.27	8.32	9.9	10.4	9.54	11.6	11.7
Manganese (Mn)	0.000963	0.00357	0.00122	0.00132	0.000622	0.000477	0.000441	0.0087	0.00101	0.00101	0.000848	0.00125	0.00129	0.00079	0.000185
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000599	0.00128	0.00063	0.000604	0.000682	0.000787	0.000791	0.000576	0.000497	0.00071	0.000763	0.000623	0.000618	0.000677	0.000761
Nickel (Ni)	0.000788	0.00148	0.000749	0.00082	0.000996	0.000606	0.000584	0.0012	0.000835	0.000785	0.000663	0.00082	0.000712	0.000975	0.000653
Phosphorus (P)	0.0042	0.0114	0.0026	<0.0020	0.0032	<0.0020	<0.0020	0.0083	0.0024	0.0031	0.0031	0.0035	<0.0020	0.0027	<0.0020
Potassium (K)	0.843	1.07	0.824	0.772	0.823	0.977	0.921	1.22	0.749	0.844	0.894	0.862	0.762	0.796	0.926
Selenium (Se)	0.000506	0.00028	0.000484	0.000494	0.000743	0.000919	0.000888	0.000483	0.000384	0.000453	0.000591	0.000496	0.000456	0.000666	0.000771
Silicon (Si)	3.86	2.11	4.19	4.16	4.13	5.23	4.95	3.28	3.59	3.87	4.12	4.23	4.01	3.71	4.85
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000007	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.53	1.57	1.66	1.67	1.97	2.15	2.07	1.32	1.23	1.5	1.71	1.76	1.71	1.97	1.84
Strontium (Sr)	0.115	0.111	0.123	0.122	0.152	0.176	0.171	0.0961	0.0782	0.119	0.144	0.125	0.118	0.153	0.176
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00067	0.00193	0.00066	0.00064	0.00146	0.00104	0.00079	0.00324	0.00074	0.00128	0.00189	0.00075	0.00066	0.00132	0.00074

* Sample not taken/analysed due to instrumentation malfunction

Table 2-6 2014 Road Route Surface Water Quality Results

Sample Location	W71	W71	W71	W71	W71	W71	W71	W71	W71	W71	W71	W72	W72	W72	W72	W72	W72	W72
Sampling Date	10-Jan-14	2/05/14	06-Apr-14	5/06/14	18-Jun-14	02-Jul-14	12-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	03-Dec-14	10-Jan-14	05-Feb-14	04-Mar-14	06-Apr-14	5/06/14	18-Jun-14	02-Jul-14
Lab Report ID	B403951	B410106	B428622	B437231	B451800	B456550	B470976	B482546	B496571	B4A8453	B4B0584	B403951	B410106	B418125	B428622	B437231	B451800	B456550
Field Physical Parameters																		
Temperature	-0.04	-0.05	-0.06	-0.01	1.12	1.47	2.24	1.16	*	-0.13	-0.13	0	-0.02	-0.03	-0.04	-0.05	1.1	7.61
pH	*	8.03	7.28	7.60	8.24	7.85	7.84	7.98	*	7.67	7.51	*	8.14	*	7.48	7.60	7.65	7.88
Specific conductivity	776	809	845	456	607	601	664	633	*	721	767	472	469	507	503	159	285	290
Conductivity	405	422	441	238	330	331	375	345	*	315	399	247	245	265	263	83	172	198
Laboratory Parameters																		
Physical Parameters																		
Temperature (°C)	0.5	1.7	0.5	2.7	5.7	6	4.9	8	1.5	1.7	2	0.5	1.7	1	0.5	2.7	5.7	6
Conductivity (µS/cm)	759	787	818	450	590	584	654	617	655	706	742	461	472	503	498	160	277	288
Hardness (mg/L)	445	457	460	247	341	331	377	352	378	383	407	260	251	270	257	89.7	148	158
Total Suspended Solids (mg/L)	10.3	<1.0	<4.0	5.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	1.3	<4.0	<4.0	13	<4.0	<4.0
pH	8.11	8.16	8.01	8.1	8.29	8.26	8.21	8.22	8.25	8.22	8.38	8.18	8.24	8.32	8.12	7.86	8.1	8.06
DOC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Major Anions (mg/L)																		
Alkalinity-Total	291	313	326	168	233	226	240	241	259	280	298	189	203	214	218	64.2	105	111
Acidity-Total	4.6	<0.50	4.91	1.42	<0.50	<0.50	<0.50	1.47	<0.50	3.26	7.78	0.9	<0.50	<0.50	1.24	<0.50	<0.50	<0.50
Bromide	<0.010	<0.10	<0.050	<0.10	<0.10	<0.10	<0.010	<0.010	<0.010	<0.10	<0.10	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010
Chloride	0.7	0.63	0.56	0.59	0.52	0.86	0.83	<0.50	<0.50	0.6	0.56	<0.50	0.54	0.86	<0.50	1	<0.50	<0.50
Fluoride	0.66	0.69	0.68	0.4	0.61	0.63	0.69	0.72	0.73	0.72	0.72	0.17	0.19	0.19	0.19	0.073	0.14	0.14
Sulphate	138	154	148	72.3	102	98.3	118	103	116	123	132	63.2	60.8	61.4	57.1	5.01	42.1	41.2
Nutrient Parameters (mg/L)																		
Ammonial Nitrogen	<0.0050	0.034	0.007	0.012	0.032	0.041	0.023	0.031	0.018	<0.0050	0.0079	0.044	0.056	0.046	0.049	0.053	0.014	0.023
Nitrate Nitrogen	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	0.0181	<0.20	0.0302	<0.20	<0.20	<0.20	<0.20	0.19	<0.20	<0.20	<0.20
Nitrite Nitrogen	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20
Total Phosphate	0.0164	0.013	0.0106	0.0423	0.014	0.0132	0.013	0.0127	0.0141	0.0136	0.0184	0.0089	0.0185	0.0187	0.0227	0.0645	0.0154	0.0186
Dissolved Ortho-Phosphate	0.01	0.011	0.0056	0.01	0.01	0.01	0.01	0.0096	0.012	0.0096	0.014	0.0094	0.01	0.011	0.0096	0.014	0.0094	0.0091
Total Metals (mg/L)																		
Aluminum (Al)	0.0292	0.00674	0.00463	0.0458	0.00607	0.00926	0.00425	0.00558	0.00259	0.00515	0.00482	0.00792	0.00111	0.00733	0.0205	0.0826	0.0154	0.0166
Antimony (Sb)	0.000552	0.000536	0.000526	0.000289	0.000463	0.000461	0.000513	0.00047	0.000516	0.000527	0.000536	0.000131	0.000134	0.000116	0.000082	0.000108	0.000244	0.000205
Arsenic (As)	0.000308	0.000293	0.000312	0.000411	0.000311	0.000332	0.000324	0.000333	0.000375	0.000294	0.000306	0.00153	0.0014	0.00194	0.00231	0.00257	0.00109	0.0013
Cadmium (Cd)	0.00276	0.00288	0.00245	0.00212	0.0028	0.00276	0.00326	0.00287	0.00299	0.00259	0.00308	0.000312	0.0002	0.00026	0.00028	0.00048	0.000369	0.000296
Calcium (Ca)	116	128	125	66.9	89.6	88.4	102	94.7	104	98.8	108	64.7	63.8	68.8	64.7	23.2	37.9	41.3
Chromium (Cr)	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00021	0.00027	0.00011
Cobalt (Co)	0.000057	0.000031	0.000026	0.000297	0.000076	0.000096	0.000085	0.00008	0.000061	0.000037	0.000019	0.00011	0.000087	0.000116	0.000137	0.000254	0.000057	0.000051
Copper (Cu)	0.000537	0.000436	0.000401	0.00203	0.00087	0.000706	0.000581	0.00063	0.0005	0.000616	0.000565	0.000363	0.000291	0.000357	0.000391	0.00196	0.00133	0.00103
Iron (Fe)	0.0512	0.0206	0.0084	0.205	0.0439	0.0549	0.0392	0.0459	0.0241	0.0215	0.0192	0.126	0.0282	0.15	0.201	0.66	0.0892	0.0935
Lead (Pb)	0.000087	0.000042	0.000014	0.000378	0.000047	0.000051	0.000083	0.000014	0.000011	0.000154	0.000259	0.000049	<0.0000050	0.000144	0.000072	0.000312	0.000169	0.000036
Magnesium (Mg)	37.5	33.6	35.8	19.4	28.4	26.8	29.8	28.1	28.6	33.1	33.4	24	22.3	23.9	23	7.72	12.9	13.4
Manganese (Mn)	0.00713	0.0083	0.0035	0.0413	0.00799	0.00934	0.0104	0.00878	0.00706	0.00458	0.00231	0.17	0.15	0.208	0.234	0.203	0.0404	0.044
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00479	0.00485	0.00408	0.00262	0.005	0.00506	0.00548	0.00513	0.00582	0.00533	0.00504	0.00374	0.0039	0.00402	0.0039	0.00115	0.00231	0.00211
Nickel (Ni)	0.0312	0.0334	0.0313	0.0273	0.0288	0.0281	0.0311	0.0294	0.0294	0.0304	0.0334	0.00305	0.00284	0.00267	0.00262	0.0046	0.00507	0.00402
Phosphorus (P)	0.0165	0.0156	0.0082	0.0434	0.0136	0.0178	0.0147	0.0181	0.0165	0.0166	0.0185	0.0151	0.0107	0.0184	0.0208	0.0566	0.0145	0.0182
Potassium (K)	0.891	0.875	0.864	0.846	0.735	0.679	0.734	0.679	0.696	0.767	0.837	0.895	0.889	0.893	0.926	1.19	0.578	0.569
Selenium (Se)	0.00602	0.00507	0.00419	0.0021	0.00718	0.00644	0.00561	0.00599	0.00599	0.00688	0.00669	0.00197	0.00179	0.00113	0.000838	0.000599	0.00192	0.00162
Silicon (Si)	4.62	4.78	4.6	3.28	3.76	4.05	4.12	4.4	4.16	3.81	4.42	5.29	5.29	5.74	5.49	2.7	2.88	3.01
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000007	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	1.03	0.887	0.937	0.618	0.852	0.813	0.881	0.83	0.855	0.993	1.08	2.37	2.42	2.48	2.52	0.764	1.37	1.21
Strontium (Sr)	0.332	0.336	0.359	0.173	0.242	0.241	0.265	0.236	0.259	0.283	0.298	0.319	0.311	0.315	0.341	0.0949	0.169	0.181
Thallium (Tl)	0.000002	0.000002	0.000002	0.000002	0.000002	0.000003	0.000003	0.000005	0.000003	0.000002	0.000003	0.000002	<0.0000020	0.000002	<0.0000020	0.000002	<0.0000020	<0.0000020
Vanadium (V)	0.00027	0.00021	<0.00020	0.00032	0.00022	0.00027	<0.00020	0.00036	0.00035	0.00027	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00045	0.00022	0.00024
Zinc (Zn)	0.755	0.797	0.755	0.45	0.504	0.456	0.553	0.503	0.497	0.642	0.772	0.0357	0.0282	0.0265	0.0249	0.0451	0.0516	0.0372
Dissolved Metals (mg/L)																		
Aluminum (Al)	0.00124	0.00102	0.00128	0.00438	0.00315	0.0259	0.0355	0.00247	0.0029	0.00212	0.0016	0.00106	0.00796	0.00097	0.00098	0.0215	0.00674	0.0507
Antimony (Sb)	0.000532	0.000522	0.000515	0.000267	0.000447	0.000452	0.000507	0.000494	0.000491	0.000515	0.000558	0.000118	0.000131	0.000098	0.000075	0.000102	0.000242	0.00022
Arsenic (As)	0.000265	0.000301	0.000379	0.000265	0.000298	0.000318	0.000314	0.00032	0.000331	0.000261	0.00031	0.00113	0.00179	0.0016	0.00174	0.00126	0.00101	0.00119
Cadmium (Cd)	0.00278	0.00284	0.00246	0.00149	0.00268	0.00263	0.00327	0.00297	0.00296	0.00265	0.00318	0.000236	0.000291	0.000218	0.00019	0.000201	0.000266	0.000252
Calcium (Ca)	119	117	121	62.3	92	88.2	102	101	94.9	99.8	102	60.4	65.1	65.3	63.8	21.4	37.1	39.3
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00015
Cobalt (Co)	0.00002	0.000023	0.000029	0.000084	0.000065	0.000093	0.000136	0.000069	0.000062	0.000023	0.000019	0.000068	0.000103	0.000108	0.0001	0.000087	0.000034	0.000032
Copper (Cu)	0.00042	0.000391	0.000341	0.000817	0.000713	0.000633	0.000666	0.000643	0.000597	0.000483	0.000615	0.00034	0.000342	0.000308	0.000209	0.00142	0.00121	0.00114
Iron (Fe)	0.0068	0.0081	0.0059	0.0328	0.0263	0.0407	0.103	0.0307	0.0197	0.0081	0.0058	0.0079	0.158	0.0449	0.0406	0.211	0.0482	0.0474
Lead (Pb)	0.000013	0.000006	0.000021	0.000204	0.000022	0.000039	0.000229	0.000153	0.000091	0.000037	0.000067	<0.0000050	0.000192	0.000054	0.000012	0.000088	0.000058	0.000106

Sample Location	W71	W71	W71	W71	W71	W71	W71	W71	W71	W71	W71	W72	W72	W72	W72	W72	W72	W72
Sampling Date	10-Jan-14	2/05/14	06-Apr-14	5/06/14	18-Jun-14	02-Jul-14	12-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	03-Dec-14	10-Jan-14	05-Feb-14	04-Mar-14	06-Apr-14	5/06/14	18-Jun-14	02-Jul-14
Lab Report ID	B403951	B410106	B428622	B437231	B451800	B456550	B470976	B482546	B496571	B4A8453	B4B0584	B403951	B410106	B418125	B428622	B437231	B451800	B456550
Magnesium (Mg)	38.2	31.9	34.3	19.7	27	27.2	29.8	29	29.4	31.2	33.6	21.7	22.3	25.4	22.9	7.36	13.2	13.2
Manganese (Mn)	0.00407	0.00762	0.00357	0.0245	0.00668	0.00834	0.0111	0.00817	0.00714	0.00385	0.00179	0.132	0.163	0.199	0.214	0.0956	0.0268	0.0277
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00509	0.0047	0.00423	0.00278	0.00477	0.00474	0.00512	0.00498	0.00555	0.00538	0.00551	0.00341	0.00372	0.00421	0.00416	0.00115	0.00217	0.0022
Nickel (Ni)	0.0316	0.0327	0.0318	0.0239	0.0279	0.028	0.0315	0.0308	0.0293	0.0303	0.0348	0.00311	0.00289	0.00265	0.00244	0.00338	0.00476	0.00405
Phosphorus (P)	0.0129	0.0139	0.0097	0.0219	0.0148	0.017	0.0153	0.0165	0.0147	0.0145	0.0179	0.0115	0.0182	0.0124	0.0122	0.0283	0.0141	0.0211
Potassium (K)	0.935	0.877	0.922	0.858	0.723	0.656	0.745	0.701	0.757	0.723	0.816	0.802	0.892	0.915	1	1.16	0.639	0.578
Selenium (Se)	0.00636	0.00508	0.00399	0.00219	0.00672	0.00671	0.00575	0.00635	0.00578	0.00671	0.00672	0.00179	0.00177	0.0012	0.000858	0.000646	0.00175	0.00163
Silicon (Si)	4.64	4.49	4.38	2.73	4.13	3.92	4.16	4.39	3.86	3.59	3.94	4.72	5.17	5.29	5.33	2.39	2.94	2.83
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000006	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000005
Sodium (Na)	1.08	0.93	0.898	0.577	0.878	0.835	0.911	0.839	0.917	0.931	1.07	2.28	2.28	2.71	2.39	0.672	1.38	1.39
Strontium (Sr)	0.339	0.329	0.353	0.174	0.232	0.229	0.263	0.237	0.265	0.281	0.299	0.299	0.309	0.329	0.336	0.0931	0.162	0.176
Thallium (Tl)	<0.0000020	0.000002	<0.0000020	<0.0000020	0.000004	0.000003	0.000003	0.000002	0.000003	<0.0000020	0.000003	<0.0000020	0.000002	0.000002	<0.0000020	<0.0000020	0.000002	0.000002
Vanadium (V)	<0.00020	0.0003	0.00028	<0.00020	<0.00020	0.00021	0.00023	0.0002	0.00028	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00026
Zinc (Zn)	0.757	0.776	0.759	0.395	0.487	0.449	0.558	0.538	0.505	0.678	0.791	0.0273	0.0326	0.0262	0.021	0.0264	0.0435	0.0372

*Sample not taken/analysed due to instrumentation malfunction

Sample Location	W72	W72	W72	W72	W72	W73	W73	W73	W73	W73	W73	W73	W73	W76	W73	W73	W73
Sampling Date	12-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	03-Dec-14	10-Jan-14	05-Feb-14	04-Mar-14	06-Apr-14	5/06/14	18-Jun-14	02-Jul-14	12-Aug-14	07-Sep-14	19-Oct-14	21-Nov-14	03-Dec-14
Lab Report ID	B470976	B482546	B496571	B4A8453	B4B0584	B403951	B410106	B418125	B428622	B437231	B451800	B456550	B470976	B480018	B496571	B4A8453	B4B0584
Field Physical Parameters																	
Temperature	7.39	2.75	*	-0.11	-0.1	0.1	-0.03	-0.04	-0.03	-0.01	4.51	6.49	8.18	5.3	*	-0.09	0.01
pH	8.01	8.06	*	8.04	7.46	*	7.88	*	7.66	7.17	7.99	8.09	8.24	8.02	*	7.94	7.92
Specific conductivity	378	362	*	454	469	271	250	273	305	155	165	170	224	*	*	257	271
Conductivity	251	208	*	236	244	141	131	142	159	81	95	109	152	137.1	*	135	141
Laboratory Parameters																	
Physical Parameters																	
Temperature (°C)	4.9	8	1.5	1.7	2	0.5	1.7	1	0.5	2.7	5.7	6	4.9	5.3	1.5	1.7	2
Conductivity (µS/cm)	374	360	379	444	449	267	268	295	297	153	156	170	223	209	226	251	264
Hardness (mg/L)	203	191	211	230	241	146	143	152	150	79.7	77.4	88.2	120	121	126	129	133
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	<4.0	5.3	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
pH	8.16	8.14	8.21	8.21	8.29	8.13	8.17	8.25	8.17	7.92	8.02	8.03	8.04	7.93	8.13	8.21	8.17
DOC	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Weak Acid Dissoc. Cyanide (CN)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Major Anions (mg/L)																	
Alkalinity-Total	141	137	154	184	194	115	120	124	130	66.9	66.2	73	97.4	90.9	99.4	114	118
Acidity-Total	<0.50	<0.50	<0.50	0.88	2.65	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.71
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	0.63	<0.50	0.56	0.51	<0.50	<0.50	0.6	<0.50	0.56	<0.50	0.67	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride	0.17	0.17	0.17	0.17	0.18	0.053	0.059	0.72	0.062	0.041	0.037	0.037	0.046	0.045	0.047	0.045	0.052
Sulphate	53.4	51.8	55.9	59.7	55.5	25.1	29	28.9	28.8	9.54	13.7	14.8	17.2	16.9	21.7	22.1	22.7
Nutrient Parameters (mg/L)																	
Ammonial Nitrogen	0.026	0.036	0.024	0.034	0.042	0.0077	0.013	0.0091	0.0075	0.014	0.011	0.023	0.042	0.014	0.012	0.031	0.034
Nitrate Nitrogen	<0.20	0.0243	<0.20	0.0628	0.32	<0.20	<0.20	<0.20	0.151	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.20	0.106	<0.20
Nitrite Nitrogen	<0.20	<0.0020	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.0020	<0.20
Total Phosphate	0.0182	0.0196	0.0219	0.0181	0.0206	<0.0050	<0.0050	0.0064	0.0051	0.032	<0.0050	<0.0050	0.0057	0.0098	<0.0050	<0.0050	<0.0050
Dissolved Ortho-Phosphate	0.011	0.0095	0.011	0.0098	0.011	0.0026	0.0016	0.0028	0.0051	0.0068	<0.0010	0.001	0.0015	<0.0010	<0.0010	<0.0010	0.0018
Total Metals (mg/L)																	
Aluminum (Al)	0.0142	0.0168	0.0273	0.0242	0.0149	0.00317	0.00299	0.0104	0.0285	0.0396	0.00968	0.00851	0.0059	0.00751	0.00701	0.00962	0.00418
Antimony (Sb)	0.000226	0.000224	0.000215	0.000194	0.000139	0.000106	0.000107	0.00013	0.000136	0.000082	0.000097	0.000092	0.000091	0.000099	0.000089	0.000091	0.000107
Arsenic (As)	0.00163	0.00131	0.00162	0.00172	0.00168	0.000209	0.000224	0.000264	0.000273	0.000456	0.000173	0.000195	0.000244	0.000251	0.000249	0.000249	0.000205
Cadmium (Cd)	0.000331	0.00037	0.00035	0.000818	0.000354	0.000012	0.000005	0.000021	0.000013	0.000037	0.000007	0.000007	0.00001	0.000012	0.00002	0.000023	0.00001
Calcium (Ca)	51.8	48.1	56.1	56.1	60.9	38.3	39	40.5	40.2	21	21.8	25.1	33.2	33.5	34.9	33.8	35
Chromium (Cr)	0.00044	<0.00010	0.0001	0.00019	<0.00010	0.00027	0.00027	0.00034	0.00037	0.00035	0.00028	0.00026	0.00023	0.0002	0.0003	0.00051	0.0003
Cobalt (Co)	0.000065	0.000059	0.000096	0.000225	0.000096	0.000012	0.000011	0.000032	0.000061	0.000073	0.000019	0.00002	0.000022	0.000023	0.000042	0.000028	0.000015
Copper (Cu)	0.00067	0.000779	0.000722	0.000949	0.000468	0.000582	0.000492	0.000712	0.000601	0.00277	0.00146	0.00124	0.000898	0.00104	0.00112	0.000751	0.000584
Iron (Fe)	0.133	0.128	0.208	0.255	0.162	0.04	0.0385	0.0701	0.0702	0.316	0.0432	0.0437	0.0617	0.0787	0.0654	0.092	0.0569
Lead (Pb)	0.000045	0.00004	0.000104	0.000183	0.000072	0.00001	0.000013	0.000404	0.000099	0.000098	0.00005	0.000018	0.000013	0.000008	0.000196	0.000396	0.000067
Magnesium (Mg)	18	17.2	17.3	21.8	21.5	12.4	11.1	12.2	12	6.61	5.57	6.16	9.09	9.16	9.4	10.8	11.1
Manganese (Mn)	0.0904	0.0787	0.106	0.395	0.201	0.00571	0.00499	0.0202	0.00596	0.0525	0.00746	0.00895	0.0108	0.0221	0.0308	0.014	0.00729
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.0029	0.00256	0.00287	0.00284	0.00334	0.000544	0.000549	0.000522	0.000521	0.000363	0.000427	0.000362	0.000506	0.000454	0.000475	0.000474	0.000483
Nickel (Ni)	0.00393	0.00435	0.00392	0.00598	0.00364	0.000585	0.000547	0.000769	0.00068	0.00169	0.000791	0.000814	0.000708	0.000786	0.000922	0.00118	0.000574
Phosphorus (P)	0.0201	0.0207	0.0231	0.0397	0.0205	0.0029	0.0028	0.0064	0.0035	0.028	0.0027	0.0067	0.0046	0.0057	0.0136	0.0084	0.007
Potassium (K)	0.646	0.633	0.614	0.841	0.804	0.36	0.436	0.38	0.409	1.19	0.229	0.233	0.293	0.33	0.309	0.305	0.335

Sample Location	W72	W72	W72	W72	W72	W73	W73	W73	W73	W73	W73	W73	W73	W76	W73	W73	W73
Sampling Date	12-Aug-14	12-Sep-14	19-Oct-14	21-Nov-14	03-Dec-14	10-Jan-14	05-Feb-14	04-Mar-14	06-Apr-14	5/06/14	18-Jun-14	02-Jul-14	12-Aug-14	07-Sep-14	19-Oct-14	21-Nov-14	03-Dec-14
Lab Report ID	B470976	B482546	B496571	B4A8453	B4B0584	B403951	B410106	B418125	B428622	B437231	B451800	B456550	B470976	B480018	B496571	B4A8453	B4B0584
Selenium (Se)	0.00176	0.00159	0.00156	0.002	0.00153	0.0011	0.00111	0.00125	0.0013	0.000522	0.000428	0.000401	0.000628	0.000496	0.000757	0.000816	0.000985
Silicon (Si)	2.91	3.64	4.52	4.32	5.07	5.01	5.01	5.03	4.91	3.62	3.1	4.01	4.4	4.91	4.57	4.37	4.75
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000019	<0.0000050	<0.0000050
Sodium (Na)	1.79	1.65	1.77	2.31	2.25	1.47	1.39	1.51	1.39	0.79	0.947	0.906	1.2	1.15	1.28	1.34	1.44
Strontium (Sr)	0.242	0.21	0.237	0.279	0.279	0.156	0.16	0.164	0.173	0.077	0.0726	0.0768	0.111	0.104	0.113	0.127	0.135
Thallium (Tl)	<0.0000020	0.000002	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	0.00025	0.00044	0.00025	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00028	<0.00020	<0.00020	<0.00020	<0.00020	0.00032	<0.00020	<0.00020
Zinc (Zn)	0.0384	0.0433	0.036	0.0871	0.0477	0.00047	0.00975	0.00153	0.00108	0.00177	0.00083	0.00031	0.00037	0.00032	0.00204	0.00157	0.0006
Dissolved Metals (mg/L)																	
Aluminum (Al)	0.00356	0.00539	0.00394	0.00227	0.00183	0.00135	0.00156	0.00116	0.00127	0.0124	0.00705	0.0259	0.00603	0.0032	0.0109	*	0.00105
Antimony (Sb)	0.000232	0.000221	0.000194	0.000166	0.000164	0.000121	0.000107	0.000116	0.000118	0.000075	0.000108	0.000092	0.000108	0.000098	0.000102	*	0.000092
Arsenic (As)	0.00149	0.00118	0.00127	0.00117	0.00135	0.000184	0.000225	0.000214	0.000249	0.000326	0.000177	0.00021	0.000246	0.000249	0.000224	*	0.000165
Cadmium (Cd)	0.000218	0.00029	0.000211	0.000241	0.000231	0.000007	<0.0000050	0.000008	0.000008	0.000021	0.000018	0.000008	0.000007	0.000011	0.000021	*	0.0000058
Calcium (Ca)	50	54.1	50.3	55.6	58.8	37.1	38.8	39.2	40.6	19.8	23.1	24	31.1	34	31.8	*	33.6
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00026	0.00027	0.00032	0.00029	0.00025	0.00028	0.00027	0.00025	0.00026	0.00034	*	0.00021
Cobalt (Co)	0.00005	0.000042	0.000049	0.000053	0.000073	0.000011	0.000008	0.000012	0.000012	0.000031	0.000018	0.000019	0.000023	0.000058	0.000019	*	0.000009
Copper (Cu)	0.00058	0.000748	0.000592	0.00044	0.000341	0.000523	0.00048	0.000604	0.000448	0.00236	0.00157	0.00127	0.000901	0.000912	0.00101	*	0.000527
Iron (Fe)	0.0607	0.0656	0.0475	0.0538	0.0517	0.0218	0.0171	0.0129	0.0142	0.169	0.0234	0.028	0.0414	0.0671	0.0454	*	0.0224
Lead (Pb)	0.000025	0.000009	0.000092	0.000031	0.000044	<0.0000050	0.000005	0.000011	0.000017	0.000045	0.000188	0.00002	0.000015	0.00001	0.000383	*	0.0000182
Magnesium (Mg)	18.3	17.4	18.1	21.1	22	12.1	10.7	12.4	11.9	6.73	5.85	5.77	8.51	9.16	9.06	*	9.53
Manganese (Mn)	0.0694	0.0651	0.0799	0.126	0.184	0.00178	0.000927	0.00124	0.000923	0.0166	0.00357	0.00328	0.00327	0.00656	0.00401	*	0.00154
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	*	<0.00001
Molybdenum (Mo)	0.00308	0.00257	0.00286	0.00307	0.00367	0.000536	0.000542	0.000601	0.000518	0.000326	0.000458	0.00042	0.00047	0.000416	0.000519	*	0.000467
Nickel (Ni)	0.00362	0.00443	0.00345	0.00406	0.00431	0.000588	0.000584	0.000535	0.000562	0.00144	0.000735	0.000643	0.00069	0.000775	0.000554	*	0.000497
Phosphorus (P)	0.0155	0.0166	0.0161	0.0149	0.0129	0.0021	0.0021	0.0027	0.0028	0.0226	0.0024	0.0068	0.0035	0.0042	0.0317	*	<0.0020
Potassium (K)	0.653	0.677	0.666	0.721	0.803	0.364	0.364	0.387	0.42	1.19	0.311	0.226	0.286	0.327	0.381	*	0.294
Selenium (Se)	0.00178	0.00176	0.0016	0.002	0.0018	0.00115	0.00116	0.00131	0.00129	0.000524	0.000446	0.000429	0.00066	0.000531	0.000642	*	0.000828
Silicon (Si)	2.8	3.9	4.09	4.07	4.58	4.89	5.05	4.59	4.86	3.27	3.62	3.75	4.13	4.96	4.13	*	4.12
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	*	<0.0000050
Sodium (Na)	1.76	1.7	1.73	2.08	2.25	1.49	1.37	1.46	1.44	0.765	1.07	0.93	1.15	1.1	1.43	*	1.14
Strontium (Sr)	0.234	0.213	0.235	0.276	0.298	0.153	0.154	0.166	0.175	0.0753	0.0695	0.0748	0.11	0.105	0.111	*	0.126
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	*	<0.0000020
Vanadium (V)	<0.00020	<0.00020	0.00021	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	*	<0.00020
Zinc (Zn)	0.0337	0.0432	0.0313	0.0466	0.043	0.00051	0.00042	0.00056	0.00051	0.00123	0.00232	0.00104	0.00352	0.0224	0.0097	*	0.0004

*Sample not taken/analysed due to instrumentation malfunction

Table 2-7 2014 Tailings Facility Surface Water Quality Results

Sample Location	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1
Sampling Date	14-Jan-14	05-Feb-14	05-Mar-14	14-Apr-14	10-May-14	07-Jun-14	06-Jul-14	01-Aug-14	02-Sep-14	12-Oct-14	17-Nov-14	08-Dec-14
Lab Report ID	B403951	B410106	B418125	B430993	B438624	B449219	B458712	B468484	B478365	B494116	B4A6190	B4B2815
Field Physical Parameters												
Temperature	*	2.01	2.04	*	4.3	3.9	17.2	15.95	13.1	*	*	*
pH	*	8.29	8.31	*	10.20	10.11	10.87	10.67	7.31	*	12.34	11.12
Specific conductivity	*	*	*	*	2764	2942	3780	2692	2505	*	2270	2890
Conductivity	*	2688	2674	*	1660	1537	1888	1747	1206	*	1166	1309
Laboratory Parameters												
Physical Parameters												
Temperature (°C)	0.5	1.7	1	1	5.7	2.7	5.3	3	2.3	3.7	1.3	1
Conductivity (µS/cm)	2330	4600	4650	4050	2020	3770	4140	4510	4660	4550	4670	4700
Hardness (mg/L)	885	2210	2130	1780	895	1770	2910	2260	2540	2200	2210	3000
Total Suspended Solids (mg/L)	<4.0	8.1	8.9	4.8	<4.0	<4.0	7.5	12.3	14.5	4.3	<4.0	4.3
pH	7.72	9.25	9.68	10.7	9.18	9.73	8.28	6.9	7	7.43	8.29	7.9
DOC	36.30	34.60	35.40	29.60	9.55	37.0	29.3	30.3	29.7	33.2	35.6	29.8
Weak Acid Dissoc. Cyanide (CN)	0.0484	1.5700	0.3400	0.2630	0.018	0.0190	0.0158	0.068	0.120	0.135	0.305	0.230
Major Anions (mg/L)												
Alkalinity-Total	40.9	65.1	74.7	124	33.6	74.9	60.3	20.8	27.5	36.8	39.1	36
Acidity-Total	0.64	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	5.59	7.64	5.54	4.83	<0.50
Bromide	<0.10	0.12	0.13	<0.50	<0.10	<0.10	<0.10	0.12	0.11	0.11	<0.10	0.14
Chloride	420	1100	1200	1000	370	1200	990	1000	1100	1000	1200	1100
Fluoride	0.3	0.4	0.79	0.36	0.19	0.31	0.32	0.37	0.36	0.33	0.3	0.3
Sulphate	838	1960	1800	1460	678	441	1630	1790	1870	1920	1800	1820
Nutrient Parameters (mg/L)												
Ammonial Nitrogen	2.5	2.6	3.7	3	0.8	0.69	2.1	0.69	0.54	0.02	2.7	3
Nitrate Nitrogen	1.56	3.21	4.3	3.91	2.19	2.47	5.58	5.29	2.76	4.08	4.4	4.37
Nitrite Nitrogen	0.74	1.36	1.57	0.18	0.73	0.796	1.16	1.11	2.35	2.4	2.57	2.39
Total Phosphate	0.175	0.19	0.172	0.0202	0.0698	0.107	0.0781	0.252	0.138	0.0604	0.218	0.022
Dissolved Ortho-Phosphate	0.016	0.052	0.27	0.25	<0.0010	0.079	0.1	0.25	0.055	0.041	0.015	0.0039
Total Metals (mg/L)												
Aluminum (Al)	0.0455	0.211	0.189	0.249	0.145	0.293	0.315	0.171	0.201	0.118	0.0755	0.252
Antimony (Sb)	0.0878	0.0229	0.0163	0.0101	0.00328	0.0128	0.0114	0.0237	0.0323	0.0209	0.0704	0.0903
Arsenic (As)	0.00902	0.0164	0.013	0.0209	0.0131	0.0103	0.00911	0.0109	0.0116	0.0078	0.0079	0.0193
Cadmium (Cd)	0.0131	0.00015	0.000194	0.00014	0.000427	0.00016	0.000424	0.00379	0.00332	0.00373	0.00129	0.00344
Calcium (Ca)	345	886	851	714	358	708	1160	906	1020	881	885	1200
Chromium (Cr)	<0.0010	<0.0020	0.00082	0.0011	0.00094	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.002
Cobalt (Co)	0.000975	0.00169	0.00171	0.00136	0.000454	0.00075	0.00052	0.000824	0.00136	0.0014	0.000979	0.0011
Copper (Cu)	0.818	0.67	0.551	0.187	0.00522	0.313	0.274	0.716	1.09	0.987	0.845	1.29
Iron (Fe)	0.155	0.18	0.103	0.088	0.142	0.055	0.214	0.07	0.111	0.092	0.118	0.379
Lead (Pb)	0.197	0.447	0.706	0.625	0.936	0.44	0.69	0.431	0.403	0.231	0.0624	0.0825
Magnesium (Mg)	5.95	<1.0	0.42	<0.50	0.26	0.53	<0.50	<0.50	0.85	0.61	0.66	1.32
Manganese (Mn)	0.079	0.0059	0.00299	0.00222	0.0071	0.00296	0.00385	0.0244	0.0465	0.0434	0.00506	0.0058
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001
Molybdenum (Mo)	0.0355	0.192	0.211	0.167	0.0188	0.145	0.127	0.159	0.201	0.185	0.213	0.287
Nickel (Ni)	0.0104	0.00539	0.00472	0.00388	0.00189	0.00549	0.00402	0.00527	0.00819	0.0118	0.00417	0.0056
Phosphorus (P)	0.036	<0.040	0.033	0.026	0.059	0.101	0.168	0.189	0.174	0.13	0.139	0.198
Potassium (K)	50.8	87	78.6	63.3	26	61.1	66.5	74.2	76.1	76	71.5	85.6
Selenium (Se)	2.09	3.15	3	2.67	1.33	2.29	4.41	3.09	2.96	1.95	2.59	8.72
Silicon (Si)	2.4	<2.0	0.97	<1.0	<0.50	<1.0	1.2	1.1	1.4	1.3	1.17	1.6
Silver (Ag)	0.00865	0.00764	0.00486	0.00095	0.000532	0.00057	0.000103	0.000276	0.000849	0.00416	0.00379	0.112
Sodium (Na)	177	361	340	257	96.5	252	247	274	281	306	257	336
Strontium (Sr)	1.61	3.25	3.03	2.71	1.36	2.98	3.2	3.47	3.57	3.45	3.45	3.79
Thallium (Tl)	0.00182	0.000385	0.000501	0.000227	0.000339	0.00086	0.00163	0.00219	0.00204	0.00166	0.00127	0.00145
Vanadium (V)	<0.0020	<0.0040	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0010	<0.01
Zinc (Zn)	0.322	0.148	0.165	1.32	0.154	0.0728	0.102	0.235	0.384	0.655	0.0365	0.404
Dissolved Metals (mg/L)												
Aluminum (Al)	0.0412	0.18	0.189	0.242	0.0672	0.295	0.286	0.058	0.0515	0.0815	0.0664	0.194
Antimony (Sb)	0.0822	0.0314	0.0166	0.00496	0.0022	0.0137	0.0119	0.0265	0.0302	0.0237	0.0723	0.0723
Arsenic (As)	0.00768	0.0174	0.0228	0.0229	0.00792	0.00967	0.00899	0.0106	0.011	0.0078	0.00907	0.00973
Cadmium (Cd)	0.0132	<0.00010	0.000146	<0.00010	0.000122	0.000145	0.000227	0.0037	0.00312	0.00362	0.00127	0.00134
Calcium (Ca)	348	852	839	760	231	708	796	863	955	897	912	967
Chromium (Cr)	<0.0010	<0.0020	<0.0010	<0.0020	<0.00050	0.00064	<0.0010	<0.0010	<0.0010	<0.0010	<0.00050	<0.002
Cobalt (Co)	0.000935	0.00168	0.00188	0.00153	0.000167	0.000693	0.000452	0.000794	0.00112	0.00125	0.000943	<0.001
Copper (Cu)	0.848	0.517	0.545	0.149	0.00731	0.289	0.22	0.731	0.999	1.03	0.887	0.974
Iron (Fe)	0.072	0.041	0.038	0.05	0.0137	0.0204	0.017	0.03	0.051	0.014	0.0254	0.035
Lead (Pb)	0.152	0.411	0.702	0.628	0.482	0.346	0.579	0.419	0.346	0.213	0.037	0.0441
Magnesium (Mg)	6.03	<1.0	<0.50	<1.0	0.26	0.76	<0.50	<0.50	0.53	0.66	0.7	0.93
Manganese (Mn)	0.0793	<0.0010	0.00119	0.0018	0.00097	0.00244	0.001	0.0234	0.0334	0.043	0.00259	0.0044
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.0511	0.124	0.191	0.134	0.0127	0.149	0.135	0.164	0.191	0.204	0.217	0.231
Nickel (Ni)	0.0107	0.00505	0.00496	0.00429	0.00098	0.00522	0.00385	0.00518	0.0068	0.0113	0.00472	0.005
Phosphorus (P)	0.033	<0.040	0.022	<0.040	0.03	0.103	0.162	0.201	0.137	0.105	0.139	0.162
Potassium (K)	50.2	82.2	78.4	71.6	17.8	60.4	64.3	72.9	73.1	78.2	71.3	74.2
Selenium (Se)	1.71	2.79	2.67	2.67	0.857	2.27	3.38	3.22	2.95	1.93	2.67	2.81
Silicon (Si)	2.4	<2.0	<1.0	<2.0	<0.50	0.81	<1.0	1.1	1.1	1.3	1.15	1.27
Silver (Ag)	0.0123	0.00412	0.00496	0.000342	0.000118	0.000109	<0.000050	0.000499	0.00131	0.00515	0.00251	0.00469
Sodium (Na)	178	342	342	295	62.4	241	248	278	270	308	268	268
Strontium (Sr)	1.65	3.15	3.15	2.97	0.853	2.93	3.34	3.41	3.54	3.5	3.41	3.82
Thallium (Tl)	0.0018	0.000382	0.000493	0.000242	0.00018	0.001	0.00145	0.00228	0.00204	0.00178	0.0013	0.00126
Vanadium (V)	<0.0020	<0.0040	<0.0020	<0.0040	<0.0010	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0010	<0.01
Zinc (Zn)	0.293	0.125	0.163	0.199	0.0652	0.0541	0.0743	0.226	0.326	0.63	0.0236	0.029

* Sample not taken/analysed due to instrumentation malfunction

2.3.2 Flow Monitoring Results

Manual flow monitoring at surface water stations W8, W15, W16, W31, W81 and W85 is summarized in Table 2-8, as well as water levels at station T1; extremely cold weather temperatures or high freshet flow prohibited manual measurements being taken for some sampling periods.

The data from the manual flow measurements are used to produce stage-discharge (rating) curves which calibrate the data collected by the continuous loggers installed at stations W9, W12, W21, W22, W80 and W82 (see Sections 2.3.2.1 to 2.3.2.6).

Table 2-8 2014 Manual Flow Monitoring Results

Date	Flow m^3/s	Date	Flow m^3/s
W8		**W31**	
26-May	0.150	20-Jun	0.177
21-Jun	0.596	02-Jul	0.044
W15		12-Aug	0.014
15-Jan	0.021	17-Nov	0.022
05-Apr	0.004	**W81**	
24-May	0.388	30-Mar	0.071
29-Jun	0.347	09-Apr	0.037
08-Jul	0.289	24-May	0.583
08-Aug	0.082	29-Jun	0.686
08-Nov	0.071	08-Jul	0.635
W16		08-Aug	0.255
13-Jan	0.106	09-Nov	0.173
25-Feb	0.048	10-Dec	0.178
29-Mar	0.087	**W85**	
05-Apr	0.014	12-Jan	0.018
24-May	0.475	29-Mar	0.023
20-Jun	0.498	05-Apr	0.015
16-Jul	0.200	24-May	0.294
08-Aug	0.094	20-Jun	0.462
08-Nov	0.089	16-Jul	0.117
08-Dec	0.074	09-Nov	0.089

Table 2-9 2014 water level and corresponding volume measurements in the Tailings Pond

T1		
Date	**Water Level (masl)**	**Volume (m^3)**
29-Jan	1,305.92	807,800
26-Feb	1,305.91	806,650
31-Mar	1,306.02	818,500
28-Apr	1,306.32	850,320
31-May	1,306.55	881,400
02-Jul	1,306.66	894,500
01-Aug	1,306.68	896,900
01-Sep	1,306.75	905,300
30-Sep	1,306.69	898,100
31-Oct	1,306.93	926,860
02-Dec	1,307.10	947,400
01-Jan	1,307.23	963,151

*Reading inaccurate due to excessive ice formation surrounding barge

2.3.2.1 W9 Continuous Flow Monitoring Results

Readings from the data logger were obscured by ice pressure effects during the winter months of 2008 and 2009. Readings from the data logger were obscured by ice pressure effects during the winter months of 2008 and 2009. The November 2009 through March 2010 average stream discharges were 0.034 m^3/s; however, as this was due to ice pressure effects, the value prior to the logger freezing in October was taken to be representative of winter flows. This is shown in Figure 2-3 as an average value of 0.01 m^3/s. The gap in the data from April to June 2010 represents the time when the logger was being repaired, and hence no data was collected. Data collected showing ice pressure effects in winter 2011 and spring 2012 (i.e., data points < 0) were calibrated to be zero during monthly average stream discharge calculations. The logger continued to show ice pressure effects throughout the summer of 2012 and therefore, required calibration. However, despite recalibration in July, monthly values appeared to be inconsistent with previous years, and hence, have been omitted from the record. Calibration and re-installation of the logger occurred on June 9th, 2013 and post-installation monitoring showed little variation in stream discharge over time. As a result, this logger was removed and sent away for assessment and repair. It was re-installed on May 26th and is logging successfully. The Logger could not be safely accessed in the later winter months of 2014, hence was not downloaded.

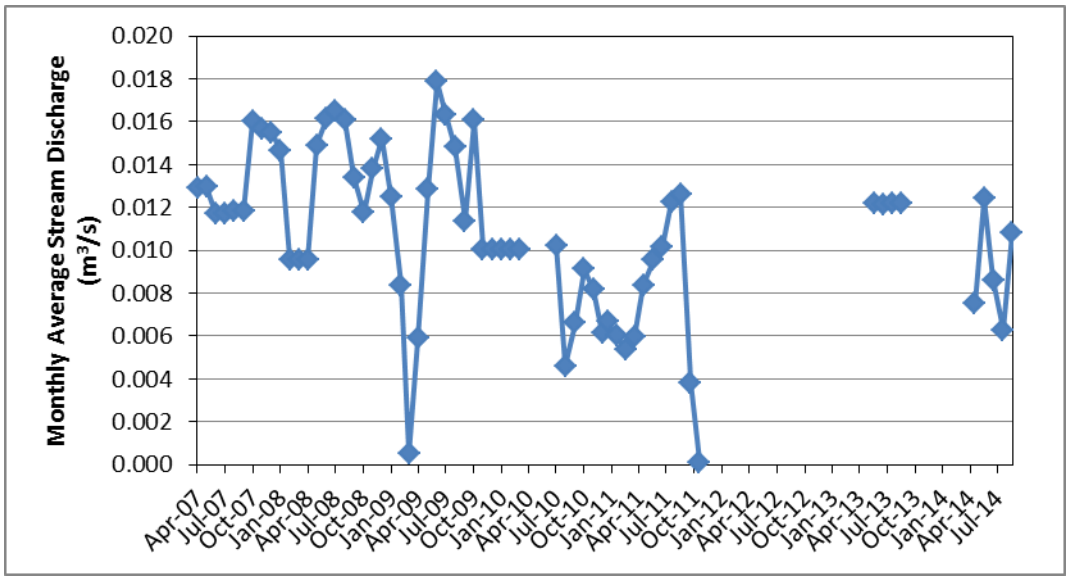


Figure 2-3 W9 Monthly Average Hydrograph, October 2007 – September 2014

2.3.2.2 W12 Continuous Flow Monitoring Results

The monthly average hydrograph for W12 from May 2009 to December 2014 is presented in Figure 2-4. Data collected prior to May 2009 is omitted due to inconsistencies; and February to early April 2010 averages were adjusted to be 0.078 m^3/s (i.e., the average February/March 2010 discharge) due to evident ice pressure effects, as this value was expected to be more representative of actual flows; and January to April 2011 values were adjusted to a zero value. After an attempt was made to re-calibrate the W12 data logger in August of 2012 (due to a zero indication throughout the summer), it still presented inaccurate measurements. Therefore, the logger was removed and sent in for repair/replacement. It was re-installed on June 13th, 2013. The sudden drop in flow indicated during April 2014 is due to ice pressure effects.

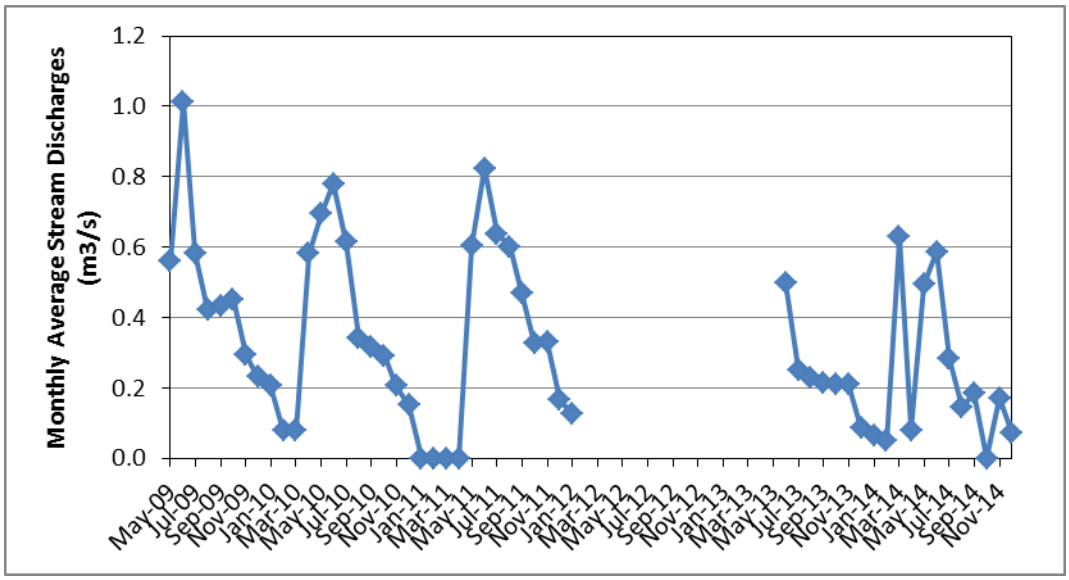


Figure 2-4 W12 Monthly Average Hydrograph, May 2009 – December 2014

2.3.2.3 W21 Continuous Flow Monitoring Results

The monthly average hydrograph for W21 from March 2007 through to December 2014 is presented in Figure 2-5. Ice pressure effects were observed in winter and early spring in 2007 through 2013. The higher flows in November 2010 are most likely due to ice pressure effects than to an actual increase in flow rate. The in-stream data logger was removed on August 28th and sent in for repair. It was recently re-installed on May 21st, and is logging successfully showing evidence of typical seasonal fluctuations for this site.

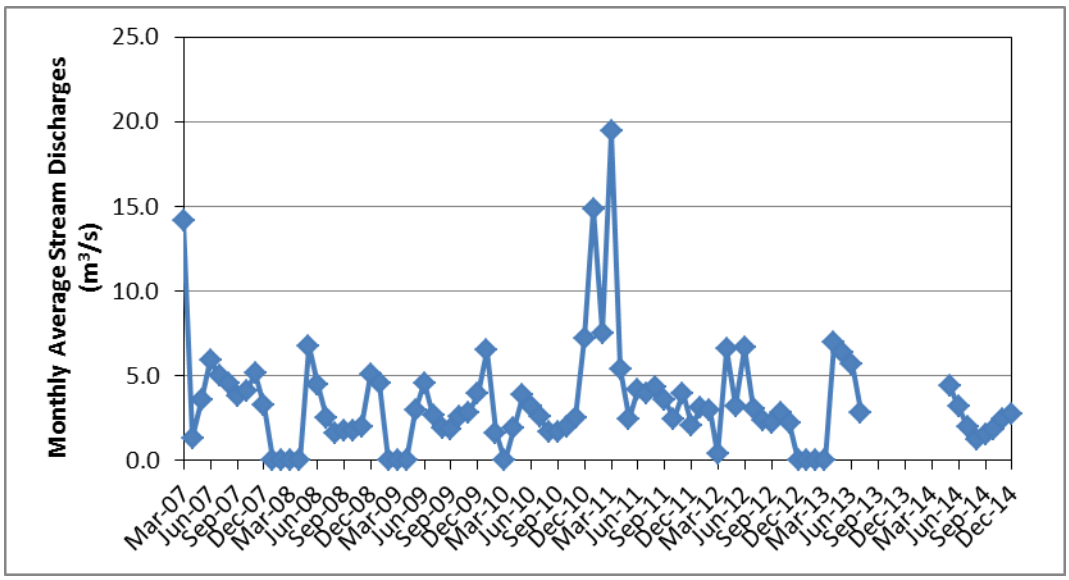


Figure 2-5 W21 Monthly Average Hydrograph, March 2007 – December 2014

2.3.2.4 W22 Continuous Flow Monitoring Results

The continuous hydrograph for W22 from May 2008 through to December 2014 was updated and is presented in Figure 2-6 as a monthly average stream discharge. In August 2013, it was noticed that the logger had been dislodged by high flows. The level of water indicated by the staff gauge was used to re-position the logger. The values indicated by the logger were also re-adjusted based on the staff gauge, and are presented in Figure 2-4. High flows were observed in spring 2009 and 2010 and ice pressure effects (normalized to zero values in Figure 2-6) were evident during the winter months. Although flows appear to be increasing from November 2009 through March 2010, and again in December 2010 and November 2012, 2013 and 2014 these increases are likely due to ice pressure effects, as flows are usually lowest during this time of the year.

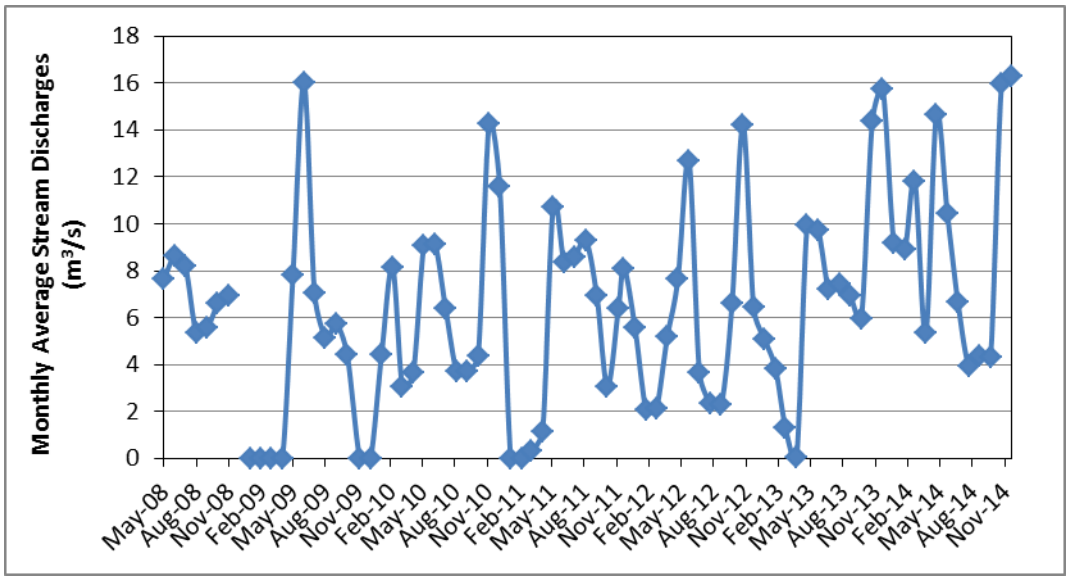


Figure 2-6 W22 Monthly Average Hydrograph, May 2008 – December 2014

2.3.2.5 W80 Continuous Flow Monitoring Results

The monthly average hydrograph from September 2006 through December 2014 was updated and is presented in Figure 2-7. In February through April of 2011, ice pressure effects resulted in logged discharges of >300 m^3/s, which have been normalized to zero values in Figure 2-7. Generally, low flows are evident at station W80 November through April, and high flows in June and October.

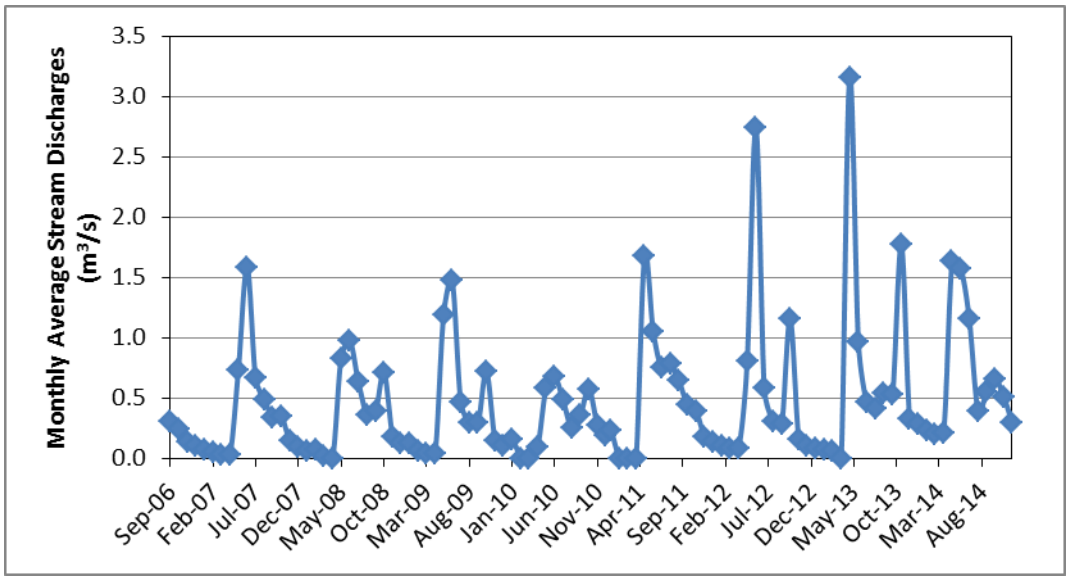


Figure 2-7 W80 Monthly Average Hydrograph, September 2006 – December 2014

2.3.2.6 W82 Continuous Flow Monitoring Results

The average monthly discharges for W82 from October 2007 through December 2014 are presented in Figure 2-8. Ice pressure effects (negative values corrected to zero values in Figure 2-8) were evident in late December 2009 through March 2010, from December 2010 through April 2011, as well as from November 2012 through April 2013.

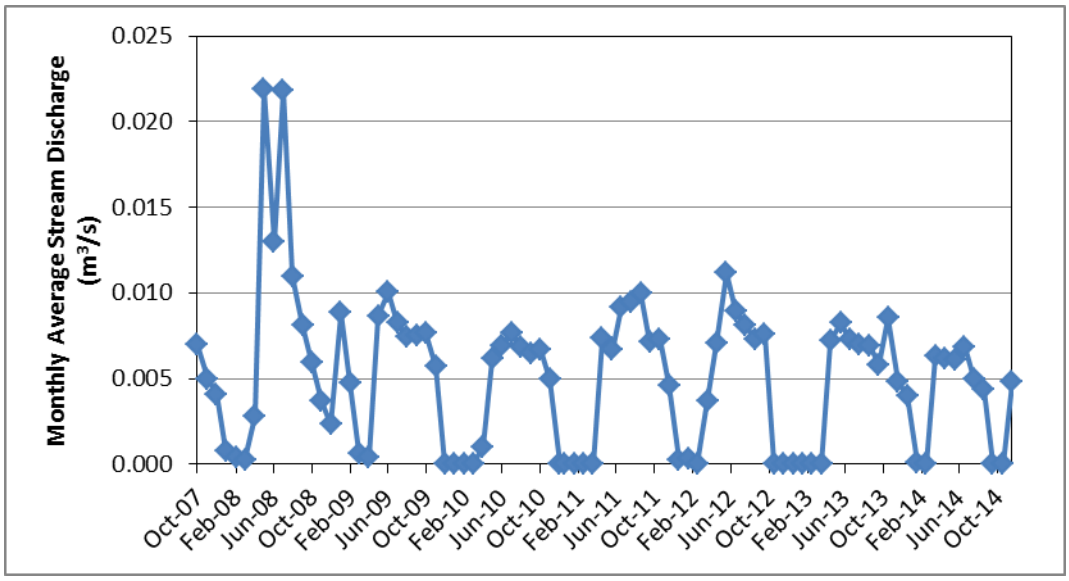


Figure 2-8 W82 Hydrograph, December 2007 – December 2014

2.3.3 Groundwater Monitoring Station Water Quality Results

Groundwater monitoring is required monthly during the operations phase. July 17th, 2011 marked the "Start of Operations" as defined by the Licence, and hence, monthly groundwater quality sampling was required throughout 2014. Groundwater sampling was conducted on the dates summarized in Table 2-10 for the 24 monitoring stations. Gaps in Table 2-10 represent dates when the wells were frozen, and samples were not able to be taken.

Water quality results, as analyzed for the parameters outlined in Table 2-1, for groundwater wells, are summarized in Table 2-11 by date. Gaps in Table 2-11 indicate where parameters either were not taken by field staff, or not analyzed by the analytical laboratory. All groundwater samples are filtered prior to analysis to remove impurities associated with well installation and sampling, hence only dissolved metals were analyzed (Table 2-11). The full lab reports for the data summarized in Table 2-11 are provided in Appendix B.

As with the surface water quality results, analysis and interpretation of the collected data for the groundwater monitoring wells will be conducted as part of the annual data analysis report required for the Quartz Mining Licence QML-0006 Monitoring and Surveillance Plan.

Table 2-10 2014 Groundwater Monitoring Well Stations and Sampling Dates

Sampling Site	MW05-1A	MW05-1B	MW-05-2A	MW-05-2B	MW05-3A	MW05-3B	MW05-4A	MW05-4B	MW05-5A	MW05-5B	MW05-6A	MW05-6B
January									22-Jan	22-Jan	22-Jan	22-Jan
February											28-Feb	28-Feb
March									05-Mar	05-Mar	28-Mar	
April									30-Apr		27-Apr	
May	31-May						30-May	30-May	27-May	27-May	25-May	25-May
June				27-Jun	27-Jun	27-Jun	24-Jun	24-Jun	24-Jun	24-Jun	23-Jun	23-Jun
July	31-Jul	31-Jul	31-Jul	31-Jul	30-Jul	30-Jul	30-Jul	30-Jul	22-Jul	29-Jul	22-Jul	22-Jul
August			26-Aug	26-Aug	26-Aug	26-Aug	19-Aug	19-Aug	17-Aug	17-Aug	17-Aug	17-Aug
September	03-Sep	03-Sep	21-Sep	21-Sep	28-Sep	28-Sep	20-Sep	20-Sep	14-Sep	14-Sep	14-Sep	14-Sep
October						21-Oct	22-Oct	22-Oct	21-Oct	21-Oct	21-Oct	21-Oct
November									05-Nov	05-Nov	24-Nov	24-Nov
December									28-Dec	28-Dec	27-Dec	27-Dec

Sampling Site	MW05-7B	MW06-8S	MW06-8M	MW06-8D	MW06-9S	MW06-9M	MW06-10S	MW06-10M	MW06-10D	MW06-11S	MW06-12S	MW08-13
January		26-Jan	26-Jan	25-Jan					29-Jan		20-Jan	
February									26-Feb			
March			31-Mar	28-Mar					31-Mar		19-Mar	
April		30-Apr	30-Apr	27-Apr							30-Apr	
May	27-May	27-May		27-May	30-May	30-May	12-May				30-May	11-May
June	07-Jun	25-Jun		25-Jun	24-Jun	24-Jun	08-Jun	08-Jun		27-Jun	27-Jun	07-Jun
July	06-Jul	29-Jul		29-Jul	30-Jul	30-Jul	08-Jul	08-Jul		29-Jul	30-Jul	06-Jul
August	09-Aug	16-Aug	16-Aug	16-Aug	26-Aug	26-Aug				26-Aug	26-Aug	09-Aug
September	19-Sep			20-Sep	22-Sep	22-Sep	28-Sep	28-Sep		28-Sep	28-Sep	19-Sep
October		26-Oct	26-Oct	26-Oct	22-Oct		27-Oct	27-Oct	27-Oct	24-Oct	24-Oct	25-Oct
November					30-Nov						26-Nov	06-Nov
December		02-Dec		01-Dec			01-Dec	01-Dec	01-Dec		17-Dec	17-Dec

Table 2-11 2014 Groundwater Monitoring Well Water Quality Results

Sample Location	MW05-1A	MW05-1A	MW05-1A	MW05-1B	MW05-1B	MW05-2A	MW05-2A	MW05-2A	MW05-2B	MW05-2B	MW05-2B	MW05-2B	MW05-3A	MW05-3A	MW05-3A	MW05-3A	MW05-3B	MW05-3B	MW05-3B	MW05-3B
Sampling Date	31-May-14	31-Jul-14	03-Sep-14	31-Jul-14	03-Sep-14	31-Jul-14	26-Aug-14	21-Sep-14	27-Jun-14	31-Jul-14	26-Aug-14	21-Sep-14	27-Jun-14	30-Jul-14	26-Aug-14	28-Sep-14	27-Jun-14	30-Jul-14	26-Aug-14	28-Sep-14
Lab Report ID	B446791	B468486	B478381	B468486	B478381	B468486	B476288	B486427	B456453	B468486	B476288	B486427	B456453	B466056	B476288	B488964	B456453	B466056	B476288	B488964
Field Physical Parameters																				
pH	*	*	8.12	*	7.07	*	7.67	7.49	*	*	7.31	7.25	7.11	*	7.49	7.56	6.81	*	6.64	6.59
Temperature (°C)	3.48	*	4.19	*	5.28	*	2.69	3	3.39	*	3.64	3.33	4.56	*	2.95	2.72	5.01	*	3.54	2.89
Specific conductivity (µS/cm^3)	247	*	259	*	226	*	398	406	301	*	317	302	478	*	451	460	317	*	314	337
Conductivity (µS/cm)	145	*	156	*	141	*	228	236	176	*	188	177	292	*	261	264	196	*	185	194
Laboratory Parameters																				
Physical Parameters																				
Temperature (°C)	4	3	2.3	3	2.3	3	3.3	3.7	5.3	3	3.3	3.7	5.3	6.7	3.3	3	5.3	6.7	3.3	3
Conductivity (µS/cm)	243	252	255	238	224	410	388	388	265	265	269	259	449	441	424	426	313	314	313	326
Hardness (mg/L)	123	126	129	119	111	218	208	223	133	138	144	145	234	237	236	236	146	144	147	166
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	4.8	<4.0	<4.0	<4.0	<32	24.3	30	17	<12	9.5	8.5	5.3	<4.0	<4.0	<4.0	<4.0
Total Dissolved Solids (mg/L)	112	150	158	128	138	230	222	246	148	148	138	178	264	256	248	248	184	200	200	224
pH (pH Units)	8.06	7.98	8.14	7.77	7.6	8	8.33	8.25	7.74	7.68	7.94	7.9	8.14	8.35	8.1	8.08	7.61	8.04	7.82	7.57
Turbidity (NTU)	0.13	14.7	3.6	5.84	6.4	5.22	3.13	2.89	121	133	179	122	78.3	70.9	59.1	60.6	<0.10	<0.10	<0.10	<0.10
Major Anions (mg/L)																				
Alkalinity-Total	102	97.6	102	111	107	175	182	184	133	127	143	131	197	186	187	184	98	94.8	97	93.9
Acidity-Total	<0.50	<0.50	<0.50	<0.50	8.78	<0.50	2.13	<0.50	2.54	0.56	14.7	9.49	<0.50	<0.50	5.54	2.57	2.76	3.29	13.6	12.2
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.10	<0.010	<0.010	<0.010	<0.10	<0.10	<0.010	<0.010	<0.10	0.01	0.01	0.01
Chloride	0.57	<0.50	5.2	0.68	0.53	0.8	0.93	1.1	<0.50	0.61	0.66	0.54	0.62	0.58	0.58	0.62	2.1	2	1.9	2.2
Fluoride	0.55	0.51	0.47	0.15	0.15	0.27	0.25	0.27	0.056	0.061	0.061	0.059	1.1	1	0.83	0.93	0.13	0.13	0.13	0.15
Sulphate	19	26.6	25.4	5.47	7.15	49.6	30.2	28.7	9.1	8.35	3.46	8.58	41.3	39	40.7	39.4	57.8	53.3	55.6	63.1
Nutrient Parameters (mg/L)																				
Ammonial Nitrogen	0.23	0.148	0.19	0.473	0.52	0.116	0.107	0.0914	0.044	0.0355	0.0259	0.0306	0.12	0.0994	0.0831	0.11	0.97	0.026	0.0086	0.023
Nitrate Nitrogen	<0.20	<0.20	0.0026	<0.20	0.0059	<0.20	<0.20	<0.20	0.45	<0.20	<0.20	<0.20	0.24	<0.20	<0.20	0.0035	0.49	0.37	0.29	0.392
Nitrite Nitrogen	<0.20	0.22	<0.0020	0.29	<0.0020	<0.20	<0.20	<0.20	<0.20	0.3	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.0020
Dissolved Ortho-Phosphate	0.0045	0.0038	0.0018	0.36	0.42	0.004	0.0011	0.0016	0.0035	0.0027	0.0071	0.0019	0.0026	0.0043	0.0015	<0.0010	0.0017	0.0014	0.0023	<0.0010
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.00222	<0.00050	0.00135	0.0127	0.010	0.00082	0.013	0.00262	0.003	0.0017	0.0161	0.00189	0.0029	0.00162	0.026	0.00236	0.00206	0.00155	0.0335	0.00165
Antimony (Sb)	0.000025	0.000583	<0.000020	0.00019	0.000024	0.000103	0.000038	0.000022	<0.000020	0.00008	0.000021	<0.000020	0.000161	0.000117	0.000223	0.000161	0.000107	0.000093	0.000164	0.000106
Arsenic (As)	0.00278	0.0071	0.00472	0.00524	0.00431	0.000804	0.000444	0.000299	0.0255	0.027	0.0142	0.0207	0.00138	0.00136	0.00128	0.00132	0.000056	0.00009	0.000112	0.00006
Cadmium (Cd)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000007	<0.0000050	0.00002	<0.0000050	<0.0000050	<0.0000050	0.000018	<0.0000050	0.000103	0.000085	0.000275	0.000171	0.0223	0.0206	0.0215	0.0219
Calcium (Ca)	40.4	41.7	43.1	41.1	37.6	57	54.2	56.8	42.7	43.5	46	45.6	78.2	80	79.8	79	48.3	47.8	49.1	55.9
Chromium (Cr)	<0.00010	<0.00010	<0.00010	0.00016	0.00017	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	0.00018	0.00011	<0.00010	<0.00010	0.00018	<0.00010	<0.00010	<0.00010	0.00015	<0.00010
Cobalt (Co)	0.000005	0.000005	0.000007	0.000082	0.00005	0.000008	0.000022	0.000012	0.000308	0.000129	0.000077	0.000088	0.000133	0.000144	0.000222	0.00017	0.000027	0.000023	0.000045	0.000014
Copper (Cu)	0.000086	0.00008	0.000277	0.000159	0.000211	0.000067	0.00151	0.000151	0.000117	0.000122	0.00138	0.00012	0.000086	0.000126	0.00114	0.00018	0.00257	0.00316	0.00422	0.00302
Iron (Fe)	0.0467	2.37	0.489	3.68	3.28	0.615	0.437	0.446	11.7	12.5	16.6	13.6	4.92	5.26	4.18	4.67	0.0023	0.004	0.0211	0.01
Lead (Pb)	<0.0000050	0.000013	0.000024	0.000052	0.00011	<0.0000050	0.000375	0.000053	0.000008	<0.0000050	0.000284	0.000009	0.00006	0.000057	0.000402	0.000115	0.00011	0.000122	0.000811	0.000081
Magnesium (Mg)	5.4	5.32	5.27	4.08	4.21	18.5	17.7	19.7	6.32	7.06	7.07	7.58	9.53	9	8.83	9.42	6.05	6.07	5.95	6.48
Manganese (Mn)	0.193	0.287	0.257	0.331	0.282	0.179	0.177	0.177	1.11	0.945	0.95	0.824	0.283	0.283	0.281	0.275	0.0037	0.00232	0.00334	0.00112
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00718	0.00675	0.00585	0.00252	0.00231	0.00206	0.00189	0.00182	0.00103	0.00345	0.00458	0.00413	0.00285	0.00312	0.00267	0.00295	0.000477	0.000506	0.000767	0.000534
Nickel (Ni)	0.000035	0.000047	0.000065	0.000801	0.000368	0.000063	0.000359	0.000083	0.000106	0.000111	0.000412	0.000103	0.00116	0.00127	0.00217	0.00166	0.00495	0.0053	0.00542	0.00542
Phosphorus (P)	0.0076	0.0709	0.0034	0.408	0.432	0.006	0.0273	0.0132	0.185	0.191	0.163	0.175	0.0144	0.0165	0.0285	0.0198	0.0035	0.0046	0.0276	0.0044
Potassium (K)	1.23	1.3	1.21	1.29	1.21	2.07	2.07	2.19	0.349	0.42	0.449	0.422	1.69	1.65	1.61	1.58	1.24	1.22	1.37	1.23
Selenium (Se)	<0.000040	0.000209	<0.000040	0.000214	0.00005	0.000167	<0.000040	<0.000040	<0.000040	0.000093	<0.000040	<0.000040	<0.000040	<0.000040	0.000047	<0.000040	0.00703	0.00679	0.0068	0.0069
Silicon (Si)	1.69	4.45	3.91	5.25	5.11	4.23	3.88	3.94	5.02	5.17	4.89	5.14	4.1	3.81	4.27	3.92	5.08	4.8	5	5.23
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000012	<0.0000050	<0.0000050	<0.0000050	0.000008	<0.0000050	<0.0000050
Sodium (Na)	1.64	1.63	1.6	1.25	1.28	0.553	1.05	1.28	1.26	1.19	1.57	1.16	1.84	1.87	2.17	1.9	3.11	3.12	3.66	3.49
Strontium (Sr)	0.143	0.15	0.144	0.123	0.111	0.173	0.166	0.16	0.0776	0.0835	0.0877	0.0827	0.197	0.197	0.199	0.201	0.167	0.161	0.164	0.167
Thallium (Tl)	0.000002	0.000014	<0.0000020	0.000008	<0.0000020	0.000004	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	<0.0000020	0.000003	0.000031	0.000005	0.000006	0.000008	0.000023	0.000011	0.000013
Vanadium (V)	<0.00020	<0.00020	<0.00020	0.00082	0.00048	<0.00020	<0.00020	<0.00020	0.0002	<0.00020	0.00022	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.0089	0.00028	0.00028	0.00166	0.004	0.00065	0.00951	0.00158	0.00041	0.00124	0.00766	0.00076	0.167	0.138	0.244	0.182	1.98	1.84	1.89	1.91

*Sample not taken/analysed due to instrumentation malfunction

Sample Location	MW05-3B	MW05-4A	MW05-4A	MW05-4A	MW05-4A	MW05-4A	MW05-4A	MW05-4B	MW05-4B	MW05-4B	MW05-4B	MW05-4B	MW05-4B	MW05-5A	MW05-5A	MW05-5A	MW05-5A	MW05-5A	MW05-5A	MW05-5A
Sampling Date	**21-Oct-14**	**30-May-14**	**24-Jun-14**	**30-Jul-14**	**19-Aug-14**	**20-Sep-14**	**22-Oct-14**	**30-May-14**	**24-Jun-14**	**30-Jul-14**	**19-Aug-14**	**20-Sep-14**	**22-Oct-14**	**22-Jan-14**	**05-Mar-14**	**30-Apr-14**	**27-May-14**	**24-Jun-14**	**22-Jul-14**	**17-Aug-14**
Lab Report ID	**B498423**	**B446791**	**B454369**	**B466056**	**B473725**	**B486427**	**B498423**	**B446791**	**B454369**	**B466056**	**B473725**	**B486427**	**B498423**	**B405892**	**B418132**	**B434886**	**B443860**	**B454369**	**B463551**	**B473725**
Field Physical Parameters																				
pH	6.57	*	7.81	*	7.80	7.63	7.76	*	6.72	*	6.64	6.64	6.81	7.23	*	7.25	*	7.41	*	7.31
Temperature (°C)	2.89	4.87	5.44	*	3.56	2.47	2.24	3.69	3.54	*	3.26	3.31	1.8	2.37	2.75	1.75	4.71	3.76	4.2	4.75
Specific conductivity (µS/cm^3)	350	346	338	*	333	337	337	245	252	*	242	254	251	509	514	511	504	507	506	509
Conductivity (µS/cm)	202	213	212	*	197	192	191	146	149	*	142	149	140	289	296	301	287	301	305	312
Laboratory Parameters																				
Physical Parameters																				
Temperature (°C)	4	4	2.5	6.7	2.7	3.7	4	4	2.5	6.7	2.7	3.7	4	1	1	1.7	5	2.5	5	2.7
Conductivity (µS/cm)	334	331	331	331	324	327	331	236	252	230	235	241	249	500	506	497	493	503	495	497
Hardness (mg/L)	160	175	166	158	169	176	161	113	110	103	108	122	115	278	275	269	259	264	292	276
Total Suspended Solids (mg/L)	<4.0	4	4	<4.0	<8.0	<4.0	<4.0	<4.0	<4.0	<4.0	<8.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Total Dissolved Solids (mg/L)	188	212	198	196	194	208	200	154	152	142	132	168	158	304	261	286	276	270	276	300
pH (pH Units)	7.88	8.02	8.24	8.26	8.08	8.15	7.99	7.67	7.93	7.82	7.93	7.69	7.9	8.05	7.93	8.21	8.21	8.32	8.07	8.28
Turbidity (NTU)	0.22	9.76	12.8	14.1	9.81	8.46	3.37	12.5	13.7	9.36	6.51	13.1	10.7	14.2	15.1	12.3	7.4	11.9	12	10.8
Major Anions (mg/L)																				
Alkalinity-Total	93.1	110	116	114	111	119	114	80.5	80.4	73.1	75.9	85.5	82.2	230	224	222	221	230	232	225
Acidity-Total	3.77	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.62	2.47	1.22	9.52	1.23	2.74	4.06	<0.50	4.1	<0.50	7.55	<0.50
Bromide	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	0.00	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.10	<0.010	<0.010	<0.010	<0.050
Chloride	2.5	<0.50	<0.50	<0.50	<0.50	0.6	<0.50	0.79	<0.50	0.8	0.77	0.56	0.76	0.66	0.77	0.69	0.58	<0.50	<0.50	0.58
Fluoride	0.13	1.1	1.1	1.1	1.1	1.1	1.1	0.41	0.42	0.36	0.36	0.42	0.41	2.2	2.1	2.00	2.50	2.2	2.2	2.2
Sulphate	70.3	53	46.4	49.6	49.9	49.9	55.7	35.3	37.1	36.1	33.7	34	39.5	47.2	37.4	34.2	33.2	34.3	32.9	34.6
Nutrient Parameters (mg/L)																				
Ammonial Nitrogen	0.0122	0.1	0.0884	0.0815	0.0695	0.0436	0.044	0.15	0.0355	0.0496	0.0377	0.0406	0.044	0.0686	0.0141	0.0807	0.0663	0.0821	0.0802	0.0788
Nitrate Nitrogen	0.26	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.3	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0055	0.0054	<0.20	<0.0020	0.27
Nitrite Nitrogen	<0.20	<0.20	0.21	<0.20	<0.20	<0.20	<0.20	<0.20	0.51	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.0036	<0.0020	<0.20	<0.0020	<0.20
Dissolved Ortho-Phosphate	<0.0010	0.016	0.0039	0.0068	0.0018	0.0068	<0.0010	0.0035	0.0015	0.0042	0.0012	0.0029	0.0014	0.0087	0.0015	0.006	0.0062	0.0038	0.0059	0.0025
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.00064	0.003	0.00473	0.00169	0.004	0.00406	0.00086	0.00331	0.00215	0.00298	0.00315	0.00315	0.00223	0.00114	0.00491	0.0011	0.006	0.00612	0.00578	0.00466
Antimony (Sb)	0.000124	0.000022	0.00003	0.000037	0.000031	0.000042	0.000041	0.000091	0.000094	0.000095	0.000102	0.000095	0.000101	0.00539	0.00543	0.00471	0.00489	0.0053	0.00549	0.0056
Arsenic (As)	0.00007	0.00366	0.00364	0.00426	0.00291	0.00212	0.0011	0.00354	0.00731	0.00713	0.00857	0.00488	0.0049	0.00542	0.0051	0.00415	0.00497	0.00537	0.00553	0.00531
Cadmium (Cd)	0.0223	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.00413	0.00435	0.00378	0.00385	0.00395	0.00354	<0.000005	0.000034	0.000011	0.000021	0.000008	0.000019	0.000005
Calcium (Ca)	53.3	62.7	59.8	56.6	60.3	62.6	57.5	39.5	39	36.7	38.2	43	40.5	73.4	71.6	71.5	69.0	69.6	78.9	72.6
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.000017	0.000021	0.000011	0.000014	0.00001	0.000014	0.000009	0.00517	0.00427	0.00451	0.00452	0.00393	0.00359	0.000101	0.000121	0.000112	0.000107	0.00009	0.000089	0.000087
Copper (Cu)	0.00298	0.000084	0.000095	0.000127	0.000328	0.000215	0.000057	0.000177	0.000291	0.000202	0.000436	0.000251	0.000667	0.000081	0.000536	0.000607	0.000267	0.000167	0.000382	0.000219
Iron (Fe)	0.0018	1.97	1.7	2.06	1.36	1.05	0.364	1.47	2.06	2.36	2.52	1.79	1.61	1.1	1.11	1.1	0.99	1.06	1.15	1.09
Lead (Pb)	0.000135	0.000014	0.000098	0.000043	0.000019	0.000071	0.000012	0.000047	0.000062	0.000029	0.000075	0.00008	0.000154	0.000018	0.00228	0.000034	0.00007	0.000094	0.000359	0.000038
Magnesium (Mg)	6.4	4.41	3.97	4.01	4.45	4.8	4.27	3.47	3.05	2.85	2.99	3.54	3.36	23	23.4	21.9	21.1	22	23	23
Manganese (Mn)	0.00205	0.334	0.313	0.317	0.269	0.17	0.126	3.2	2.8	2.55	2.74	2.71	2.54	0.0357	0.0403	0.0504	0.0403	0.0377	0.0368	0.0361
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000499	0.00432	0.00427	0.0042	0.00438	0.00461	0.00434	0.000968	0.00106	0.000907	0.001	0.0011	0.000993	0.00759	0.0077	0.00778	0.00723	0.00727	0.00767	0.00739
Nickel (Ni)	0.00525	0.000059	0.000331	0.000109	0.000073	0.000156	0.000201	0.00845	0.00679	0.00605	0.0062	0.00639	0.00661	0.000908	0.000978	0.000795	0.000811	0.000847	0.000933	0.000785
Phosphorus (P)	0.0033	0.0223	0.0119	0.0188	0.0105	0.0274	0.0075	0.0043	0.0048	0.0073	0.0079	0.0124	0.0069	0.0109	0.0108	0.0104	0.0097	0.0107	0.0294	0.0127
Potassium (K)	1.31	2.12	2.11	2	2.03	2.31	2.11	1.89	1.9	1.79	1.85	2.11	2	1.54	1.47	1.53	1.5	1.53	1.6	1.46
Selenium (Se)	0.0071	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040
Silicon (Si)	5.01	3.65	3.77	3.56	4.03	3.87	3.46	7.19	7.06	7.07	7.53	7.4	7	4.19	4.08	3.83	4.19	4.07	4.45	4.36
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	3.88	1.26	1.15	1.15	1.14	1.48	1.22	1.14	1.06	1.04	1.11	1.2	1.15	0.288	0.31	0.398	0.298	0.295	0.411	0.277
Strontium (Sr)	0.172	0.191	0.191	0.185	0.191	0.186	0.19	0.166	0.166	0.147	0.161	0.163	0.166	0.136	0.137	0.143	0.138	0.134	0.14	0.137
Thallium (Tl)	0.000013	<0.0000020	<0.0000020	0.000008	<0.0000020	<0.0000020	<0.0000020	0.000043	0.000036	0.000066	0.000066	0.000041	0.00004	0.000004	0.000003	0.000002	<0.0000020	<0.0000020	<0.0000020	0.000002
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	1.82	0.00133	0.00064	0.00167	0.00082	0.00291	0.00024	0.236	0.221	0.22	0.24	0.198	0.173	0.00651	0.0109	0.008	0.008	0.00736	0.00725	0.009

*Sample not taken/analysed due to instrumentation malfunction

Sample Location	MW05-5A	MW05-5A	MW05-5A	MW05-5A	MW05-5B	MW05-5B	MW05-5B	MW05-5B	MW05-5B	MW05-5B	MW05-5B	MW05-5B	MW05-5B	MW05-5B	MW05-6A	MW05-6A	MW05-6A	MW05-6A	MW05-6A	MW05-6A
Sampling Date	**14-Sep-14**	**21-Oct-14**	**05-Nov-14**	**28-Dec-14**	**22-Jan-14**	**05-Mar-14**	**27-May-14**	**24-Jun-14**	**29-Jul-14**	**17-Aug-14**	**14-Sep-14**	**21-Oct-14**	**05-Nov-14**	**28-Dec-14**	**22-Jan-14**	**28-Feb-14**	**28-Mar-14**	**27-Apr-14**	**25-May-14**	**23-Jun-14**
Lab Report ID	**B482542**	**B498423**	**B4A1989**	**B500338**	**B405892**	**B418132**	**B443860**	**B454369**	**B466056**	**B473725**	**B482542**	**B498423**	**B4A1989**	**B500338**	**B405892**	**B418132**	**B425795**	**B434886**	**B443860**	**B454369**
Field Physical Parameters																				
pH	7.32	7.32	7.43	7.2	7.62	*	*	7.38	8.25	7.27	7.32	7.10	6.89	7.36	6.78	6.74	*	6.59	*	6.84
Temperature (°C)	4.88	2.69	1.89	2	1.63	1.31	3.62	6.18	5.91	6.22	7.4	3.99	2.91	1.36	1.98	2.03	3.83	2.88	4.86	6.03
Specific conductivity (µS/cm^3)	505	498	505	513	299	301	297	300	305	312	304	303	327	303	175	190	183	184	188	184
Conductivity (µS/cm)	311	286	282	287	166	165	169	192	194	200	202	182	189	106	99	108	109	106	116	117
Laboratory Parameters																				
Physical Parameters																				
Temperature (°C)	8	4	3.3	1	1	1	5	2.5	6.7	2.7	8	4	3.3	1	1	1	1	1.7	5	2.5
Conductivity (µS/cm)	477	488	492	493	300	297	288	300	309	301	293	299	292	303	173	178	169	174	128	172
Hardness (mg/L)	260	262	267	274	150	143	144	147	144	149	161	144	150	153	80.3	78.8	81.7	83.7	36	78.6
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	4	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Total Dissolved Solids (mg/L)	272	268	288	264	194	188	174	172	176	182	166	202	190	166	122	118	110	96	76	88
pH (pH Units)	8	8.24	8.19	7.74	7.96	7.88	7.9	8.16	8.14	8.17	7.87	8.04	8.03	7.65	7.73	7.78	7.65	7.93	7.79	7.98
Turbidity (NTU)	3.86	6.09	6.12	13.5	5.5	7.39	2.89	7.22	5.98	7.32	7.51	6.91	6.29	7.68	2.0	15.6	14.1	6.63	0.32	13.5
Major Anions (mg/L)	0.99										<0.50									
Alkalinity-Total	223	234	228	228	109	106	102	107	108	108	114	114	113	110	66.2	68.7	66.6	67.1	49.9	63.5
Acidity-Total	11.6	<0.50	1.79	12.8	1.24	2.05	3.02	<0.50	<0.50	<0.50	5.74	<0.50	1.56	7.35	2.08	1.62	1.06	<0.50	2.41	<0.50
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	0.75	0.99	1.3	0.73	1.2	0.91	0.89	<0.50	0.59	1	0.82	1.2	0.94	0.59	0.71	0.81	<0.50	<0.50	<0.50	<0.50
Fluoride	2.1	2.1	2.1	2.10	0.21	0.2	<1.0	0.21	0.2	0.21	0.2	0.2	0.21	0.21	0.14	0.14	0.17	0.13	0.097	0.14
Sulphate	31.4	59	35.3	33.5	53.4	39.8	38.1	38.9	39.6	42.5	38.4	47.3	38.1	40.5	21.4	16.3	18	17	12.5	16.6
Nutrient Parameters (mg/L)																				
Ammonial Nitrogen	0.08	0.0786	0.121	0.0762	0.0236	0.0218	0.0152	0.0328	0.0261	0.0312	0.027	0.0296	0.0234	0.0168	0.0138	0.0671	0.0106	0.0145	<0.0050	0.0292
Nitrate Nitrogen	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.20	0.0167	<0.20	<0.20	0.47	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.20	0.0043	<0.0020	0.0041	<0.20
Nitrite Nitrogen	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.20	0.0023	0.28	<0.20	<0.20	0.003	0.25	<0.20	<0.20	<0.20	<0.20	<0.0020	0.0022	<0.0020	<0.20
Dissolved Ortho-Phosphate	<0.0010	0.0051	0.0072	<0.0010	0.0024	<0.0010	0.0021	<0.0010	0.0019	<0.0010	<0.0010	<0.0010	<0.0010	0.0029	0.94	0.5	0.5700	0.77	0.42	0.92
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.0113	0.00713	0.00519	0.005	0.004	0.00186	0.00217	0.00189	0.041	0.00192	0.00091	<0.00050	<0.00050	0.00715	0.0033	0.002	0.0005	0.00051	0.00755	0.00191
Antimony (Sb)	0.00331	0.00407	0.00406	0.00206	0.000039	0.000065	0.000076	0.000039	0.000037	0.000043	0.000031	0.000056	0.000028	0.000058	0.00144	0.000336	0.00126	0.00101	0.00102	0.00102
Arsenic (As)	0.00449	0.00474	0.00453	0.00421	0.0018	0.00193	0.0015	0.00186	0.00187	0.00212	0.00211	0.00179	0.00166	0.00209	0.00609	0.00511	0.00641	0.00582	0.00322	0.006
Cadmium (Cd)	0.000011	0.00001	0.0000084	0.0000092	0.000037	0.000021	0.000029	0.00003	0.000045	0.000028	0.000016	0.000024	0.0000296	0.0000399	0.000042	<0.000005	<0.000005	<0.000005	0.000045	<0.000005
Calcium (Ca)	67.9	68.2	72.3	71.4	48.3	45.6	46.9	47.1	45.8	47.7	51.9	46.2	48.6	49.3	26.7	26.0	27.3	27.6	11.8	26.2
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0003	<0.00010	<0.00010	<0.00010	<0.00010	0.00012	<0.00010
Cobalt (Co)	0.00013	0.000113	0.000117	0.000147	0.000726	0.000783	0.000688	0.000779	0.000792	0.000751	0.00069	0.00074	0.000689	0.000661	0.000336	0.000398	0.000379	0.000395	0.000209	0.000353
Copper (Cu)	0.000794	0.000356	0.000307	0.000179	0.000193	0.000251	0.000377	0.000172	0.000201	0.000113	0.000184	0.000079	0.000074	0.000748	0.000127	0.000114	0.000239	0.000179	0.00148	0.000222
Iron (Fe)	1.62	1.59	1.49	2.1	0.494	0.568	0.364	0.543	0.496	0.54	0.609	0.424	0.49	0.616	1.32	1.48	1.44	1.16	0.496	1.49
Lead (Pb)	0.000135	0.000069	0.0000494	0.0000768	0.00003	0.0003	0.000093	0.000041	0.000056	0.00001	0.000012	0.000008	0.0000224	0.0017	0.000006	0.000014	0.000027	0.000009	0.000198	0.000038
Magnesium (Mg)	21.8	22.4	21	23.3	7.1	7.16	6.5	7.12	7.24	7.25	7.65	7.05	6.87	7.41	3.3	3.38	3.29	3.6	1.55	3.2
Manganese (Mn)	0.0714	0.0586	0.0542	0.0999	0.752	0.776	0.634	0.765	0.767	0.79	0.831	0.76	0.834	0.773	0.128	0.173	0.142	0.143	0.0658	0.136
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00709	0.00748	0.0069	0.00775	0.00111	0.00114	0.000961	0.00107	0.00109	0.00123	0.00112	0.00112	0.000983	0.0011	0.00149	0.00134	0.00156	0.00151	0.000795	0.00136
Nickel (Ni)	0.000919	0.000844	0.000796	0.000833	0.00405	0.00479	0.00462	0.00424	0.00424	0.00401	0.00404	0.00404	0.00362	0.00373	0.00134	0.000931	0.0014	0.0013	0.000814	0.00134
Phosphorus (P)	0.0159	0.0138	0.0177	0.0136	0.0029	0.0076	<0.0020	0.0032	0.0059	0.0048	0.0063	0.0039	0.0056	0.0182	1.01	0.935	1.01	0.867	0.466	1
Potassium (K)	1.74	1.64	1.36	1.56	0.616	0.578	0.59	0.597	0.604	0.605	0.664	0.622	0.508	0.79	1.14	1.11	1.14	1.2	1.23	1.21
Selenium (Se)	0.000082	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	0.000273	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	0.000047	<0.000040	<0.000040	<0.000040	<0.000040	0.000947	<0.000040
Silicon (Si)	4.06	3.94	4.02	3.43	3.77	3.48	3.82	3.67	3.48	3.97	4.27	3.65	3.86	3.09	7.2	6.82	7.53	7.36	3.08	7.21
Silver (Ag)	<0.000005	<0.000005	<0.000005	<0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	0.399	0.336	0.272	0.334	0.85	0.87	0.893	0.894	0.868	0.857	0.882	0.847	0.736	1.45	1.89	2.39	1.93	1.98	0.96	1.85
Strontium (Sr)	0.126	0.13	0.135	0.139	0.113	0.109	0.112	0.112	0.113	0.116	0.111	0.116	0.114	0.118	0.0269	0.0286	0.0279	0.0293	0.0159	0.029
Thallium (Tl)	<0.0000020	<0.0000020	<0.0000020	0.000003	0.000003	0.000002	<0.0000020	<0.0000020	0.000007	0.000002	<0.0000020	0.000002	0.0000028	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.0232	0.011	0.0108	0.003	0.071	0.076	0.0768	0.0773	0.0704	0.0746	0.0763	0.0664	0.0679	0.0825	0.003	0.003	0.00317	0.00293	0.0228	0.00281

*Sample not taken/analysed due to instrumentation malfunction

Sample Location	MW05-6A	MW05-6A	MW05-6A	MW05-6A	MW05-6A	MW05-6A	MW05-6B	MW05-6B	MW05-6B	MW05-6B	MW05-6B	MW05-6B	MW05-6B	MW05-6B	MW05-6B	MW05-6B	MW05-7B	MW05-7B	MW05-7B	MW05-7B
Sampling Date	**22-Jul-14**	**17-Aug-14**	**14-Sep-14**	**21-Oct-14**	**24-Nov-14**	**27-Dec-14**	**22-Jan-14**	**28-Feb-14**	**25-May-14**	**23-Jun-14**	**22-Jul-14**	**17-Aug-14**	**14-Sep-14**	**21-Oct-14**	**24-Nov-14**	**27-Dec-14**	**27-May-14**	**07-Jun-14**	**06-Jul-14**	**09-Aug-14**
Lab Report ID	**B463551**	**B473725**	**B482542**	**B498423**	**B4A8447**	**B500338**	**B405892**	**B418132**	**B443860**	**B454369**	**B463551**	**B473725**	**B482542**	**B498423**	**B4A8447**	**B500338**	**B443860**	**B449206**	**B458721**	**B470934**
Field Physical Parameters																				
pH	*	6.88	6.87	6.89	*	6.49	7.09	7.12	*	7.10	*	6.92	7.13	7.25	7.14	7.01	*	9.19	8.35	8.23
Temperature (°C)	3.7	3.44	4.68	2.63	*	1.15	1.5	1.77	4.59	4.25	2.73	4.05	4.07	0.91	1.12	0.64	4.3	3.29	4.8	6.18
Specific conductivity (µS/cm^3)	180	167	172	177	*	173	184	189	186	177	178	193	181	184	187	175	243	247	258	274
Conductivity (µS/cm)	107	98	105	101	*	94	102	105	113	107	104	116	108	100	102	94	147	144	158	175
Laboratory Parameters																				
Physical Parameters																				
Temperature (°C)	5	2.7	8	4	2.3	1	1	1	5	2.5	5	2.7	8	4	2.3	1	5	2.7	5.3	4.9
Conductivity (µS/cm)	170	168	174	163	166	171	190	192	188	175	178	175	180	182	181	186	248	244	255	268
Hardness (mg/L)	84.4	79.3	82.3	76.1	74.6	82	92.3	89.9	88.8	85	88.2	90.6	95.8	90.8	86.6	89.6	115	109	118	133
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	<4.0	<4.0	<4.0	<4.0
Total Dissolved Solids (mg/L)	104	104	108	78	76	98	108	86	114	86	94	110	100	84	92	98	140	148	138	170
pH (pH Units)	7.67	7.92	7.59	7.89	7.82	7.41	7.84	7.85	7.98	8.04	7.82	7.78	7.74	7.95	7.97	7.61	8.07	8.03	8.02	7.76
Turbidity (NTU)	11.7	10.9	11.4	7.64	1.42	8.25	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.29	0.39	0.1	0.17
Major Anions (mg/L)																				
Alkalinity-Total	66.6	65.4	68.8	63.3	66.7	66.8	86.1	85.6	85.8	80.5	83.3	78.9	85.9	82.4	86.9	85.5	81.4	82	81.5	80.1
Acidity-Total	4.28	0.75	8.49	<0.50	3.7	7.29	1.25	1.02	2.55	<0.50	3.41	<0.50	5.21	<0.50	2.37	4.1	<0.50	<0.50	<0.50	0.56
Bromide	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	<0.50	0.55	0.73	<0.50	<0.50	<0.50	<0.50	1.2	<0.50	<0.50	<0.50	<0.50	0.61	2.3	<0.50	<0.50	0.92	1	1.3	1.7
Fluoride	0.14	0.14	0.13	0.12	0.13	0.14	0.034	0.032	1.1	0.041	0.036	0.036	0.029	0.034	0.032	0.031	<1.0	0.079	0.09	0.08
Sulphate	16.7	16.4	15.4	18.3	16.8	16.5	10.1	8.67	8.59	7.85	7.83	8.37	8.18	12.4	8.33	8.83	39.4	35.2	42	51.5
Nutrient Parameters (mg/L)																				
Ammonial Nitrogen	0.0168	0.0189	0.0203	0.0169	0.012	0.0072	<0.0050	0.0072	<0.0050	<0.0050	0.0075	0.0108	<0.0050	0.0093	<0.0050	0.0057	0.0213	0.036	0.0387	0.0329
Nitrate Nitrogen	<0.0020	<0.20	<0.0020	<0.20	0.0034	<0.20	0.37	0.29	0.26	1.35	0.247	0.59	0.241	0.49	0.245	<0.20	0.0077	0.0092	<0.20	<0.0020
Nitrite Nitrogen	<0.0020	<0.20	0.005	<0.20	0.003	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.0020	<0.20	<0.0020	<0.20	<0.0020	<0.20	<0.0020	<0.0020	<0.20	<0.0020
Dissolved Ortho-Phosphate	0.89	0.84	0.48	0.74	0.86	0.56	0.0065	0.0032	0.0046	0.0016	0.0033	<0.0010	0.0025	0.0014	0.003	0.0017	0.025	0.022	0.028	0.028
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.00144	0.00285	0.00092	0.00078	0.00081	0.0008	0.0107	0.00159	0.00191	0.00188	0.00187	0.00271	0.00353	0.00129	0.00092	0.00098	0.00136	0.00239	0.0034	0.00256
Antimony (Sb)	0.00117	0.00043	0.000343	0.000832	0.001	0.000596	0.000033	0.000059	0.000025	0.000028	0.00003	0.000032	0.000028	0.000031	0.000022	0.000027	0.000021	0.000024	0.000024	0.000022
Arsenic (As)	0.00602	0.00557	0.0052	0.00566	0.00609	0.00539	0.000087	0.000061	0.000061	0.000053	0.000078	0.000068	0.000068	0.000065	0.000058	0.000045	0.000293	0.000239	0.00047	0.000479
Cadmium (Cd)	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.000012	0.000007	<0.000005	0.000005	<0.000005	0.00002	0.000006	<0.000005	0.0000052	<0.000005	<0.000005	<0.000005	<0.000005
Calcium (Ca)	28.5	26.5	27.6	25.3	24.3	27.3	32.2	31.3	31.1	29.8	30.8	31.7	33.9	31.9	30.1	31.3	40.2	37.4	41.3	47.1
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00089	0.00102	0.00099	0.00088	0.0009	0.00088	0.00087	0.00088	0.0009	0.00097	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.000335	0.000319	0.000335	0.000329	0.000375	0.000324	0.000011	0.000023	0.00002	0.00001	0.000009	0.000011	0.000014	0.000009	0.000011	0.0000118	0.000096	0.000076	0.000096	0.000091
Copper (Cu)	0.000065	0.000311	0.000096	0.000146	0.000133	0.00013	0.000247	0.000506	0.000715	0.000293	0.000305	0.000484	0.000533	0.000337	0.000436	0.000305	0.000189	0.000057	0.000207	0.000192
Iron (Fe)	1.58	1.44	1.55	1.18	1.45	1.24	0.0079	0.0031	0.0015	0.0021	0.0039	0.0032	0.0028	0.0028	0.0018	0.0016	0.134	0.157	0.0621	0.0735
Lead (Pb)	0.000016	0.00001	0.000012	0.000012	0.000015	0.0000251	0.000013	0.000098	0.000008	0.000026	0.00004	0.000039	0.000254	0.000047	0.000009	0.0000288	0.000016	0.000005	0.000035	0.000036
Magnesium (Mg)	3.23	3.21	3.29	3.13	3.35	3.33	2.91	2.87	2.71	2.58	2.71	2.8	2.73	2.74	2.77	2.81	3.52	3.74	3.51	3.73
Manganese (Mn)	0.134	0.146	0.152	0.128	0.138	0.154	0.000559	0.000266	0.000176	0.000125	0.000142	0.000154	0.000401	0.000152	0.000089	0.000104	0.102	0.0914	0.0865	0.0945
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.0014	0.00138	0.00146	0.00148	0.00139	0.00141	0.000239	0.000297	0.000259	0.000197	0.000268	0.000288	0.000233	0.000242	0.00023	0.000226	0.00381	0.00363	0.00373	0.00376
Nickel (Ni)	0.00136	0.000913	0.000869	0.00113	0.00153	0.000823	0.00021	0.000296	0.000208	0.000147	0.000131	0.000123	0.000189	0.000247	0.000472	0.000198	0.000172	0.000147	0.000303	0.000231
Phosphorus (P)	0.942	0.916	0.943	0.781	0.918	0.799	0.0073	0.0054	0.0051	0.0059	0.0073	0.0061	0.0215	0.0068	0.0047	0.0057	0.0307	0.0262	0.0372	0.0388
Potassium (K)	1.13	1.15	1.16	1.17	1.07	1.18	0.796	0.74	0.727	0.742	0.741	0.721	0.815	0.762	0.714	0.766	0.951	0.93	1.09	1.18
Selenium (Se)	<0.000040	<0.000040	<0.000040	0.000109	0.00006	<0.000040	0.000749	0.000687	0.000742	0.000632	0.000668	0.000763	0.000685	0.000697	0.000833	0.00071	0.000637	0.000688	0.000573	0.000632
Silicon (Si)	7.88	6.98	7.46	6.67	5.94	5.73	4.44	4.2	4.63	4.3	4.44	4.62	4.8	4.47	3.86	3.67	3.9	3.63	3.62	4.19
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000005
Sodium (Na)	1.82	2.06	2.02	1.78	1.93	2.12	1.39	1.36	1.25	1.22	1.25	1.26	1.45	1.3	1.3	1.27	1.78	1.9	1.93	2.1
Strontium (Sr)	0.0277	0.0289	0.0289	0.0266	0.0275	0.0283	0.0496	0.0475	0.0473	0.0465	0.0458	0.0484	0.0456	0.0475	0.0483	0.0474	0.0859	0.0838	0.0941	0.1
Thallium (Tl)	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002	<0.000002
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00022	0.00025	<0.00020	0.00025	0.00023	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00213	0.00283	0.00149	0.00287	0.00568	0.00317	0.00085	0.00222	0.00165	0.0009	0.00075	0.00386	0.002	0.00103	0.00118	0.00087	0.00113	0.00016	0.001	0.00157

*Sample not taken/analysed due to instrumentation malfunction

Sample Location	MW05-7B	MW06-8S	MW06-8S	MW06-8S	MW06-8S	MW06-8S	MW06-8S	MW06-8S	MW06-8S	MW06-8M	MW06-8M	MW06-8M	MW06-8M	MW06-8M	MW06-8D	MW06-8D	MW06-8D	MW06-8D	MW06-8D	MW06-8D
Sampling Date	**19-Sep-14**	**26-Jan-14**	**30-Apr-14**	**27-May-14**	**25-Jun-14**	**29-Jul-14**	**16-Aug-14**	**26-Oct-14**	**02-Dec-14**	**26-Jan-14**	**31-Mar-14**	**30-Apr-14**	**16-Aug-14**	**26-Oct-14**	**25-Jan-14**	**28-Mar-14**	**27-Apr-14**	**27-May-14**	**25-Jun-14**	**29-Jul-14**
Lab Report ID	**B486427**	**B407970**	**B434886**	**B443860**	**B454369**	**B466056**	**B473725**	**B498423**	**B4B0572**	**B407970**	**B425795**	**B434886**	**B473725**	**B498423**	**B407970**	**B425795**	**B434886**	**B443860**	**B454369**	**B466056**
Field Physical Parameters																				
pH	7.91	7.22	6.38	*	6.84	7.35	6.58	6.58	7.01	*	*	7.69	8.21	8.55	7.83	*	7.68	*	7.73	8.32
Temperature (°C)	6.08	1.17	3.44	8.04	6.83	3.69	6.97	1.09	0.64	1.89	3.44	3.49	4.18	1.85	2.38	2.53	3.29	5.45	3.55	3.07
Specific conductivity (µS/cm^3)	284	188	199	196	204	203	199	202	175	253	236	292	261	261	460	467	470	468	459	466
Conductivity (µS/cm)	181	104	117	133	133	120	131	110	94	141	139	172	157	145	262	266	275	293	271	271
Laboratory Parameters																				
Physical Parameters																				
Temperature (°C)	3.7	1.7	1.7	5	2.5	6.7	2.7	2.2	2	1.7	1	1.7	2.7	2.2	1.7	1	1.7	5	2.5	6.7
Conductivity (µS/cm)	281	254	190	196	190	200	191	194	193	184	268	327	247	252	458	454	464	460	458	455
Hardness (mg/L)	148	122	89.9	83.8	86.2	89	85.6	89.6	78.9	81.1	98.5	134	120	122	247	250	256	243	242	243
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	1.3	<5.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Total Dissolved Solids (mg/L)	190	118	120	116	126	110	98	104	126	96	152	184	144	128	236	258	250	250	254	240
pH (pH Units)	8.12	8.01	7.55	7.62	7.6	7.75	7.68	7.09	7.52	7.61	8.46	8.26	8.03	8.05	8.21	8.22	8.28	8.22	8.37	8.41
Turbidity (NTU)	0.27	0.28	0.88	1.07	2.73	2.54	6.56	19.1	0.96	<0.10	<0.10	<0.10	<0.10	0.39	5.17	4.98	11.3	5.31	5.19	5.49
Major Anions (mg/L)																				
Alkalinity-Total	83	87.1	59.8	60.5	58.6	60.2	61.5	64.4	58.6	53.7	102	130	83.7	93.8	218	223	217	218	218	215
Acidity-Total	<0.50	<0.50	3.58	10.4	3.7	3.28	4.4	11.4	13.1	10	<0.50	<0.50	<0.50	<0.50	1.81	2.42	<0.50	2.09	<0.50	<0.50
Bromide	0.01	<0.010	0.01	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.050	<0.010	<0.010	<0.010	<0.10	<0.010	<0.010	<0.010
Chloride	1.7	<0.50	1.2	1.4	0.74	1	1.2	1	0.71	1.4	0.81	<0.50	<0.50	0.97	<0.50	0.79	<0.50	0.52	<0.50	<0.50
Fluoride	0.075	1.1	0.26	1.6	0.28	0.27	0.28	0.26	0.26	0.26	1.3	1.1	1.1	1.1	0.91	1	0.87	1.5	0.93	0.9
Sulphate	57.5	35.2	28.4	29.5	29.1	26.9	29.6	29.1	31.2	29.4	36.7	37.4	35.8	38.6	28.3	26.9	26.7	25	26.5	27.6
Nutrient Parameters (mg/L)																				
Ammonial Nitrogen	0.0344	0.092	0.0271	0.0209	0.0236	0.0257	0.0221	0.0118	0.07	0.013	0.0553	0.0672	0.0803	0.079	0.081	0.0776	0.0839	0.0776	0.0823	0.0821
Nitrate Nitrogen	<0.20	<0.20	0.0331	0.03	<0.20	<0.20	<0.20	0.0025	0.21	0.23	0.0265	0.007	0.32	0.0114	<0.20	<0.0020	<0.0020	<0.0020	0.52	<0.20
Nitrite Nitrogen	<0.20	<0.20	<0.0020	0.0025	0.39	<0.20	<0.20	0.0031	<0.20	<0.20	<0.0020	<0.0020	<0.20	<0.0020	<0.20	<0.0020	<0.0020	<0.0020	<0.20	<0.20
Dissolved Ortho-Phosphate	0.03	<0.0010	0.17	0.15	0.21	0.0012	0.24	0.02	0.17	0.025	0.0035	0.0041	<0.0010	0.0024	0.0017	0.0019	0.0025	0.0028	0.0014	0.0027
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.00203	0.00094	0.0025	0.00501	0.00566	0.00306	0.00319	0.0164	0.00329	0.0021	0.00072	0.00056	0.00341	0.00265	0.00227	0.00256	0.534	0.0048	0.00388	0.00348
Antimony (Sb)	<0.000020	0.000139	0.00246	0.00328	0.00372	0.00192	0.00368	0.00282	0.00246	0.00186	0.000985	0.000247	0.000228	0.000236	0.000184	0.000144	0.000671	0.000197	0.000193	0.000181
Arsenic (As)	0.000506	0.00816	0.000878	0.00111	0.00133	0.00103	0.00125	0.00123	0.000841	0.000261	0.00661	0.00947	0.00849	0.00911	0.00456	0.0044	0.00511	0.00467	0.00442	0.00423
Cadmium (Cd)	<0.000005	<0.000005	0.000115	0.000112	0.000055	0.000097	0.000035	0.000152	0.000113	0.000099	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.000083	<0.000005	<0.000005	<0.000005
Calcium (Ca)	52.3	22.5	29.7	28	28.8	29.7	28.3	29.8	25.8	27.1	14.7	25.3	19.8	20	53.3	57.6	56.6	56.4	56.1	56.2
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00017	0.00128	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00027	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.000102	0.000028	0.00214	0.00243	0.00347	0.00323	0.00336	0.00319	0.00246	0.00133	0.000027	0.000042	0.000029	0.000027	0.000083	0.000074	0.000188	0.000076	0.000074	0.00007
Copper (Cu)	0.000163	<0.000050	0.00141	0.000905	0.000347	0.000517	0.0001	0.000996	0.00038	0.000224	0.000153	0.000101	0.000262	0.000266	<0.000050	0.000104	0.00122	0.00008	0.000094	0.000066
Iron (Fe)	0.0874	0.0357	1.18	1.59	1.93	1.46	1.95	1.8	1.21	0.229	0.0016	0.033	0.0297	0.044	0.554	0.575	0.797	0.569	0.577	0.594
Lead (Pb)	0.000013	<0.000005	0.000287	0.000229	0.000074	0.000066	0.000028	0.00134	0.000269	0.000059	0.000022	0.000017	0.000046	0.000113	0.000006	0.000025	0.00412	0.000041	0.000021	0.000029
Magnesium (Mg)	4.18	16.1	3.8	3.34	3.46	3.6	3.6	3.71	3.51	3.29	15	17.2	17.1	17.5	27.6	25.8	27.8	24.8	24.8	25
Manganese (Mn)	0.103	0.0011	0.202	0.228	0.315	0.44	0.3	0.279	0.219	0.124	0.000316	0.00257	0.00193	0.000975	0.0122	0.012	0.0146	0.0107	0.0122	0.0104
Mercury (Hg)	<0.00001	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00362	0.00532	0.00263	0.00248	0.00263	0.00266	0.00265	0.00277	0.00227	0.00203	0.00528	0.00548	0.00561	0.00544	0.00137	0.00132	0.00145	0.00131	0.00139	0.00128
Nickel (Ni)	0.000227	0.000548	0.0363	0.0379	0.0397	0.0426	0.0413	0.0425	0.0403	0.038	0.000472	0.000795	0.000458	0.000576	0.000395	0.000587	0.00104	0.000317	0.000497	0.000361
Phosphorus (P)	0.0418	<0.0020	0.149	0.228	0.254	0.164	0.275	0.272	0.169	0.0195	<0.0020	0.0022	0.0061	<0.0020	0.0031	0.0045	0.0131	0.0025	0.0043	0.0063
Potassium (K)	1.29	2.32	1.22	1.11	0.978	1.23	0.903	1.01	0.894	0.916	3.72	2.54	2.57	2.47	1.85	1.71	1.75	1.67	1.78	1.72
Selenium (Se)	0.000836	<0.000040	0.000126	0.000151	<0.000040	0.000084	<0.000040	0.000093	0.00006	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040
Silicon (Si)	4.34	3.01	5.68	5.83	5.77	5.65	5.66	5.49	4.56	5.42	3.02	3.19	3.17	2.77	4.48	4.97	5.34	4.98	4.74	4.63
Silver (Ag)	<0.000005	<0.000005	<0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	2.25	2.02	1.72	1.47	1.25	1.68	1.15	1.45	1.13	1.31	5.11	2.65	2.99	2.55	0.482	0.512	0.464	0.408	0.485	0.403
Strontium (Sr)	0.111	0.124	0.0565	0.0571	0.0583	0.0588	0.0587	0.0616	0.0541	0.0545	0.125	0.137	0.128	0.12	0.165	0.164	0.177	0.171	0.165	0.166
Thallium (Tl)	<0.0000020	<0.0000020	0.000009	0.00001	0.000011	0.000015	0.000013	0.000011	0.00001	0.000005	0.000013	0.000003	0.000002	0.000005	<0.0000020	<0.0000020	0.000009	<0.0000020	<0.0000020	0.000005
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00085	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00066	0.00023	1.15	1.25	1.28	1.25	1.28	1.28	1.27	1.330	0.00109	0.00021	0.00186	0.00146	0.00046	0.00111	0.0193	0.00107	0.00033	0.00067

*Sample not taken/analysed due to instrumentation malfunction

Sample Location	MW06-8D	MW06-8D	MW06-8D	MW06-8D	MW06-9S	MW06-9S	MW06-9S	MW06-9S	MW06-9S	MW06-9S	MW06-9S	MW06-9M	MW06-9M	MW06-9M	MW06-9M	MW06-9M	MW06-10S	MW06-10S	MW06-10S	MW06-10S
Sampling Date	**16-Aug-14**	**20-Sep-14**	**26-Oct-14**	**01-Dec-14**	**30-May-14**	**24-Jun-14**	**30-Jul-14**	**26-Aug-14**	**22-Sep-14**	**22-Oct-14**	**30-Nov-14**	**30-May-14**	**24-Jun-14**	**30-Jul-14**	**26-Aug-14**	**22-Sep-14**	**12-May-14**	**08-Jun-14**	**08-Jul-14**	**28-Sep-14**
Lab Report ID	**B473725**	**B486427**	**B498423**	**B4B0572**	**B446791**	**B454369**	**B466056**	**B476288**	**B486427**	**B498423**	**B4B0572**	**B446791**	**B454369**	**B466056**	**B476288**	**B486427**	**B438627**	**B449206**	**B458721**	**B488964**
Field Physical Parameters																				
pH	7.44	7.49	7.33	7.01	*	7.85	*	7.88	7.55	7.80	6.70	*	7.65	*	7.72	7.62	7.69	8.58	7.84	7.98
Temperature (°C)	5.73	3.89	1.94	0.64	4.63	3.74	*	2.98	2.99	1.79	0.81	4.3	6.71	*	3.52	3.35	2.99	2.97	7.47	2.4
Specific conductivity (µS/cm^3)	478	468	463	175	251	248	*	262	270	257	277	390	395	*	384	383	291	288	291	285
Conductivity (µS/cm)	303	279	259	94	153	149	*	152	156	142	149	236	257	*	226	225	169	167	194	161
Laboratory Parameters																				
Physical Parameters																				
Temperature (°C)	2.7	3.7	2.2	2	4	2.5	6.7	3.3	3.7	4	2	4	2.5	6.7	3.3	3.7	5.7	2.7	5.3	3
Conductivity (µS/cm)	451	450	451	453	247	254	263	254	255	247	246	378	392	384	376	372	286	287	280	273
Hardness (mg/L)	251	267	257	230	128	122	125	133	147	123	108	213	202	201	203	231	144	135	135	147
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	2	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	2.2	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Total Dissolved Solids (mg/L)	254	260	226	254	154	144	142	160	158	134	134	224	212	214	226	232	176	170	146	162
pH (pH Units)	8.31	8.28	8	8.22	7.99	8.14	8.12	8.25	8.15	8.11	8.03	8.07	8.31	8.15	8.34	8.2	8.16	8.05	8.13	7.91
Turbidity (NTU)	5.3	5.46	<0.10	6.5	0.64	2.14	1.48	1.7	1.5	1	1.09	11.9	6.86	7.97	7.31	7.61	1.57	2	0.91	0.87
Major Anions (mg/L)																				
Alkalinity-Total	211	226	225	220	96	106	103	109	111	97.5	96.8	165	169	162	169	169	119	121	117	113
Acidity-Total	<0.50	0.67	2.59	1.8	<0.50	<0.50	<0.50	<0.50	5.63	<0.50	0.68	<0.50	<0.50	<0.50	1.88	1.67	<0.50	1.15	1.1	0.7
Bromide	<0.050	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chloride	0.57	0.59	0.53	0.62	<0.50	<0.50	0.63	<0.50	<0.50	<0.50	<0.50	0.61	1.3	<0.50	<0.50	<0.50	0.73	<0.50	<0.50	<0.50
Fluoride	0.91	0.9	0.92	0.88	0.84	0.73	0.62	0.61	0.60	0.66	0.73	1	0.98	0.95	0.93	0.99	0.24	0.24	0.23	0.2
Sulphate	27.5	27.9	28.3	28.2	28.1	25.4	23.8	23.8	23.3	29.9	26.8	32.2	31.2	32.5	33.7	31	28.7	28.1	28.8	28
Nutrient Parameters (mg/L)																				
Ammonial Nitrogen	0.0892	0.0852	0.077	0.12	0.044	0.0537	0.0616	0.0531	0.0564	0.0528	0.073	0.25	0.109	0.097	0.0824	0.0847	0.0404	0.03	0.0296	0.043
Nitrate Nitrogen	0.26	<0.20	<0.0020	<0.20	0.24	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.20	<0.0020
Nitrite Nitrogen	<0.20	<0.20	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.38	<0.20	<0.20	<0.20	<0.20	0.0027	<0.20	<0.0020
Dissolved Ortho-Phosphate	0.0016	0.0033	0.0016	0.0017	0.14	0.19	0.23	0.22	0.22	0.21	0.16	0.016	0.011	0.012	0.0098	0.014	0.013	0.0089	0.0069	0.0064
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.0035	0.00172	0.00283	0.00281	0.00475	0.00764	0.00221	0.0026	0.0025	0.0015	0.00237	0.0034	0.00405	0.0023	0.0124	0.00161	0.00405	0.00293	0.00235	0.00962
Antimony (Sb)	0.000214	0.000181	0.000182	0.000228	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.00022	0.0024	0.000249	0.000284	0.000324	0.000431	0.000468	0.00045	0.000297
Arsenic (As)	0.00443	0.00433	0.00452	0.00452	0.00618	0.00786	0.00809	0.00838	0.00863	0.00749	0.0068	0.00214	0.00219	0.00186	0.00185	0.00185	0.00551	0.00512	0.00393	0.00395
Cadmium (Cd)	<0.000005	<0.000005	<0.000005	<0.000005	0.00006	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.000006	<0.000005	0.000015	<0.000005	0.000023	<0.000005	0.000005	0.000021
Calcium (Ca)	56.3	62.6	58.8	52.2	42.5	40.6	42.3	45.1	49.9	41.2	35.8	63.7	61.2	60.9	61.4	70.8	50.1	46.5	46.8	51.4
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	0.00028	0.0003	<0.00010	<0.00010
Cobalt (Co)	0.00007	0.000072	0.000058	0.000063	0.000143	0.000075	0.00007	0.000078	0.000081	0.000068	0.000068	0.000041	0.000067	0.00003	0.000044	0.000036	0.000208	0.000109	0.00012	0.000133
Copper (Cu)	0.000168	<0.000050	0.000105	<0.000050	0.000161	0.000356	0.000129	0.000164	0.000083	0.00009	0.000146	0.000057	0.00016	0.000298	0.000657	0.000096	0.000218	0.000102	<0.000050	0.000762
Iron (Fe)	0.592	0.658	0.636	0.574	0.527	0.668	0.647	0.691	0.737	0.6	0.547	1.3	0.903	0.927	0.89	1.02	0.268	0.292	0.196	0.227
Lead (Pb)	0.000085	0.000005	0.000006	<0.000005	0.000084	0.0001	0.000014	0.000022	0.000028	0.00001	0.000011	0.000005	0.000413	0.000019	0.000215	0.000019	0.000147	0.000027	0.000018	0.000503
Magnesium (Mg)	26.7	27	26.8	24.2	5.38	5.02	4.84	4.9	5.45	4.79	4.49	13	11.9	12	12.1	13.1	4.53	4.51	4.46	4.55
Manganese (Mn)	0.0106	0.0106	0.0102	0.011	0.117	0.133	0.138	0.14	0.146	0.129	0.117	0.031	0.0229	0.0177	0.0183	0.0176	0.129	0.116	0.115	0.112
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.00134	0.00128	0.00137	0.00138	0.00472	0.00467	0.00504	0.00489	0.00497	0.00483	0.00474	0.00457	0.00483	0.00443	0.00464	0.00453	0.00115	0.00115	0.00103	0.000989
Nickel (Ni)	0.000493	0.000336	0.000453	0.000461	0.000235	0.000284	0.000257	0.000315	0.000244	0.000245	0.000706	0.000112	0.000647	0.000253	0.000308	0.000213	0.000747	0.000644	0.000514	0.000713
Phosphorus (P)	0.0101	0.0054	0.0055	0.0059	0.215	0.262	0.259	0.282	0.302	0.241	0.222	0.0233	0.0184	0.0205	0.0276	0.0217	0.0132	0.0133	0.0112	0.0216
Potassium (K)	1.69	1.83	1.73	1.66	1.2	1.01	0.95	0.934	1.03	0.968	0.895	1.78	2.14	1.78	1.82	1.93	1.71	1.15	1.25	1.81
Selenium (Se)	<0.000040	<0.000040	<0.000040	<0.000040	0.000065	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	0.00198	<0.000040	0.000066	0.000098
Silicon (Si)	4.72	5.16	4.66	4.28	4.59	4.33	4.23	4.64	5.05	4.25	3.76	4.05	3.67	3.68	3.78	4.25	3.73	3.58	3.4	3.85
Silver (Ag)	<0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	0.464	0.415	0.442	0.472	1.67	1.02	1.15	1.07	1.25	1.12	1.08	0.309	1.12	0.32	0.449	0.342	1.9	1.23	1.55	2.43
Strontium (Sr)	0.163	0.158	0.169	0.159	0.149	0.157	0.168	0.17	0.167	0.16	0.143	0.0827	0.0816	0.0818	0.0831	0.0815	0.2	0.179	0.188	0.197
Thallium (Tl)	0.000002	0.000002	<0.0000020	0.000005	0.000005	<0.0000020	0.000002	<0.0000020	<0.0000020	<0.0000020	0.000002	<0.0000020	0.000004	0.000003	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000004	0.000002
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.002	0.00021	0.00082	0.00053	0.00075	0.00237	0.00104	0.001	0.001	0.00091	0.00074	0.00062	0.00335	0.002	0.00572	0.00087	0.00712	0.00145	0.0013	0.00428

*Sample not taken/analysed due to instrumentation malfunction

Sample Location	MW06-10S	MW06-10S	MW06-10M	MW06-10M	MW06-10M	MW06-10M	MW06-10M	MW06-10D	MW06-10D	MW06-10D	MW06-10D	MW06-10D	MW06-11S	MW06-11S	MW06-11S	MW06-11S	MW06-11S	MW06-12S	MW06-12S	MW06-12S
Sampling Date	**27-Oct-14**	**01-Dec-14**	**08-Jun-14**	**08-Jul-14**	**28-Sep-14**	**27-Oct-14**	**01-Dec-14**	**29-Jan-14**	**26-Feb-14**	**31-Mar-14**	**27-Oct-14**	**01-Dec-14**	**27-Jun-14**	**29-Jul-14**	**26-Aug-14**	**28-Sep-14**	**24-Oct-14**	**20-Jan-14**	**19-Mar-14**	**30-Apr-14**
Lab Report ID	**B498423**	**B4B0572**	**B449206**	**B458721**	**B488964**	**B498423**	**B4B0572**	**B407970**	**B416143**	**B425795**	**B498423**	**B4B0572**	**B456453**	**B466056**	**B476288**	**B488964**	**B498423**	**B405892**	**B422558**	**B434886**
Field Physical Parameters																				
pH	8.01	7.01	8.00	7.69	*	7.55	7.01	8.04	7.73	8.24	7.64	7.01	*	8.26	7.48	7.40	8.01	7.41	*	7.22
Temperature (°C)	0.72	0.64	3.36	4.31	*	2.22	0.64	1.05	1.73	3.17	1.16	0.64	3.45	4.32	2.94	2.07	0.72	1.33	1.67	4.12
Specific conductivity (µS/cm^3)	288	175	505	509	*	502	175	496	499	506	498	175	466	455	447	461	288	792	802	816
Conductivity (µS/cm)	155	94	297	308	*	284	94	269	278	295	271	94	274	276	259	259	155	445	444	491
Laboratory Parameters																				
Physical Parameters																				
Temperature (°C)	2.2	2	2.7	5.3	3	2.2	2	1.7	1.3	1	2.2	2	5.3	6.7	3.3	3	2.2	1	1.7	1.7
Conductivity (µS/cm)	270	281	481	481	475	472	483	478	480	479	472	482	446	458	450	438	444	767	779	801
Hardness (mg/L)	142	124	246	240	264	253	247	255	261	263	266	246	236	249	248	239	247	384	387	415
Total Suspended Solids (mg/L)	<4.0	1	10	9.8	10	6.3	20	<4.0	<4.0	<4.0	<4.0	4.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	4.3	<4.0
Total Dissolved Solids (mg/L)	192	166	280	286	294	274	292	264	240	246	277	280	252	248	272	270	258	546	554	544
pH (pH Units)	7.94	8.03	7.97	8.13	8.03	7.83	8.17	8.28	8.22	8.16	7.9	8.25	8.18	8.33	8.37	8.11	7.93	7.98	8	8.11
Turbidity (NTU)	0.96	0.96	75.6	72	71.8	68.8	81.1	20.8	23.4	22.0	16.6	23.8	12.2	6.29	7.63	6.69	4.81	15.8	12.5	17.8
Major Anions (mg/L)																				
Alkalinity-Total	114	115	201	194	196	195	196	233	244	242	234	235	196	206	210	189	197	123	133	138
Acidity-Total	0.84	0.88	2.96	5.4	3.44	3.24	4.79	2.77	1.07	3.12	4.28	3.16	<0.50	<0.50	3	1.98	1.83	1.76	<0.50	<0.50
Bromide	<0.050	<0.010	<0.10	<0.10	<0.010	<0.050	<0.010	<0.010	<0.010	<0.10	<0.050	<0.010	<0.10	<0.10	<0.010	<0.010	<0.050	<0.10	<0.10	<0.10
Chloride	<0.50	<0.50	0.53	<0.50	<0.50	<0.50	<0.50	0.71	<0.50	0.72	<0.50	0.59	0.61	<0.50	0.57	0.69	<0.50	0.84	0.64	<0.50
Fluoride	0.2	0.2	0.76	0.73	0.78	0.76	0.73	0.96	0.93	1.10	0.98	0.95	2.5	2.6	2.5	2.6	2.6	0.92	0.86	0.88
Sulphate	28	27.2	45.7	57.7	58.2	57.9	56.7	24.9	23.5	21.9	21.7	24.6	42.3	33.1	32.5	40.6	32.3	305	287	269
Nutrient Parameters (mg/L)																				
Ammonial Nitrogen	0.021	0.049	0.087	0.0914	0.088	0.0632	0.14	0.088	0.0701	0.0692	0.0758	0.13	0.22	0.217	0.218	0.21	0.213	0.107	0.101	0.131
Nitrate Nitrogen	0.0023	<0.20	<0.0020	<0.20	<0.0020	0.0033	<0.20	<0.20	<0.20	0.008	<0.0020	<0.20	0.3	0.76	<0.20	<0.0020	0.0022	<0.20	<0.20	0.0493
Nitrite Nitrogen	<0.0020	<0.20	<0.0020	<0.20	<0.0020	<0.0020	<0.20	<0.20	<0.20	<0.0020	<0.0020	<0.20	<0.20	<0.20	<0.20	<0.0020	<0.0020	<0.20	<0.20	0.0043
Dissolved Ortho-Phosphate	0.0031	0.007	0.0023	0.002	0.0014	0.0027	0.008	<0.0010	<0.0010	0.0011	0.0041	0.002	0.018	0.017	0.012	0.011	0.0045	0.0035	0.0047	0.0072
Dissolved Metals (mg/L)																				
Aluminum (Al)	0.00178	0.00155	0.00239	0.00229	0.0107	0.00099	0.00118	0.00136	0.00319	0.0008	0.00173	0.00146	0.00914	0.00291	0.0175	0.00316	0.00291	0.0143	0.00082	0.00309
Antimony (Sb)	0.000363	0.000433	0.000064	0.000041	<0.000020	0.000024	<0.000020	0.000081	0.000103	0.000072	0.000111	0.000077	0.00004	0.000064	0.000057	0.000079	0.000124	0.000299	0.000237	0.000244
Arsenic (As)	0.00316	0.00416	0.000477	0.000456	0.000332	0.000359	0.000446	0.000643	0.000755	0.00065	0.000678	0.000672	0.00435	0.00332	0.00325	0.00277	0.00206	0.000762	0.000468	0.000626
Cadmium (Cd)	0.000007	<0.000005	<0.0000050	<0.0000050	0.000045	<0.0000050	0.000006	<0.000005	0.000008	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	0.000017	<0.000005	<0.000005	0.000063	0.000007	0.000018
Calcium (Ca)	49.6	42.7	78.1	76.7	83.8	80.9	79.1	65.5	70	69.7	70.5	66	64.1	67.9	67.9	64.4	67.1	120	121	129
Chromium (Cr)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	0.00013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)	0.000135	0.000101	0.000104	0.000035	0.000055	0.000034	0.000007	<0.000005	0.000011	<0.000005	0.000012	<0.000005	0.000454	0.000428	0.000428	0.000386	0.000398	0.000371	0.00034	0.000386
Copper (Cu)	0.000185	0.000177	0.000065	0.000057	0.000515	0.000139	<0.000050	<0.000050	<0.000050	<0.000050	0.000549	<0.000050	<0.000050	<0.000050	0.00108	0.000165	0.000122	0.000301	0.000109	0.000237
Iron (Fe)	0.147	0.227	5.2	5.24	5.85	5.08	5.95	1.5	1.73	1.95	1.57	1.86	1.34	1	1.01	0.857	0.574	1.35	0.968	1.38
Lead (Pb)	0.000023	0.000068	0.000031	0.000048	0.0011	0.000025	0.000067	0.000032	0.000095	0.000021	0.000091	0.00005	0.000017	0.000112	0.000285	0.000009	0.000036	0.000147	0.000032	0.00103
Magnesium (Mg)	4.48	4.16	12.4	11.9	13.3	12.3	11.9	22.2	21	21.7	21.7	19.6	18.4	19.3	19.2	19.1	19.4	20.2	20.9	22.4
Manganese (Mn)	0.125	0.12	0.159	0.118	0.125	0.118	0.109	0.0178	0.0199	0.0197	0.0183	0.0155	0.116	0.112	0.112	0.106	0.101	0.107	0.122	0.126
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.000010	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000949	0.00105	0.00367	0.00307	0.00322	0.00331	0.00309	0.00456	0.00485	0.00521	0.00462	0.00494	0.016	0.0139	0.0133	0.0143	0.0149	0.000685	0.0005	0.000677
Nickel (Ni)	0.00066	0.000665	0.000719	0.00028	0.000515	0.000246	0.000131	0.000205	0.000085	0.00008	0.000114	0.000084	0.00103	0.000757	0.000956	0.000808	0.00111	0.00099	0.000881	0.000937
Phosphorus (P)	0.0083	0.0122	0.0038	0.0111	0.0271	0.0125	0.0142	0.0063	0.007	0.0065	0.0083	0.0074	0.0381	0.0241	0.0437	0.0208	0.0168	0.0142	0.0056	0.0138
Potassium (K)	1.51	1.08	1.8	1.87	1.96	1.8	1.73	2.45	2.48	2.22	2.31	1.92	1.72	1.58	1.69	1.6	1.68	4.96	3.5	3.81
Selenium (Se)	0.000053	<0.000040	0.000181	0.000056	<0.000040	<0.000040	<0.000040	<0.000040	0.000156	0.000042	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	<0.000040	0.000075	0.000046
Silicon (Si)	3.7	3.02	3.97	3.84	4.18	4.08	4.09	4.09	4.19	4.33	4.21	3.93	6.07	5.29	5.68	5.67	5.51	4.86	3.56	3.53
Silver (Ag)	<0.000005	<0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000005	<0.000005	<0.000005	0.000006	<0.000005	<0.000005	<0.000005	<0.000005	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	2.05	1.51	2.85	2.93	3.14	2.87	2.84	1.11	1.19	1.07	1.05	0.924	3.68	1.71	1.7	1.78	1.81	6.48	4.66	5.12
Strontium (Sr)	0.189	0.187	0.147	0.152	0.148	0.153	0.145	0.164	0.169	0.166	0.168	0.163	0.118	0.123	0.119	0.113	0.121	0.621	0.477	0.498
Thallium (Tl)	<0.000002	<0.000002	<0.0000020	0.000002	<0.0000020	<0.0000020	0.000003	0.000002	<0.000002	<0.000002	0.000002	0.000002	0.000002	0.000003	<0.000002	<0.000002	<0.000002	0.000007	0.000003	0.000003
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.00214	0.00118	0.00184	0.00088	0.00618	0.00088	0.00079	0.00028	0.00059	0.000	0.00168	0.00051	0.00054	0.0007	0.00732	0.00112	0.00181	0.00358	0.00218	0.00375

*Sample not taken/analysed due to instrumentation malfunction

Sample Location	MW06-12S	MW06-12S	MW06-12S	MW06-12S	MW06-12S	MW06-12S	MW06-12S	MW06-12S	MW08-13	MW08-13	MW08-13	MW08-13	MW08-13	MW08-13	MW08-13	MW08-13
Sampling Date	**30-May-14**	**27-Jun-14**	**30-Jul-14**	**26-Aug-14**	**28-Sep-14**	**24-Oct-14**	**26-Nov-14**	**17-Dec-14**	**11-May-14**	**07-Jun-14**	**06-Jul-14**	**09-Aug-14**	**19-Sep-14**	**25-Oct-14**	**06-Nov-14**	**17-Dec-14**
Lab Report ID	**B446791**	**B456453**	**B466056**	**B476288**	**B488964**	**B498423**	**B4A8447**	**B4B6326**	**B438627**	**B449206**	**B458721**	**B470934**	**B486427**	**B498423**	**B4A3952**	**B4B6326**
Field Physical Parameters																
pH	7.3	7.36	*	7.44	7.34	7.53	7.34	7.01	6.26	7.14	6.58	6.33	6.46	6.43	6.51	7.01
Temperature (°C)	4.15	5.66	*	3.39	3.3	2.35	1.4	0.64	1.93	4.17	6.38	6.39	5.9	3.25	2.51	0.64
Specific conductivity (µS/cm^3)	793	812	*	790	792	789	798	175	242	253	229	340	395	456	501	175
Conductivity (µS/cm)	477	512	*	464	464	448	438	94	136	152	147	219	251	266	286	94
Laboratory Parameters																
Physical Parameters																
Temperature (°C)	4	5.3	6.7	3.3	3	2.2	2.3	1	5.7	2.7	5.3	4.9	3.7	2.2	1	1
Conductivity (µS/cm)	777	788	781	770	763	777	789	776	238	252	224	346	387	441	486	615
Hardness (mg/L)	437	420	392	407	426	403	395	425	106	108	101	163	194	216	220	310
Total Suspended Solids (mg/L)	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	2.8	5.5	<4.0	<5.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Total Dissolved Solids (mg/L)	570	566	534	574	574	544	528	594	164	160	118	238	264	296	310	398
pH (pH Units)	7.99	8.04	8.15	8.20	7.95	7.72	8.09	7.89	7.55	6.99	7.36	7.28	7.57	7.07	7.57	7.45
Turbidity (NTU)	5.3	36.2	3.57	16.1	21.6	20.7	21.4	29.2	0.11	0.12	<0.10	0.1	0.4	0.7	0.55	0.16
Major Anions (mg/L)																
Alkalinity-Total	134	140	131	137	131	133	143	138	79.6	83.1	95.2	112	121	110	119	148
Acidity-Total	<0.50	<0.50	<0.50	4.88	3.07	4.77	3.45	1.2	2.58	15.1	27.7	48.5	23	18.7	8.61	4.84
Bromide	<0.10	<0.10	<0.10	0.01	0.01	<0.050	<0.10	0.01	0.02	0.02	0.02	0.03	0.03	<0.050	<0.10	0.04
Chloride	0.56	1.9	0.67	0.58	0.9	<0.50	0.62	<0.50	1.6	1.2	0.7	1.8	1.8	2	2.5	3.6
Fluoride	0.96	0.89	0.91	0.87	0.92	0.93	0.89	0.87	0.025	0.025	0.025	0.02	0.02	0.03	0.022	0.038
Sulphate	261	293	252	259	212	243	218	285	35.4	37.4	19.6	59.7	77.8	112	128	173
Nutrient Parameters (mg/L)																
Ammonial Nitrogen	0.11	0.18	0.137	0.152	0.12	0.1	0.0638	0.13	0.0212	0.012	0.0263	0.0605	0.183	0.406	0.5	0.94
Nitrate Nitrogen	<0.20	<0.20	0.2	<0.20	0.0324	0.0379	0.0924	<0.20	0.71	0.0571	<0.20	<0.0020	<0.20	<0.0020	0.25	<0.20
Nitrite Nitrogen	<0.20	<0.20	0.2	<0.20	0.0073	0.0064	0.0035	<0.20	<0.20	0.002	<0.20	<0.0020	<0.20	<0.0020	<0.20	<0.20
Dissolved Ortho-Phosphate	0.0092	0.0067	0.0066	0.0072	0.0022	0.004	0.0016	<0.0010	0.0045	0.002	0.0034	0.0019	0.0021	0.0022	0.0011	0.0027
Dissolved Metals (mg/L)																
Aluminum (Al)	0.0038	0.0040	0.00362	0.0202	0.0117	0.00127	0.00065	0.00103	0.029	0.0219	0.0211	0.0149	0.0144	0.013	0.0105	0.0117
Antimony (Sb)	0.000219	0.000209	0.00018	0.000176	0.000127	0.000161	0.000141	0.000139	0.00005	0.000046	0.000051	0.000046	0.00004	0.000052	0.000028	0.000032
Arsenic (As)	0.000261	0.0015	0.000286	0.000791	0.000638	0.000684	0.000466	0.000861	0.00011	0.000111	0.000132	0.000185	0.000213	0.000209	0.000116	0.000158
Cadmium (Cd)	0.000032	<0.0000050	0.000014	0.000068	0.000014	0.000012	0.000008	<0.0000050	0.000033	0.000024	0.000055	0.000162	0.000172	0.000252	0.000258	0.00034
Calcium (Ca)	132	130	120	128	133	126	123	135	35.2	35.7	33.3	54.5	64.4	71.0	71.7	104
Chromium (Cr)	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00015	0.00022	0.00012	0.00011	0.00012	0.00012	<0.00010	0.00013
Cobalt (Co)	0.000471	0.000464	0.00039	0.000413	0.000378	0.000362	0.000308	0.000351	0.000081	0.000055	0.000062	0.000398	0.000242	0.000306	0.000408	0.000462
Copper (Cu)	0.000712	0.000102	0.000264	0.000797	0.000291	0.000113	0.000147	0.000119	0.00267	0.00222	0.00302	0.00279	0.00151	0.00151	0.00129	0.00155
Iron (Fe)	0.508	2.77	0.368	1.36	1.65	1.53	1.17	2.13	0.0367	0.0182	0.0141	0.0366	0.068	0.0908	0.0969	0.0847
Lead (Pb)	0.000069	0.000036	0.000051	0.00152	0.000273	0.00001	0.000009	0.0000571	0.000222	0.000033	0.000045	0.000127	0.000039	0.000134	0.0000308	0.0000475
Magnesium (Mg)	26.3	23	22.4	21.4	23	21.8	21.6	21	4.5	4.59	4.44	6.65	8.08	9.28	9.91	11.9
Manganese (Mn)	0.159	0.141	0.135	0.13200	0.127	0.129	0.13	0.13	0.0156	0.00613	0.037	0.476	0.874	1.39	1.75	4.41
Mercury (Hg)	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum (Mo)	0.000687	0.000746	0.000667	0.00079	0.000781	0.000763	0.000567	0.00063	0.000065	<0.000050	0.000072	0.000207	0.000191	0.000286	0.000184	0.000297
Nickel (Ni)	0.00119	0.000982	0.000976	0.00103	0.00103	0.000906	0.000974	0.000816	0.00103	0.00101	0.0015	0.00296	0.00349	0.0046	0.00481	0.00683
Phosphorus (P)	0.006	0.027	0.0085	0.0457	0.0852	0.0133	0.0126	0.0182	0.0053	0.0064	0.0098	0.0104	0.0125	0.0138	0.0094	0.0107
Potassium (K)	4.4	3.87	3.93	4.04	4.14	3.89	3.46	3.68	1.15	1.06	1.2	1.51	1.83	1.82	1.81	1.95
Selenium (Se)	0.000055	<0.000040	<0.000040	0.000051	<0.000040	<0.000040	<0.000040	<0.000040	0.000381	0.000508	0.000559	0.000618	0.0006	0.00107	0.00128	0.00211
Silicon (Si)	3.73	4.22	3.56	4.3	4.31	3.77	3.14	4.11	5.29	4.68	4.25	5.15	4.86	4.26	4.15	4.36
Silver (Ag)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.00001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Sodium (Na)	6.32	5.05	5.45	5.76	5.84	5.06	4.74	4.53	4.24	4.44	4.26	5.47	7.4	7.22	7.47	8.67
Strontium (Sr)	0.488	0.485	0.483	0.523	0.51	0.488	0.486	0.522	0.0948	0.0933	0.0871	0.134	0.148	0.173	0.182	0.25
Thallium (Tl)	0.000004	<0.0000020	0.000003	0.000003	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.000003	0.000006	0.000011	0.000016	0.0000175	0.0000116
Vanadium (V)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Zinc (Zn)	0.007	0.001	0.00396	0.0104	0.0038	0.00359	0.00223	0.00149	0.00201	0.0011	0.00224	0.00726	0.004	0.008	0.00247	0.00357

*Sample not taken/analysed due to instrumentation malfunction

2.3.4 Groundwater Monitoring Station Water Level Results

Water levels were taken at the groundwater wells outlined in the Licence, and the results are summarized in Table 2-12. The water levels are measured from the top of the well to the water level in the well, not from the water level below the ground. Gaps in the data indicate where the well head was frozen to the top of the standpipe, and consequently a water level measurement was unachievable. "Artesian" indicates that the well was overflowing the top of the well without encouragement from pumping.

Water levels were relatively stable in 2014, with decreases in the levels (or *increases* in the water table height) during summer months, and higher levels (or *lower* water table height) in the fall and winter.

Table 2-12 2014 Groundwater Monitoring Stations and Water Levels

	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14
Monitoring Well						**Water depth (m)**						
05-1A					Artesian		Artesian		Artesian			
05-1B							2.11		2.11			
05-2A							Artesian	Artesian	Artesian			
05-2B							Artesian	Artesian	Artesian			
05-3A						1.54	1.73	1.84	1.76			
05-3B						1.80	1.90	1.97	1.90	1.83		
05-4A					1.08	1.60	1.09	1.10	1.10	5.75		
05-4B					1.06	0.98	1.06	1.14	1.17	1.14		
05-5A	3.28		3.31	3.2	3.15	3.33	3.15	3.20	3.20	3.28	3.18	3.23
05-5B	3.45		3.5		3.30	3.24	3.40	3.43	3.25	3.43	3.44	3.39
05-6A	10.24	10.67	11.01	0.6	7.80	5.41	6.25	7.82	8.83	9.27	9.66	9.54
05-6B	10.44	9.96			8.34	6.17	6.76	7.99	9.42	9.70	9.94	9.86
05-7B					0.00	Artesian	Artesian	0.44	0.00			
06-8S	8.43			8.54	7.93	7.76	7.92	7.98		8.80		8.21
06-8M	23.15		22.81	21.8		22.50	22.36	22.67		22.83		22.97
06-8D	9.91		9.52	11.80	9.40	14.25	8.48			8.85		9.54
06-9S					3	2.91	3.40	3.68	3.68	6.25	4.01	
06-9M					0.00	0.00	Artesian	Artesian	Artesian			
06-10S					9.20	6.75	6.57		6.08	6.66		6.67
06-10M					7.83	5.80	5.84		6.12	6.28		6.43
06-10D	4.11	4.4								3.70		3.9
06-11S						1.64	1.49	1.76	1.38	1.40		
06-12S	2.22		2.54	2.15	1.62	1.57	1.95	2.12	1.95	2.00	2.09	2.11
08-13					1.70	1.55	1.68	2.00	1.84	1.87	1.84	2.04

3 Quality Assurance/Quality Control Results

Quality assurance/quality control (QA/QC) sampling is conducted at random locations as part of the water quality sampling program at the Wolverine Mine. The types of QA/QC samples and their purpose and sample labelling convention suffixes are summarized in Table 3-1.

Table 3-1 Quality Assurance/Quality Control Sample Descriptions

Description	Sample Purpose	Suffix
Lab Blank	A sample of de-ionized water is used to assess sample contamination in the on-site environmental office. For dissolved metal analyses, the sample is filtered in the office, and serves as a method to detect contamination in the filtering equipment or filter (equipment blank).	-95
Field Blank	A field blank is a sample of de-ionized water that is filled in the field and is exposed to the environment at the sampling site. Field blanks are used to evaluate if contamination has occurred from the sampling technique.	-99
Split	Split samples are aliquots taken at the sampling site from the same sampling container and assumed to be identical. These samples can be sent to two or more laboratories for separate analysis and the results can be used to determine inter-lab variability or consistency within one lab. Care must be taken to ensure that the samples are split homogeneously. Spilt samples can be spilt in the field (Field Split, suffix -96) or in the on-site environmental office (Lab Split, suffix -97).	-96,-97
Duplicate	Duplicate samples are independent samples collected as close as possible in the same point in space and time and are intended to be identical. Duplicate samples are essential in documenting the precision of the entire sampling and analytical (laboratory) process. They are used to detect the heterogeneity within the environment, allow the precision of the measurement process to be estimated, and provide a check on the reproducibility of the sampling.	-98

QA/QC was taken throughout 2014 during both the surface water quality monitoring and groundwater quality monitoring programs. The results of the QA/QC program are summarized in Table 5-2. Full laboratory results are provided in Appendices A and B. Gaps in Table 5-2 indicate that a parameter was not analyzed for (e.g., total metals for groundwater monitoring samples), or was not required of the original sample as per Table 2-1.

Throughout 2014, standard deviations of the field splits and duplicates ranged from averages of 0.03 to 1.01, and the higher standard deviations were evident in physical parameters and major anions (e.g., total dissolved solids, conductivity, alkalinity, acidity, hardness, and sulphate). These results indicate a high consistency with the sampling method and negligible contamination during the sampling procedure.

Table 5-2 2014 Quality Assurance/Quality Control Samples

Sample Location	W15	W15-98	MW05-6A	MW05-6A-96	W71	W71-98	W21	W21-98	MW06-12S	MW06-12S-96	W81	W81-96	MW06-8D	MW06-8D-98	W82	W82-98
Sampling Date	15/01/2014	15/01/2014	22/01/2014	22/01/2014	05/02/2014	05/02/2014	07/03/2014	07/03/2014	19/03/2014	19/03/2014	09/04/2014	09/04/2014	27/04/2014	27/04/2014	20/05/2014	20/05/2014
Lab Report ID	B403951V1	B403951V1	B405892V1	B405892V1	B410106	B410106	B420331	B418125	B422558	B422558	B428622	B428622	B434886	B434886	B441335V1	B441335V1
Physical Parameters																
Temperature	0.5	0.5	1	1	1.7	1.7	1	1	1.7	1.7	0.5	0.5	1.7	1.7	3.7	3.7
Conductivity	126	127	173	174	787	783	257	256	779	785	153	151	464	465	163	153
Hardness	61.9	62.7	80.3	80	457	456	129	126	387	394	75.2	73.1	256	262	72.7	71.4
Total Suspended Solids	4.0	4	4	4	1	1	4	4	4.3	4	4	4	4	18.3	4	4
Total Dissolved Solids	98	90	122	116	518	516	132	218	554	554	98	98	250	262	108	106
pH	7.89	7.9	7.73	7.77	8.16	8.16	8.09	8.1	8	8.03	7.97	7.92	8.28	8.24	7.89	7.82
Turbidity	0.1	0.1	2.04	2.7	0.58	3.34	0.93	1.18	12.5	12.6	0.26	0.18	11.3	12	1.21	1.15
DOC															6.06	6.48
Major Anions																
Alkalinity-Total	51.1	52	66.2	65.4	313	312	105	107	133	137	63.6	64.4	217	220	47	44.3
Acidity-Total	0.62	0.53	2.08	2.25	0.5	0.50	0.5	0.50	0.5	0.5	0.5	0.67	0.5	0.5	0.5	0.50
Bromide	0.01	0.01	0.01	0.01	0.1	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.1	0.1	0.01	0.01
Chloride	0.5	0.5	0.71	0.53	0.63	0.68	0.5	0.58	0.64	0.56	0.5	0.5	0.5	0.5	0.95	0.91
Fluoride	0.027	0.032	0.14	0.14	0.69	0.69	0.14	0.13	0.86	0.87	0.03	0.029	0.87	0.87	0.17	0.17
Sulphate	11.5	11.5	21.4	21.5	154	145	25.5	25.7	287	280	14.7	13.7	26.7	27.4	25.7	25.3
Nutrient Parameters																
Ammonial Nitrogen	0.007	0.005	0.0138	0.0163	0.034	0.015	0.031	0.033	0.101	0.0834	0.011	0.0095	0.0839	0.0816	0.013	0.013
Nitrate Nitrogen	0.2	0.2	0.2	0.2	0.2	0.22	0.2	0.2	0.2	0.2	0.15	0.151	0.002	0.002	0.2	0.2
Nitrite Nitrogen	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.002	0.002	0.002	0.003	0.2	0.2
Total Phosphate	0.005	0.005			0.013	0.015	0.0174	0.017			0.0056	0.005			0.0338	0.0343
Dissolved Ortho-Phosphate	0.0018	0.0024	0.94	0.93	0.011	0.014	0.0079	0.0082	0.0047	0.0043	0.002	0.0032	0.0025	0.0045	0.015	0.016
Total Metals																
Aluminum (Al)	0.0126	0.013			0.00674	0.00659	0.00981	0.00971			0.00272	0.00307			0.0611	0.0432
Antimony (Sb)	0.00002	0.00002			0.000536	0.000543	0.000095	0.000101			0.000037	0.000038			0.000435	0.000417
Arsenic (As)	0.000092	0.000096			0.000293	0.000286	0.0013	0.00133			0.000117	0.000118			0.000611	0.000385
Cadmium (Cd)	0.000005	0.000005			0.00288	0.002880	0.000031	0.000033			0.00003	0.000029			0.00189	0.001630
Calcium (Ca)	22.1	22.3			128	127	32.2	31.6			26.3	25.4			23	22.3
Chromium (Cr)	0.00012	0.00013			0.0001	0.0001	0.00098	0.00094			0.0001	0.0001			0.00011	0.0001
Cobalt (Co)	0.000011	0.000012			0.000031	0.000035	0.000028	0.000027			0.000029	0.000026			0.000506	0.000289
Copper (Cu)	0.000292	0.000301			0.000436	0.000458	0.00103	0.000955			0.000313	0.000364			0.00431	0.00375
Iron (Fe)	0.0036	0.0027			0.0206	0.0218	0.124	0.117			0.0209	0.0205			0.472	0.368
Lead (Pb)	0.000037	0.00003			0.000042	0.00004	0.00255	0.00153			0.000016	0.00005			0.0016	0.00111
Magnesium (Mg)	1.63	1.68			33.6	34	11.7	11.5			2.29	2.35			3.71	3.85
Manganese (Mn)	0.00012	0.0001			0.0083	0.0086	0.00718	0.0073			0.022	0.0215			0.12	0.0789
Mercury (Hg)	0.00001	0.00001			0.00001	0.00001	0.00001	0.00001			0.00001	0.00001			0.00001	0.00001
Molybdenum (Mo)	0.000289	0.000291			0.00485	0.00491	0.00146	0.00142			0.000357	0.000351			0.000466	0.00046
Nickel (Ni)	0.000085	0.000097			0.0334	0.0347	0.00171	0.00171			0.000211	0.000128			0.0131	0.0125
Phosphorus (P)	0.002	0.002			0.0156	0.0162	0.014	0.0136			0.0038	0.0032			0.0395	0.035
Potassium (K)	0.449	0.452			0.875	0.893	1.21	1.19			0.524	0.521			0.584	0.608
Selenium (Se)	0.000354	0.000406			0.00507	0.00518	0.000581	0.0006			0.00119	0.00119			0.00267	0.00279
Silicon (Si)	3.13	3.22			4.78	4.86	3.51	3.48			3.46	3.37			3.15	3.22
Silver (Ag)	0.000005	0.0000050			0.000005	0.0000050	0.000005	0.0000050			0.000005	0.0000050			0.000017	0.0000130
Sodium (Na)	1.12	1.1			0.887	1	1.92	1.89			1.39	1.38			0.949	1.01
Strontium (Sr)	0.0364	0.0367			0.336	0.331	0.124	0.127			0.0414	0.0406			0.0642	0.0635
Thallium (Tl)	0.000002	0.0000020			0.000002	0.0000020	0.000004	0.0000020			0.000002	0.0000020			0.000007	0.0000060
Vanadium (V)	0.00021	0.0002			0.00021	0.00026	0.0002	0.0002			0.0002	0.0002			0.0002	0.0002
Zinc (Zn)	0.00117	0.00112			0.797	0.806	0.00429	0.00481			0.00156	0.00145			0.187	0.179
Dissolved Metals																
Aluminum (Al)	0.0124	0.0129	0.00325	0.00066	0.00102	0.0108	0.00311	0.00296	0.00082	0.00131	0.00813	0.0189	0.534	0.684	0.0355	0.0313
Antimony (Sb)	0.00002	0.00002	0.00144	0.00147	0.000522	0.000531	0.000083	0.000088	0.000237	0.000267	0.000034	0.000038	0.000671	0.000668	0.000384	0.000391
Arsenic (As)	0.000078	0.000082	0.00609	0.00604	0.000301	0.000296	0.00116	0.00115	0.000468	0.000501	0.000136	0.000131	0.00511	0.0053	0.000339	0.000343

Sample Location	W15	W15-98	MW05-6A	MW05-6A-96	W71	W71-98	W21	W21-98	MW06-12S	MW06-12S-96	W81	W81-96	MW06-8D	MW06-8D-98	W82	W82-98
Sampling Date	**15/01/2014**	**15/01/2014**	**22/01/2014**	**22/01/2014**	**05/02/2014**	**05/02/2014**	**07/03/2014**	**07/03/2014**	**19/03/2014**	**19/03/2014**	**09/04/2014**	**09/04/2014**	**27/04/2014**	**27/04/2014**	**20/05/2014**	**20/05/2014**
Lab Report ID	**B403951V1**	**B403951V1**	**B405892V1**	**B405892V1**	**B410106**	**B410106**	**B420331**	**B418125**	**B422558**	**B422558**	**B428622**	**B428622**	**B434886**	**B434886**	**B441335V1**	**B441335V1**
Cadmium (Cd)	0.000005	0.000005	0.00004	0.000042	0.00284	0.002840	0.000014	0.000017	0.00001	0.00001	0.000022	0.000022	0.00008	0.00008	0.00139	0.001420
Calcium (Ca)	22	21.9	26.7	26.7	117	117	32.8	33	121	122	25.9	25.2	56.6	60.1	21.5	22.1
Chromium (Cr)	0.00015	0.00014	0.0001	0.0001	0.0001	0.0001	0.00078	0.00077	0.0001	0.0001	0.00011	0.0001	0.00027	0.00032	0.0001	0.0001
Cobalt (Co)	0.000011	0.000012	0.000336	0.000335	0.000023	0.000025	0.000016	0.000019	0.00034	0.000352	0.000024	0.000022	0.000188	0.000199	0.000232	0.000240
Copper (Cu)	0.000305	0.000384	0.000127	0.000106	0.000391	0.000458	0.000873	0.000908	0.000109	0.000158	0.00032	0.000412	0.00122	0.00126	0.0034	0.00322
Iron (Fe)	0.0022	0.0022	1.32	1.32	0.0081	0.0091	0.0539	0.0545	0.968	0.954	0.0089	0.0092	0.797	0.867	0.222	0.2220
Lead (Pb)	0.00002	0.0000	0.00001	0.000006	0.000006	0.0000	0.000218	0.0002	0.0000	0.0000	0.000014	0.0000	0.00412	0.0044	0.000331	0.0003
Magnesium (Mg)	1.74	1.61	3.3	3.26	31.9	33.7	11.8	12.1	20.9	21.7	2.27	2.21	27.8	27.1	4.06	4.02
Manganese (Mn)	0.000059	0.000054	0.128	0.127	0.00762	0.00781	0.00394	0.00404	0.122	0.125	0.0194	0.0199	0.0146	0.0156	0.0684	0.0687
Mercury (Hg)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Molybdenum (Mo)	0.000291	0.000275	0.00149	0.0015	0.0047	0.00486	0.00148	0.0015	0.0005	0.000541	0.000396	0.00037	0.00145	0.00142	0.000463	0.00047
Nickel (Ni)	0.000174	0.000121	0.00134	0.00134	0.0327	0.0333	0.00164	0.00171	0.000881	0.000956	0.000136	0.000156	0.00104	0.00109	0.0141	0.0126
Phosphorus (P)	0.002	0.002	1.01	0.997	0.0139	0.0143	0.0118	0.0116	0.0056	0.0064	0.0044	0.0058	0.0131	0.0132	0.0261	0.0244
Potassium (K)	0.468	0.459	1.14	1.14	0.877	0.848	1.26	1.250	3.5	3.49	0.541	0.559	1.75	1.81	0.616	0.637
Selenium (Se)	0.000426	0.000401	0.00004	0.00004	0.00508	0.00492	0.000499	0.000527	0.000075	0.000065	0.00118	0.00121	0.00004	0.00004	0.00263	0.00263
Silicon (Si)	3.13	3.15	7.2	7.29	4.49	4.39	3.71	3.82	3.56	3.61	3.37	3.28	5.34	6.12	3.04	2.99
Silver (Ag)	0.000005	0.000005	0.000005	0.0000	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Sodium (Na)	1.11	1.12	1.89	1.85	0.93	0.887	1.93	1.96	4.66	4.72	1.37	1.37	0.464	0.5	1.05	1.03
Strontium (Sr)	0.0372	0.037	0.0269	0.0289	0.329	0.334	0.119	0.122	0.477	0.491	0.0414	0.042	0.177	0.179	0.0631	0.064
Thallium (Tl)	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000003	0.000003	0.000002	0.000002	0.000009	0.000009	0.000004	0.000005
Vanadium (V)	0.0002	0.0002	0.0002	0.0002	0.0003	0.00027	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.00085	0.00087	0.0002	0.0002
Zinc (Zn)	0.00125	0.00149	0.00311	0.00322	0.776	0.795	0.00187	0.00234	0.00218	0.00233	0.00531	0.00476	0.0193	0.0209	0.177	0.174
Total and WAD Cyanide																
Cyanide + Thiocyanate																
Weak Acid Dissoc. Cyanide (CN)																

Sample Location	W21	W21-98	W40	W40-96	MW05-7B	MW05-7B-96	MW06-8D	MW06-8D-98	W72	W72-98	W16	W16-96	MW06-10S	MW06-10S-98	MW05-4A	MW05-4A-96
Sampling Date	28/06/2014	28/06/2014	28/06/2014	28/06/2014	07/06/2014	07/06/2014	25/06/2014	25/06/2014	02/07/2014	02/07/2014	16/07/2014	16/07/2014	08/07/2014	08/07/2014	30/07/2014	30/07/2014
Lab Report ID	B456550	B456550	B456550	B456550	B4492061	B4492061	B4543691	B4543691	B456550	B456550	B461068	B461068	B458721	B458721	B466056	B466056
Physical Parameters																
Temperature	6	6	6	6	2.7	2.7	2.5	2.5	6	6	8	8	5.3	5.3	6.7	6.7
Conductivity	163	163	159	159	244	245	458	458	288	291	161	161	280	280	331	337
Hardness	82.3	80.3	76.4	75.6	109	122	242	247	158	156	79.7	82.1	135	133	158	161
Total Suspended Solids	22.3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total Dissolved Solids	84	90	100	92	148	148	254	260	162	167	100	102	146	158	196	200
pH	7.95	7.99	7.91	7.92	8.03	8.06	8.37	8.38	8.06	8.09	8	8.07	8.13	8.05	8.26	8.21
Turbidity	0.48	0.62	0.27	0.26	0.39	0.4	5.19	5.37	0.48	0.44	0.15	0.19	0.91	0.98	14.1	13.9
DOC											1.31	1.45				
Major Anions																
Alkalinity-Total	69.1	70.3	62	61.5	82	81.6	218	220	111	109	70.9	70.9	117	114	114	114
Acidity-Total	0.5	0.50	0.5	0.50	0.5	0.5	0.5	0.5	0.5	0.50	0.5	0.50	1.1	1.25	0.5	0.5
Bromide	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.01	0.1	0.01	0.01	0.01	0.01	0.01
Chloride	0.6	0.5	0.5	0.5	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Fluoride	0.096	0.095	0.062	0.061	0.079	0.078	0.93	0.92	0.14	0.14	0.035	0.031	0.23	0.22	1.1	1.1
Sulphate	14.7	14.8	18.8	18.7	35.2	35.7	26.5	26.7	41.2	40.6	10.9	11.3	28.8	28.4	49.6	47.1
Nutrient Parameters																
Ammonial Nitrogen	0.46	0.019	0.023	0.024	0.036	0.029	0.0823	0.0878	0.023	0.02	0.012	0.011	0.0296	0.0265	0.0815	0.0846
Nitrate Nitrogen	0.2	0.2	0.2	0.2	0.0092	0.0068	0.52	0.2	0.2	0.22	0.0823	0.0826	0.2	0.2	0.2	0.23
Nitrite Nitrogen	0.2	0.2	0.2	0.2	0.002	0.002	0.2	0.32	0.2	0.2	0.002	0.002	0.2	0.2	0.2	0.2
Total Phosphate	0.0169	0.0165	0.005	0.005					0.0186	0.0194	0.0069	0.0183				
Dissolved Ortho-Phosphate	0.0048	0.0042	0.0014	0.001	0.022	0.022	0.0014	0.001	0.0091	0.0093	0.0025	0.0019	0.0069	0.0076	0.0068	0.009
Total Metals																
Aluminum (Al)	0.0216	0.0232	0.00873	0.0161					0.0166	0.0199	0.00864	0.00794				
Antimony (Sb)	0.000054	0.000063	0.000048	0.000047					0.000205	0.00022	0.000059	0.000057				
Arsenic (As)	0.0013	0.00129	0.000177	0.000193					0.0013	0.00135	0.00013	0.000156				
Cadmium (Cd)	0.000016	0.000018	0.000011	0.000012					0.000296	0.000313	0.00009	0.000089				
Calcium (Ca)	21.3	21.2	20.8	20.2					41.3	39.9	26.3	27.2				
Chromium (Cr)	0.0002	0.00018	0.00017	0.00021					0.00011	0.00015	0.0001	0.00084				
Cobalt (Co)	0.000053	0.000048	0.000014	0.000035					0.000051	0.000058	0.000038	0.000036				
Copper (Cu)	0.00146	0.000851	0.000911	0.000791					0.00103	0.00105	0.000697	0.00248				
Iron (Fe)	0.0981	0.107	0.0186	0.0427					0.0935	0.102	0.0288	0.0467				
Lead (Pb)	0.000054	0.00005	0.000014	0.00002					0.000036	0.00005	0.000041	0.00005				
Magnesium (Mg)	7.08	6.63	5.96	6.1					13.4	13.6	3.38	3.44				
Manganese (Mn)	0.0145	0.0149	0.000999	0.0052					0.044	0.0521	0.0165	0.0164				
Mercury (Hg)	0.00001	0.00001	0.00001	0.00001					0.00001	0.00001	0.00001	0.00001				
Molybdenum (Mo)	0.00103	0.00103	0.000485	0.000462					0.00211	0.00225	0.000449	0.000578				
Nickel (Ni)	0.00163	0.00168	0.000775	0.000834					0.00402	0.00415	0.000276	0.000389				
Phosphorus (P)	0.0154	0.0144	0.0021	0.0041					0.0182	0.02	0.0056	0.0043				
Potassium (K)	1.16	1.1	0.725	0.743					0.569	0.583	0.481	0.483				
Selenium (Se)	0.000335	0.000339	0.000402	0.000401					0.00162	0.00154	0.00114	0.00108				
Silicon (Si)	2.76	2.75	3.43	3.32					3.01	2.97	3.26	3.39				
Silver (Ag)	0.000005	0.0000050	0.000005	0.0000050					0.000005	0.0000050	0.000005	0.0000050				
Sodium (Na)	1.3	1.25	1.19	1.2					1.21	1.31	1.29	1.33				
Strontium (Sr)	0.0762	0.0743	0.0817	0.0818					0.181	0.18	0.0526	0.0524				
Thallium (Tl)	0.000002	0.0000020	0.000002	0.0000020					0.000002	0.0000020	0.000002	0.0000020				
Vanadium (V)	0.00022	0.00021	0.0002	0.0002					0.00024	0.00028	0.0002	0.0002				
Zinc (Zn)	0.00166	0.00145	0.00073	0.00087					0.0372	0.0382	0.00464	0.00523				
Dissolved Metals																
Aluminum (Al)	0.0212	0.00797	0.00885	0.00882	0.00239	0.0108	0.00388	0.007	0.0507	0.0273	0.00487	0.0058	0.00235	0.0274	0.00169	0.00184
Antimony (Sb)	0.00006	0.000063	0.000052	0.00004	0.000024	0.000026	0.000193	0.000183	0.00022	0.000199	0.000055	0.000057	0.00045	0.00046	0.000037	0.000039
Arsenic (As)	0.00129	0.00118	0.000178	0.000192	0.000239	0.000273	0.00442	0.0044	0.00119	0.00123	0.000156	0.000141	0.00393	0.00388	0.00426	0.00426
Cadmium (Cd)	0.000022	0.000010	0.000008	0.000009	0.00001	0.00001	0.00001	0.00003	0.000252	0.000252	0.000082	0.000087	0.00001	0.00001	0.000005	0.00001
Calcium (Ca)	21.7	21.7	21.4	20.9	37.4	42.9	56.1	58.1	39.3	37.9	27.4	26	46.8	45.6	56.6	57.4

Sample Location	W21	W21-98	W40	W40-96	MW05-7B	MW05-7B-96	MW06-8D	MW06-8D-98	W72	W72-98	W16	W16-96	MW06-10S	MW06-10S-98	MW05-4A	MW05-4A-96
Sampling Date	28/06/2014	28/06/2014	28/06/2014	28/06/2014	07/06/2014	07/06/2014	25/06/2014	25/06/2014	02/07/2014	02/07/2014	16/07/2014	16/07/2014	08/07/2014	08/07/2014	30/07/2014	30/07/2014
Lab Report ID	B456550	B456550	B456550	B456550	B4492061	B4492061	B4543691	B4543691	B456550	B456550	B461068	B461068	B458721	B458721	B466056	B466056
Chromium (Cr)	0.00019	0.00016	0.00019	0.0002	0.0001	0.0001	0.0001	0.0001	0.00015	0.00014	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Cobalt (Co)	0.000044	0.000020	0.000015	0.000014	0.000076	0.00009	0.000074	0.000081	0.000032	0.000038	0.000032	0.000034	0.00012	0.000114	0.000014	0.000014
Copper (Cu)	0.000963	0.000871	0.000704	0.000702	0.000057	0.000146	0.000094	0.000081	0.00114	0.00105	0.00119	0.000687	0.00005	0.00005	0.000127	0.000224
Iron (Fe)	0.081	0.0498	0.0184	0.0183	0.157	0.165	0.577	0.596	0.0474	0.0578	0.0218	0.0203	0.196	0.192	2.06	2.08
Lead (Pb)	0.000072	0.0000	0.000011	0.0000	0.00001	0.00002	0.0000	0.0002	0.000106	0.0000	0.000016	0.0000	0.00002	0.00008	0.000043	0.00011
Magnesium (Mg)	6.82	7.07	6.27	6.26	3.74	3.69	24.8	24.7	13.2	13.2	3.3	3.35	4.46	4.56	4.01	4.15
Manganese (Mn)	0.011	0.00474	0.00101	0.00104	0.0914	0.0915	0.0122	0.0121	0.0277	0.0305	0.015	0.0152	0.115	0.115	0.317	0.3
Mercury (Hg)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Molybdenum (Mo)	0.00112	0.00106	0.000497	0.000505	0.00363	0.00361	0.00139	0.00133	0.0022	0.00225	0.000449	0.00043	0.00103	0.00104	0.0042	0.0044
Nickel (Ni)	0.00171	0.00153	0.000835	0.000782	0.000147	0.000203	0.000497	0.000514	0.00405	0.00395	0.000272	0.000331	0.000514	0.000633	0.000109	0.000212
Phosphorus (P)	0.0143	0.0085	0.0024	0.002	0.0262	0.0267	0.0043	0.0057	0.0211	0.0183	0.0033	0.0035	0.0112	0.012	0.0188	0.0212
Potassium (K)	1.14	1.120	0.749	0.743	0.93	0.933	1.78	1.87	0.578	0.569	0.462	0.475	1.25	1.25	2	2.01
Selenium (Se)	0.000359	0.00034	0.000384	0.00038	0.000688	0.000749	0.00004	0.00004	0.00163	0.00162	0.00114	0.00119	0.000066	0.000089	0.00004	0.00004
Silicon (Si)	2.75	2.76	3.59	3.43	3.63	4.11	4.74	5.04	2.83	2.75	3.42	3.14	3.4	3.38	3.56	3.6
Silver (Ag)	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000	0.0000	0.0000	0.0000
Sodium (Na)	1.31	1.26	1.23	1.24	1.9	1.84	0.485	0.513	1.39	1.31	1.24	1.31	1.55	1.52	1.15	1.2
Strontium (Sr)	0.0752	0.077	0.0782	0.081	0.0838	0.0849	0.165	0.165	0.176	0.175	0.0516	0.054	0.188	0.19	0.185	0.187
Thallium (Tl)	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000004	0.000003	0.000008	0.00001
Vanadium (V)	0.00024	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.00021	0.00026	0.00024	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Zinc (Zn)	0.00118	0.0017	0.00074	0.00059	0.00016	0.00155	0.00033	0.00147	0.0372	0.0345	0.0039	0.00377	0.0013	0.00272	0.00167	0.00242
Total and WAD Cyanide																
Cyanide + Thiocyanate																
Weak Acid Dissoc. Cyanide (CN)																

Sample Location	W22	W22-98	MW05-4B	MW05-4B-98	W85-98	W85	W81-96	W81	MW05-3A-96	MW05-3A	MW08-13-98	MW08-13	W31	W31-98	MW06-11S	MW06-11S-96
Sampling Date	**20/08/2014**	**20/08/2014**	**19/08/2014**	**19/08/2014**	**25/09/2014**	**25/09/2014**	**22/09/2014**	**22/09/2014**	**28/09/2014**	**28/09/2014**	**19/09/2014**	**19/09/2014**	**22/10/2014**	**22/10/2014**	**24/10/2014**	**24/10/2014**
Lab Report ID	**B473730**	**B473730**	**B473725**	**B473725**	**B486588**	**B486588**	**B486436**	**B486436**	**B488964**	**B488964**	**B486427**	**B486427**	**B496571**	**B496571**	**B498423**	**B498423**
Physical Parameters																
Temperature	3	3	2.7	2.7	2.2	2.2	3.7	3.7	3	3	3.7	3.7	1.5	1.5	2.2	2.2
Conductivity	218	240	235	237	150	150	146	144	426	426	384	387	148	149	444	434
Hardness	113	121	108	107	85.6	87.5	77.5	80.3	248	236	198	194	80.7	79.3	247	241
Total Suspended Solids	4	8	8	4	8	8	4	4	8.5	5.3	4	4	4	4	4	4
Total Dissolved Solids	106	130	132	152	92	84	104	100	250	248	252	264	74	74	258	266
pH	7.92	8.07	7.93	7.75	7.82	7.83	7.95	7.91	8.04	8.08	7.12	7.57	8.01	8.03	7.93	8.01
Turbidity	0.5	0.1	6.51	5.46	0.17	0.12	0.26	0.22	61.6	60.6	0.24	0.37	0.1	0.12	4.81	5.12
DOC					1.2	1.9							1.39	1.53		
Major Anions																
Alkalinity-Total	91	102	75.9	76.6	65.5	67.2	61.6	62	180	184	120	121	67.6	68.3	197	215
Acidity-Total	0.5	0.50	1.22	1.49	3.96	1.36	0.93	0.5	3.43	2.57	3.61	23	0.5	0.50	1.83	1.42
Bromide	0.01	0.01	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.033	0.029	0.01	0.01	0.05	0.05
Chloride	0.5	0.62	0.77	0.71	0.5	0.95	0.5	0.63	0.6	0.62	2	1.8	0.5	0.5	0.5	0.5
Fluoride	0.11	0.077	0.36	0.37	0.027	0.031	0.029	0.031	0.89	0.93	0.024	0.021	0.022	0.02	2.6	2.6
Sulphate	17.3	25.4	33.7	34.3	9.95	9.59	13.1	12.9	39.9	39.4	85.2	77.8	9.85	9.53	32.3	32.8
Nutrient Parameters																
Ammonial Nitrogen	0.039	0.016	0.0377	0.0352	0.018	0.014	0.0145	0.0095	0.077	0.11	0.173	0.183	0.016	0.017	0.213	0.167
Nitrate Nitrogen	0.2	0.2	0.2	0.2	0.25	0.2	0.2	0.2	0.004	0.0035	0.2	0.2	0.2	0.21	0.0022	0.0229
Nitrite Nitrogen	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.002	0.002	0.24	0.2	0.2	0.2	0.002	0.0054
Total Phosphate	0.0213	0.005			0.005	0.0052	0.005	0.005					0.005	0.005		
Dissolved Ortho-Phosphate	0.0044	0.001	0.0012	0.0021	0.0039	0.0032	0.0012	0.0012	0.0012	0.001	0.0017	0.0021	0.0048	0.001	0.0045	0.0082
Total Metals																
Aluminum (Al)	0.0179	0.0171			0.008	0.0447	0.00956	0.00749					0.0073	0.00615		
Antimony (Sb)	0.000069	0.000058			0.000047	0.000047	0.000033	0.000036					0.000025	0.00002		
Arsenic (As)	0.00186	0.00026			0.000127	0.000137	0.000107	0.000107					0.000149	0.000143		
Cadmium (Cd)	0.000013	0.000011			0.000052	0.000062	0.000042	0.000042					0.000005	0.000005		
Calcium (Ca)	28.8	31.5			28.8	29.7	26.7	27.7					29.8	29.3		
Chromium (Cr)	0.00018	0.00021			0.00012	0.00017	0.00012	0.00014					0.0001	0.0001		
Cobalt (Co)	0.000032	0.00002			0.000039	0.000044	0.000032	0.000029					0.00002	0.000019		
Copper (Cu)	0.000847	0.000435			0.0007	0.000724	0.000494	0.000577					0.000827	0.000708		
Iron (Fe)	0.0789	0.0187			0.0474	0.069	0.0294	0.0269					0.0043	0.0021		
Lead (Pb)	0.000033	0.00002			0.000021	0.000083	0.00004	0.000037					0.000062	0.00001		
Magnesium (Mg)	9.89	10.2			3.33	3.25	2.62	2.73					1.54	1.5		
Manganese (Mn)	0.0123	0.0027			0.00724	0.00771	0.0201	0.0215					0.000192	0.0001		
Mercury (Hg)	0.00001	0.00001			0.00001	0.00001	0.00001	0.00001					0.00001	0.00001		
Molybdenum (Mo)	0.00121	0.00078			0.000406	0.000366	0.000332	0.000347					0.000422	0.00041		
Nickel (Ni)	0.00156	0.000653			0.000236	0.000327	0.000257	0.000284					0.000127	0.000096		
Phosphorus (P)	0.0147	0.0038			0.0074	0.0075	0.0064	0.007					0.008	0.0038		
Potassium (K)	1.05	0.906			0.597	0.623	0.565	0.608					0.39	0.393		
Selenium (Se)	0.000393	0.000521			0.000574	0.000617	0.00085	0.000799					0.000232	0.000263		
Silicon (Si)	2.25	4.22			3.44	3.63	3.25	3.35					3.29	3.2		
Silver (Ag)	0.000005	0.0000050			0.000005	0.000005	0.0000050	0.000005					0.000005	0.0000050		
Sodium (Na)	1.41	1.8			1.22	1.16	1.26	1.38					1.27	1.17		
Strontium (Sr)	0.11	0.148			0.0474	0.0484	0.0445	0.0439					0.0171	0.0166		
Thallium (Tl)	0.000002	0.0000020			0.000002	0.000002	0.0000020	0.000002					0.000002	0.0000020		
Vanadium (V)	0.0002	0.0002			0.0002	0.0002	0.0002	0.0002					0.00049	0.00054		
Zinc (Zn)	0.00143	0.00123			0.00174	0.00364	0.00208	0.00256					0.00055	0.00012		
Dissolved Metals																
Aluminum (Al)	0.0139	0.0129	0.00315	0.00379	0.00351	0.00403	0.0114	0.00366	0.0256	0.00236	0.0232	0.0144	0.00625	0.00556	0.00291	0.00223
Antimony (Sb)	0.000076	0.000067	0.000102	0.000105	0.000042	0.00005	0.000038	0.000032	0.000152	0.000161	0.000054	0.00004	0.00002	0.00002	0.000124	0.000121
Arsenic (As)	0.00169	0.00023	0.00857	0.00844	0.000125	0.000123	0.000134	0.000106	0.00135	0.00132	0.000198	0.000213	0.000137	0.000124	0.00206	0.00205
Cadmium (Cd)	0.000009	0.000008	0.00385	0.00390	0.000049	0.000051	0.000067	0.000037	0.00016	0.000171	0.00027	0.00017	0.000005	0.000005	0.00001	0.00001
Calcium (Ca)	28.6	32	38.2	37.4	27	27.2	27.3	28.1	83.3	79	65.7	64.4	25.5	26.2	67.1	65

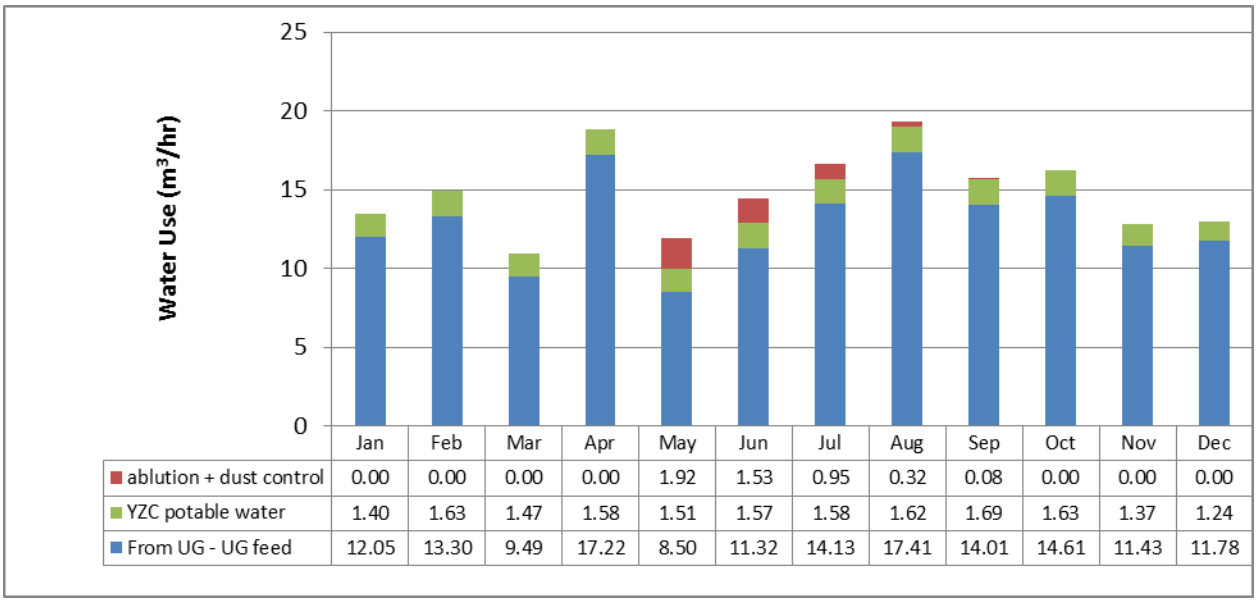
Sample Location	W22	W22-98	MW05-4B	MW05-4B-98	W85-98	W85	W81-96	W81	MW05-3A-96	MW05-3A	MW08-13-98	MW08-13	W31	W31-98	MW06-11S	MW06-11S-96
Sampling Date	20/08/2014	20/08/2014	19/08/2014	19/08/2014	25/09/2014	25/09/2014	22/09/2014	22/09/2014	28/09/2014	28/09/2014	19/09/2014	19/09/2014	22/10/2014	22/10/2014	24/10/2014	24/10/2014
Lab Report ID	B473730	B473730	B473725	B473725	B486588	B486588	B486436	B486436	B488964	B488964	B486427	B486427	B496571	B496571	B498423	B498423
Chromium (Cr)	0.00015	0.00018	0.0001	0.0001	0.00012	0.00012	0.00012	0.00013	0.0001	0.0001	0.00023	0.00012	0.0001	0.0001	0.0001	0.0001
Cobalt (Co)	0.000015	0.000011	0.00452	0.00451	0.000032	0.000031	0.000035	0.000024	0.000159	0.00017	0.000241	0.000242	0.000018	0.000015	0.000398	0.00039
Copper (Cu)	0.0009	0.000505	0.000436	0.000303	0.000544	0.00053	0.00065	0.000482	0.000176	0.00018	0.00175	0.00151	0.000731	0.000707	0.000122	0.000079
Iron (Fe)	0.0456	0.0082	2.52	2.44	0.025	0.0239	0.0206	0.0168	4.82	4.67	0.0514	0.068	0.002	0.0011	0.574	0.565
Lead (Pb)	0.000089	0.0000	0.000075	0.00005	0.000073	0.000032	0.0001	0.000028	0.00012	0.000115	0.00018	0.00004	0.000023	0.0000	0.00004	0.00001
Magnesium (Mg)	10.1	10	2.99	3.21	3.33	3.1	2.58	2.71	9.65	9.42	8.22	8.08	1.59	1.55	19.4	19.1
Manganese (Mn)	0.00357	0.000882	2.74	2.71	0.00685	0.00675	0.0182	0.0185	0.269	0.275	0.926	0.874	0.000051	0.00005	0.101	0.102
Mercury (Hg)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Molybdenum (Mo)	0.00128	0.000747	0.001	0.000929	0.000389	0.000392	0.000419	0.000302	0.00277	0.00295	0.000601	0.000191	0.000406	0.000347	0.0149	0.0149
Nickel (Ni)	0.00148	0.000614	0.0062	0.00639	0.000297	0.00109	0.00021	0.000181	0.00177	0.00166	0.00368	0.00349	0.000153	0.000074	0.00111	0.000904
Phosphorus (P)	0.0114	0.0031	0.0079	0.0074	0.0062	0.0055	0.0146	0.0033	0.0181	0.0198	0.032	0.0125	0.0036	0.0027	0.0168	0.0147
Potassium (K)	1.07	0.906	1.85	1.89	0.586	0.588	0.620	0.59	1.61	1.58	1.79	1.83	0.436	0.426	1.68	1.71
Selenium (Se)	0.00028	0.000578	0.00004	0.00004	0.000566	0.000573	0.000766	0.00075	0.00004	0.00004	0.000651	0.0006	0.000236	0.000258	0.00004	0.00004
Silicon (Si)	2.11	4.09	7.53	7.45	3.24	3.22	3.38	3.42	4.2	3.92	5.12	4.86	2.81	2.88	5.51	5.43
Silver (Ag)	0.000005	0.000005	0.0000	0.0000	0.000005	0.000005	0.000005	0.000005	0.0000	0.0000	0.0000	0.0000	0.000005	0.000005	0.0000	0.0000
Sodium (Na)	1.57	1.8	1.11	1.08	1.14	1.14	1.4	1.26	1.99	1.9	7.53	7.4	1.19	1.19	1.81	1.86
Strontium (Sr)	0.111	0.142	0.161	0.16	0.0446	0.043	0.042	0.043	0.2	0.201	0.154	0.148	0.0173	0.017	0.121	0.12
Thallium (Tl)	0.000002	0.000002	0.000066	0.000067	0.000002	0.000002	0.000002	0.000002	0.000005	0.000006	0.000017	0.000011	0.000002	0.000002	0.000002	0.000002
Vanadium (V)	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.00036	0.00038	0.0002	0.0002
Zinc (Zn)	0.00193	0.00113	0.24	0.243	0.00173	0.00166	0.00313	0.00226	0.183	0.182	0.00586	0.00397	0.00034	0.00022	0.00181	0.00176
Total and WAD Cyanide																
Cyanide + Thiocyanate													0.00062			
Weak Acid Dissoc. Cyanide (CN)					0.0005	0.0005							0.00051	0.0005		

Sample Location	MW06-12S	MW06-12S-98	W72	W72-98	MW05-6B	MW05-6B-98	W14	W14-98	MW08-13	MW08-13-96
Sampling Date	24/10/2014	24/10/2014	21/11/2014	21/11/2014	24/11/2014	24/11/2014	21/12/2014	21/12/2014	17/12/2014	17/12/2014
Lab Report ID	B498423	B498423	B4A8453	B4A8453	B4A8447	B4A8447	B4B6324	B4A8453	B4B6326	B4B6326
Physical Parameters										
Temperature	2.2	2.2	1.7	1.7	2.3	2.3	1	1	1	1
Conductivity	777	773	444	449	181	185	142	143	615	622
Hardness	403	437	230	232	86.6	87.4	70	70.2	310	305
Total Suspended Solids	4	4.3	4	4	1	1	4	4	4	4
Total Dissolved Solids	544	552	276	266	92	92	82	72	398	368
pH	7.72	7.75	8.21	8.24	7.97	8	7.75	7.78	7.45	7.32
Turbidity	20.7	20.5	0.34	1.07	0.1	0.1	0.16	0.2	0.16	0.17
DOC			*	*						
Major Anions										
Alkalinity-Total	133	133	184	186	86.9	87.2	53.9	52.5	148	149
Acidity-Total	4.77	4.33	0.88	0.50	2.37	2.2	0.57	0.5	4.84	4.69
Bromide	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.044	0.045
Chloride	0.5	2.8	0.56	0.51	0.5	0.5	0.5	0.5	3.6	3.8
Fluoride	0.93	0.92	0.17	0.17	0.032	0.029	0.067	0.06	0.038	0.028
Sulphate	243	245	59.7	59.5	8.33	8.15	16.3	17.6	173	177
Nutrient Parameters										
Ammonial Nitrogen	0.1	0.0983	0.034	0.047	0.005	0.0115	0.0057	0.005	0.94	0.83
Nitrate Nitrogen	0.0379	0.0459	0.0628	0.0614	0.245	0.244	0.29	0.27	0.2	0.3
Nitrite Nitrogen	0.0064	0.0072	0.002	0.002	0.002	0.002	0.2	0.2	0.2	0.2
Total Phosphate			0.0181	0.0192			0.005	0.005		
Dissolved Ortho-Phosphate	0.004	0.0022	0.0098	0.012	0.003	0.0035	0.0017	0.001	0.0027	0.0047
Total Metals										
Aluminum (Al)			0.0242	0.0178			0.00938	0.00735		
Antimony (Sb)			0.000194	0.000171			0.000046	0.000024		
Arsenic (As)			0.00172	0.00148			0.000156	0.000127		
Cadmium (Cd)			0.000818	0.000401			0.0000186	0.0000122		
Calcium (Ca)			56.1	56.7			19	19.3		
Chromium (Cr)			0.00019	0.0001			0.00021	0.00011		
Cobalt (Co)			0.000225	0.000109			0.0000222	0.0000173		
Copper (Cu)			0.000949	0.000569			0.000922	0.000328		
Iron (Fe)			0.255	0.173			0.0417	0.0377		
Lead (Pb)			0.000183	0.00012			0.000549	0.0000892		
Magnesium (Mg)			21.8	21.8			5.49	5.32		
Manganese (Mn)			0.395	0.1700			0.00811	0.00732		
Mercury (Hg)			0.00001	0.00001			0.0001	0.00001		
Molybdenum (Mo)			0.00284	0.00298			0.000382	0.000373		
Nickel (Ni)			0.00598	0.0045			0.000595	0.000494		
Phosphorus (P)			0.0397	0.0213			0.0164	0.0059		
Potassium (K)			0.841	0.767			0.983	0.905		
Selenium (Se)			0.002	0.00203			0.000355	0.000335		
Silicon (Si)			4.32	4.35			4.56	4.68		
Silver (Ag)			0.000005	0.0000050			0.000005	0.000005		
Sodium (Na)			2.31	2.13			1.81	1.59		
Strontium (Sr)			0.279	0.276			0.0571	0.0555		
Thallium (Tl)			0.000002	0.0000020			0.000002	0.000002		
Vanadium (V)			0.00025	0.0002			0.0002	0.0002		
Zinc (Zn)			0.0871	0.0527			0.00343	0.00213		
Dissolved Metals										
Aluminum (Al)	0.00127	0.00085	0.00227	0.0028	0.00092	0.00155	0.00409	0.00443	0.0117	0.0186
Antimony (Sb)	0.000161	0.000146	0.000166	0.000188	0.000022	0.000024	0.00002	0.000038	0.000032	0.000038
Arsenic (As)	0.000684	0.000689	0.00117	0.00115	0.000058	0.000063	0.000103	0.000142	0.000158	0.000145
Cadmium (Cd)	0.00001	0.00001	0.000241	0.000242	0.000005	0.00001	0.00001	0.00001	0.00034	0.00034
Calcium (Ca)	126	139	55.6	54.9	30.1	30.3	19.8	20.5	104	103

Sample Location	MW06-12S	MW06-12S-98	W72	W72-98	MW05-6B	MW05-6B-98	W14	W14-98	MW08-13	MW08-13-96
Sampling Date	24/10/2014	24/10/2014	21/11/2014	21/11/2014	24/11/2014	24/11/2014	21/12/2014	21/12/2014	17/12/2014	17/12/2014
Lab Report ID	B498423	B498423	B4A8453	B4A8453	B4A8447	B4A8447	B4B6324	B4A8453	B4B6326	B4B6326
Chromium (Cr)	0.0001	0.0001	0.0001	0.0001	0.0009	0.00094	0.0001	0.0001	0.00013	0.00013
Cobalt (Co)	0.000362	0.000345	0.000053	0.000056	0.000011	0.000009	0.0000116	0.0000119	0.000462	0.000445
Copper (Cu)	0.000113	0.000125	0.00044	0.000625	0.000436	0.000348	0.000244	0.000225	0.00155	0.00153
Iron (Fe)	1.53	1.68	0.0538	0.0604	0.0018	0.0025	0.0184	0.0207	0.0847	0.0828
Lead (Pb)	0.00001	0.00001	0.000031	0.0001	0.000009	0.00003	0.00001	0.00005	0.0000475	0.00004
Magnesium (Mg)	21.8	22.1	21.1	20.6	2.77	2.88	4.82	5.29	11.9	11.7
Manganese (Mn)	0.129	0.129	0.126	0.124	0.000089	0.00005	0.0055	0.0061	4.41	4.34
Mercury (Hg)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.000001	0.00001
Molybdenum (Mo)	0.000763	0.000702	0.00307	0.00303	0.00023	0.000232	0.000397	0.000387	0.000297	0.000294
Nickel (Ni)	0.000906	0.00107	0.00406	0.00404	0.000472	0.00033	0.000658	0.000485	0.00683	0.00669
Phosphorus (P)	0.0133	0.0115	0.0149	0.0129	0.0047	0.0069	0.0057	0.0046	0.0107	0.0117
Potassium (K)	3.89	3.77	0.721	0.715	0.714	0.702	0.933	1.01	1.95	1.97
Selenium (Se)	0.00004	0.00004	0.002	0.0019	0.000833	0.000724	0.000349	0.000361	0.00211	0.00208
Silicon (Si)	3.77	4.16	4.07	4.12	3.86	3.85	4.5	4.82	4.36	4.34
Silver (Ag)	0.0000	0.0000	0.000005	0.000005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sodium (Na)	5.06	5.31	2.08	2.06	1.3	1.29	1.43	1.58	8.67	8.46
Strontium (Sr)	0.488	0.493	0.276	0.272	0.0483	0.0483	0.0569	0.0616	0.25	0.243
Thallium (Tl)	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.0000116	0.0000137
Vanadium (V)	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Zinc (Zn)	0.00359	0.00327	0.0466	0.0458	0.00118	0.00052	0.00129	0.00079	0.00357	0.00355
Total and WAD Cyanide										
Cyanide + Thiocyanate										
Weak Acid Dissoc. Cyanide (CN)										

4 Water Use

The Licence permits the use of water from the Go Creek and Wolverine Creek watersheds, up to 7230 m^3/day. In 2014, the Wolverine Mine used water from the Wolverine Creek watershed in the form of groundwater discharge to the underground mine, water from the Go Creek watershed for dust control during the summer months. The total water use from both watersheds in 2014 was 133,204 m^3 or on average 365 m^3/day and the hourly average water uses are shown in Figure 4-1. Throughout 2014, the runoff from the industrial complex sourced from precipitation could not be accurately calculated, and therefore was included in the water consumption calculations. This explains why there was a marked increase in water consumption during April, since it was during this month when the majority of snow melted and was captured via the ditch system surrounding the industrial complex area.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ablution + dust control	0.00	0.00	0.00	0.00	1.92	1.53	0.95	0.32	0.08	0.00	0.00	0.00
YZC potable water	1.40	1.63	1.47	1.58	1.51	1.57	1.58	1.62	1.69	1.63	1.37	1.24
From UG - UG feed	12.05	13.30	9.49	17.22	8.50	11.32	14.13	17.41	14.01	14.61	11.43	11.78

Figure 4-1 2014 Hourly Water Consumption Values

All potentially contaminated water is collected from the underground, surface runoff, and sewage treatment plant, and is pumped to the tailings storage facility. The cumulative volumes discharged to the facility throughout 2014 are shown in Figure 4-2. The difference between the underground groundwater discharge and treated sewage effluent volumes and the cumulative volume is the mill tailings discharged to the facility (i.e., green bar in Figure 4-2). The volume of tailings discharged to the tailings facility was almost equal to that of the underground groundwater throughout the year.

Overall, underground groundwater effluent provided 112,773 m^3, treated sewage 7,806 m^3 and tailings 32,572 m^3, for a total storage volume at the end of 2014 of 963,151 m^3 (surveyed on January 1st, 2015). The total storage volume of the current tailings facility is approximately 1,513,900 m^3.

On August 1st, 2014 a bathymetry of the pond was conducted to get an accurate estimate of the tailings volume to water volume ratio. The bathymetry resulted in an estimated tailings volume of 489,600 m^3 (up from a total of 371,778 m^3 when measured on August 31st, 2013) translating to 407,300 m^3 (up from 339,262 m^3 when measured on August 31st, 2013) of water based on the total surveyed volume of 896,900 m^3 (up from 711,040 m^3 when measured on August 31st, 2013).

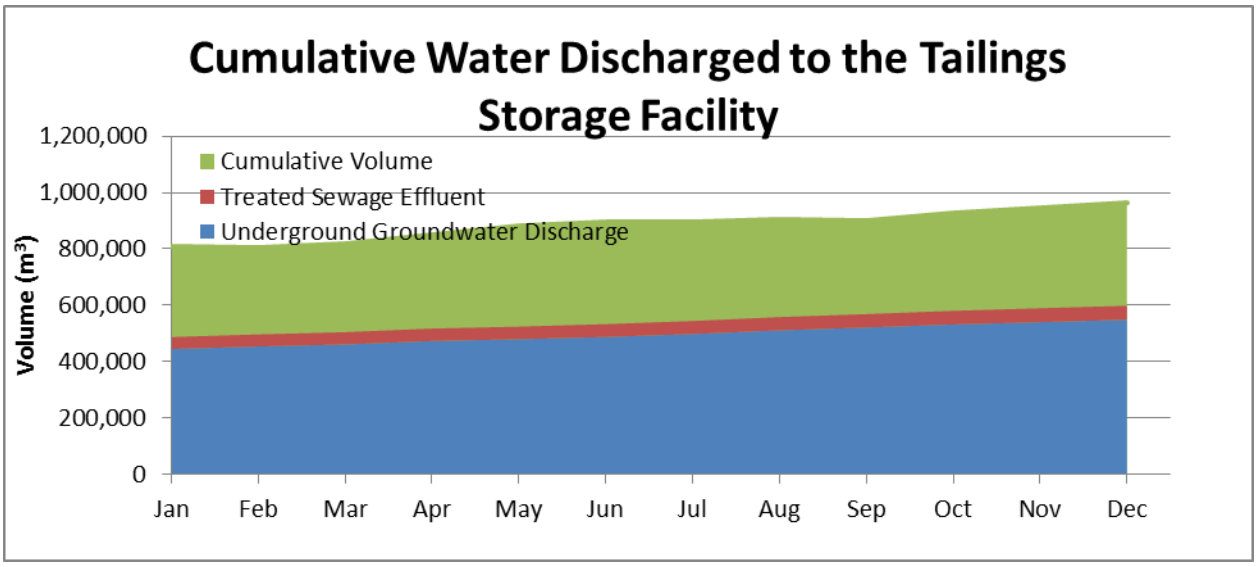


Figure 4-2 2014 Cumulative Water Storage in the Wolverine Tailings Storage Facility

5 Reclamation and Closure Plan Update

An update to the Reclamation and Closure Plan (Plan) was completed in 2013, and was submitted to the Yukon Government Department of Energy, Mines and Resources on July 17th, 2013. As per *QML-0006 Section 8.0*, the updated Plan addresses care and maintenance of the mine site during a temporary closure period, and decommissioning of operations and reclamation of the site at final closure. The Plan was developed to address two possible scenarios for permanent decommissioning:

1. The mine site in its current state (Existing Condition), or
2. The mine after ore reserves are exhausted (Life of Mine).

Changes to the following surface facilities and infrastructure for mine operations were described:

1. Site Access Road
2. Airstrip
3. Fuel storage pad
4. Power generation and distribution
5. Process buildings
6. Assay laboratory
7. Wet shotcrete plant
8. Waste rock storage pads
9. Tailings facility
10. Truck shop
11. Mining office complexes
12. Administration, first aid and mine rescue buildings, dry, and Camp

The results of reclamation and closure research programs, such as progress made on the Biopass Pilot Testing program, were detailed in the Plan, and recommendations for further testing were described. The extent to which disturbed areas (e.g., site Access Road, Ditches, Tailings facility, Industrial Complex) were progressively reclaimed through erosion mitigating techniques and seeding programs were also described, and illustrated using select photographs. The final security bond payment required to fully reclaim and close the mine for each of the three situations (i.e., Temporary Closure, Existing Condition closure, and Life of Mine closure) was estimated.

6 Inspection of Water Retaining Structures

The inspection of the water bearing structures at and around the industrial complex was conducted by EBA Engineering Consultants, and the inspection of the tailings storage facility was conducted by Klohn Crippen Berger design engineer. The results of these inspections are summarized below, as are the actions taken to date by YZC.

6.1 Industrial Complex Water Bearing Structures Inspection

An annual inspection of water retaining structures (excluding the tailings storage facility) was conducted on June 24th and 25th, 2014 by EBA Engineering Consultants, and included a visual inspection of the following structures:

1. Industrial Complex – cut and fill slopes.
2. Industrial Complex Surface and Underground Water Treatment Sumps (1, 2, and 5) - liners and slopes.
3. Industrial Complex Diversion Ditch 1 – cut and fill slopes.
4. Industrial Complex Collection Ditches (2, 3, 4 and 5) – liners, cut and fill slopes.
5. Mine Camp Pad Area including upper generator and water treatment pad, sewage treatment plant pad, and treated effluent pond – liner, cut and fill slopes.
6. Temporary Waste Rock and Ore Storage Facility including seepage collection sump and ore waste stockpiles contained within the facility – cut and fill slopes.
7. Land Treatment Facility (Hydrocarbon Contaminated Material) including runoff collection sump – liners and fill slopes.
8. Vent Raise and Propane Tank Pad – cut slopes.
9. Truck Shop Pad – cut and fill slopes.

The report contained the recommendations for water bearing structures, summarized in Table 6-1 with the corresponding actions taken by YZC in 2014. The full report from EBA is provided in Appendix C. EBA concluded that all of tension cracks, sloughing, erosion channels, and areas of settlement associated with the on-site earth structures pose no significant risk to the environment or human health and safety. However, these areas should be monitored and repaired as required.

Table 6-1 2014 Inspection Recommendations and Actions taken for Water Bearing Structures

Structure	Recommendation	Actions
Industrial Complex	Fill erosion channels with course grained material. Genset Pad: The main drainage channels splash trough has broken loose and should be repaired to reduce amount of additional extensive erosion.	Splash trough was repaired and erosion channels along the slope were filled in with coarse material to prevent further erosion.

Structure	Recommendation	Actions
Industrial complex surface and underground water treatment sumps (1, 2, and 5)	The MSE has small rocks working their way through the mesh that are considered falling hazards and should be monitored.	Loose rocks that could be safely accessed were removed.
	Sump 1: settlement in geomembrane anchor/key trench	Sump 1 was decommissioned in summer of 2014 (see full report in Appendix A)
Collection Ditches 1, 3, 4 & 5	Ditch 1: Fill tension cracks and areas of settlement along berm.	Monitored.
	Ditch 3: Minor tension cracks in new fill placement.	Monitored.
	Ditch 4: Repair liner, fill tension cracks, areas of settlement and erosion channels.	The section of liner that received significant damage was replaced by a 110 x 9 m length of new liner, lock-trenched in and fused to the existing liner (see full report in Appendix A)
	Ditch 5: Clean out discharge toward sump 2, and clean out debris from upper portion of ditch.	Completed.
Mine camp pad area including upper generator and water treatment pad, sewage treatment plant pad and treated effluent pond	Monitor tension cracks and erosion channels as necessary	Major southwestern channel has been filled in with rock.

6.2 Tailings Storage Facility Inspection

Weekly and monthly inspections of the tailings storage facility and associated infrastructure are conducted by site personnel. These inspections include routine inspections regarding the condition of the dam, liner, diversion ditches, seepage collection system and spillways and pipelines. Monthly monitoring of the dam conditions includes inflows, outflows and water level elevation. All 12 reports from January to December, 2014, are provided in Appendix A. Instrumentation (piezometers and inclinometers) is also downloaded monthly and the data reviewed for consistency.

The 2014 Annual Tailings Facility Physical Inspection was carried out by a design engineer with Klohn Crippen Berger from June 10th – 12th, and the full report was submitted to Energy, Mines and Resources on August 1st, 2014, entitled *Wolverine Mine 2014 Tailings Facility Physical Inspection*. The inspection report concluded that the tailings facility is performing as expected. No significant observations were made that would suggest any concerns with the stability of the facility or its ability to store tailings as per the design. The report contained recommendations for future monitoring and work on the facility, summarized in Table 6-2 with the corresponding actions taken by YZC in 2014.

Table 6-2 2014 Inspection Recommendations and Actions taken for Tailings Storage Facility

Recommendation	Actions
Continue to operate the facility as described in the Operation, Maintenance and Surveillance Manual V2010-01. Include regular monitoring of slumping and cracking at the north end as part of a regular surveillance of the facility.	Since the report was issued, YZC has continued to operate the facility as per the OM&S Manual and is monitoring the facility monthly. As recommended, the slumping and cracking at the north end of the facility was monitored weekly, and it was observed that the cracking got worse with time.
Conduct remedial works on Diversion Ditch A and on cracked and slumped area at north end of the impoundment.	As recommended, remedial works on Diversion Ditch A was completed – the ditch was extended upstream by ~50 m and completed lined to catch and divert surface and ground water away from the impoundment. The slumped area was left alone but did has not worsened since the repairs to Ditch A, and will be repaired in 2015.
Finalize design and construct water treatment plant	Further pilot treatment test work and a preliminary design of the water treatment plant was completed by Envirogen Technologies, in conjunction with Inotec, in 2014. A scope of work and schedule was also prepared by Envirogen in September of 2014. However, YZC did not commit to the work due to a possible temporary closure of the Mine, based on poor metal market values. If this occurs, a new water treatment and management plan will need to be developed.
Assess alternatives for relocating the reclaim barge and put a plan in place for this work.	The discharge spigot was moved closer to the dam and a plan was developed by YZC personnel to move the barge to the northeast side of the impoundment in 2015
Install survey pins and around dam crest and include in monthly monitoring	A total of 6 survey pins were installed around the dam crest in September, 2014, and were surveyed 3 times to get a baseline of data moving into 2015. No indication of the dam moving was observed from the measurements.

7 Summary

22 reports were submitted to the Yukon Water Board in 2014 to fulfill licence requirements under Sections 10, 14, 15, 16, 33, 41 and 42.

Surface water quality and flow monitoring, groundwater monitoring well water quality and level monitoring was conducted throughout 2014, as outlined in A-Licence QZ04-065 Schedule A.

A total of 194 samples were taken from surface water quality stations in 2014 on the road route, and throughout the Go Creek, Wolverine Creek and Money Creek watersheds, and from the tailings facility. 156 samples were taken from the nested groundwater wells within the Wolverine Creek watershed and Go Creek watershed. Surface and groundwater water quality will be compared to baseline water quality (i.e., pre-construction activities) in the annual report required by the Quartz Mining License QML-0006 Monitoring and Surveillance Plan.

Water was consumed from the Wolverine Creek watershed (as groundwater discharge to the underground mine) and the Go Creek watershed (for human use) in 2014 for a total consumption from both watersheds of approximately 133,204 m^3 or on average 365 m^3/day, well below the permitted maximum water use rate of 7230 m^3/day.

Sewage treatment plant effluent, underground groundwater discharge and mill tailings were pumped to the tailings storage facility throughout 2014, for a total stored volume (slurry and water) at the end of 2014 of 963,151 m^3.

An update to the Reclamation and Closure Plan was completed in July 2013, outlining the changes made since the last update in 2012, such as: infrastructure development, reclamation research project results, and progressive reclamation success.

An inspection of water bearing structures was conducted in July of the industrial complex (by EBA Engineering Consultants). An inspection of the Tailings Storage Facility and Waste Rock Pad was also completed in July 2014 by Klohn Crippen Berger. Activities recommended by the inspections were conducted to alleviate any areas of concern.

Monitoring under Type A Water Licence QZ04-065 will continue in 2015, as outlined in Schedule A of the licence. The monthly results will be presented in the *Monitoring and Surveillance Monthly Reports*, submitted 30 days following the end of the month. An annual summary of 2015 monitoring data will be compiled and submitted by February 28, 2016.

Appendix A Surface Water Quality Lab Reports

The following Lab Reports have been uploaded on the Water Line website:

B402057	B443871	B480018
B403951	B446782	B482546
B410106	B449219	B486436
B412072	B451800	B486588
B414013	B454396	B491947
B416144	B456550	B494116
B418125	B458712	B496571
B420331	B461068	B4A1983
B425804	B463547	B4A3962
B426604	B466101	B4A6190
B428622	B468484	B4A8453
B430993	B470976	B4B0584
B437231	B473730	B4B2815
B438624	B476271	B4B6324
B441355	B478365	

Appendix B Groundwater Monitoring Well Water Quality Lab Reports

The following lab reports have been uploaded onto the Waterline website:

B405892	B468486
B407970	B470934
B416143	B473725
B418132	B476288
B422558	B478381
B425795	B482542
B434886	B486427
B438627	B488964
B443860	B496585
B446791	B498423
B449206	B4A1989
B454369	B4A3952
B456543	B4A8447
B458721	B4B0572
B463551	B4B6326
B466056	B500338

Appendix C EBA Engineering Consultants Ltd. Annual Inspection Report – June 24-25th, 2014 and Monthly Tailings Reports

TETRA TECH EBA

July 16, 2014

ISSUED FOR USE
FILE: W14103418-01

Yukon Zinc Corporation
Suite 701, 475 Howe Street
Vancouver, British Columbia V6C 2B3

Confidential

Attention: Mr. Robin McCall, M.M.M., R.P.Bio.
Wolverine Mine – Environmental Superintendent

Subject: 2014 Annual Observations of the On-site Earth Structures
Wolverine Mine Site, Southeastern Yukon

1.0 INTRODUCTION

As requested by Yukon Zinc Corporation (YZC), Tetra Tech EBA Inc. (Tetra Tech EBA) has completed the 2014 annual observations of the earth structures located throughout the Wolverine Mine site (shown on Figure 1). YZC identified the following areas that required a stability review:

1. Industrial Complex – cut and fill slopes.
2. Industrial Complex Surface and Underground Water Treatment Sumps (1, 2 and 5) - liners and slopes.
3. Industrial Complex Diversion Ditch 1 – cut and fill slopes.
4. Industrial Complex Collection Ditches (2, 3, 4 and 5) – liners, cut and fill slopes.
5. Mine Camp Pad Area including upper generator and potable water treatment pad, sewage treatment plant pad and treated effluent pond – liner, cut and fill slopes.
6. Waste Rock and Ore Storage Facility including seepage collection sump and ore waste stockpile contained within the facility – liners, cut and fill slopes.
7. Land Treatment Facility (hydrocarbon contaminated material) including runoff collection sump – liners and fill slopes.
8. Vent Raise and Propane Tank Pad – cut slopes.
9. Truck Shop Pad – cut and fill slopes.

Authorization to proceed with this work was received from Robin McCall by way of email dated June 3, 2014.

Tetra Tech EBA Inc.
61 Wasson Place
Whitehorse, YT Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

2.0 SCOPE OF SERVICES

It is understood that YZC requires annual observations of structures, works, and installations at the site in partial fulfillment of the requirements of the Quartz Mining License QML-0006.

Tetra Tech EBA's scope of service for these annual observations is as follows:

- Complete a visual observation of the earth structures associated with each area of interest;
- Compile a photo log for each area of interest; and
- Prepare an observation report with a brief statement about the status and stability conditions for each area of interest, including any recommendations for remedial action.

3.0 FIELD INSPECTION

The field observations were completed by Mr. Chad Cowan, P.Eng. of Tetra Tech EBA on June 24 and 25, 2014. The following is a brief summary of the observations detailing any stability issues including a few photos of each area.

4.0 INDUSTRIAL COMPLEX

During the site visit there were no new construction activities in this area of interest. Tetra Tech EBA observed the cut and fill slopes for the mill, fuel tank farm and genset pad locations.

The 1:1 (H:V) design cut slopes in the bedrock for these areas are considered stable (Photo 1).

The fill slope along the western sides of the mill (Photo 2) associated with the fill placement are considered stable and are constructed as per the 2:1 (H:V) design. As noted in previous annual inspection reports, there are still some noticeable erosion channels (shown on Figure 1) along the southwestern side of the mill fill that were created as a result of historical seasonal rainfall run-off events. In 2012, proper perimeter berms and site grading was completed and has been maintained throughout the last couple of years by YZC to divert surface runoff towards designated drainage ditches (Ditches 2 and 5). As a result of this grading, drainage was directed towards the southwestern corner of the mill pad where a large erosion channel has formed (Photo 3).

The eastern cut slopes, and western and southern fill slopes of the fuel tank farm and genset pad (Photo 4) were observed and it was noted that there was a small area of tension cracks and a small erosion channel occurring along the western fill slope between the fuel tank farm and genset pads (Photos 5 and 6). Along the southern fill slope of the genset pad the main drainage channel's splash trough has broken loose from the CSP half culvert resulting in extensive erosion at the culvert's outlet end of the CSP half culvert (Photo 7).

The Mechanically Stabilized Earth (MSE) wall (Photo 8) that is situated along the south western portion of the mill fill and the north and east sides of the crusher building were observed and there were no signs of bulging or noticeable zones of failure. There is the odd smaller rock that has worked its way through the wire mesh. These rocks are considered falling hazards and when labourers are working in the area along the MSE wall, they should be cautious of possible falling rocks.



Photo 1
The bedrock cut backslope north of the mill location. (June 24, 2014)



Photo 2
The southern fill slope of the mill site between the concentrate loadout and crusher buildings. (June 24, 2014)



Photo 3
Large erosion channel along the eastern fill slope of the mill site pad location. (June 24, 2014)



Photo 4
The southern fill slope of the Fuel Tank Farm and Genset Pads locations. (June 24, 2014)



Photo 5
Small tension cracks along the southern fill slope of the genset pad location. (June 24, 2014)



Photo 6
Small erosion channel along the southern fill slope between the fuel tank farm and genset pad locations. (June 24, 2014)

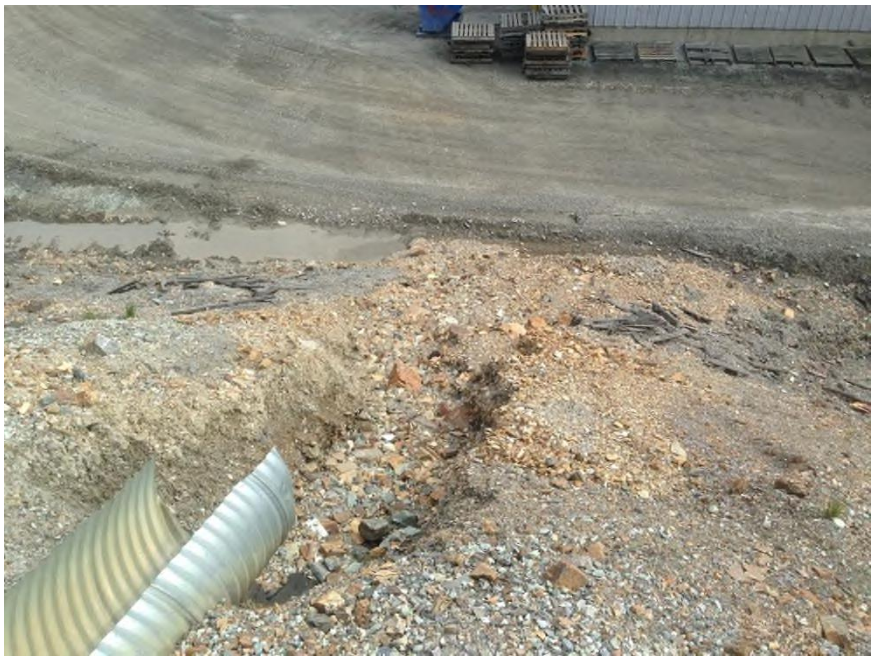


Photo 7
Genset pad runoff culvert location. Splash trough is missing and major erosion of the slope fill has occurred. (June 24, 2014)



Photo 8
The MSE wall along the toe of the Mill fill. (June 24, 2014)

5.0 INDUSTRIAL COMPLEX SURFACE AND UNDERGROUND WATER TREATMENT SUMPS (1, 2 AND 5)

The foundations for Sumps 1, 2 and 5 were observed. Both Sumps 1 and 5 were not being used at the time of the site visit but still contained wastewater and sediment from underground. Sump 1 was about half full and there were areas of bulging in the liner indicating that groundwater continues to impact the liner placement when the sump is less than ¾ full. The exposed liner of Sump 1 was visually inspected and found to be in good condition (Photo 9). Sump 5 was only partially full, mostly sediment with some water. The exposed liner of Sump 5 was visually inspected and found to be in good condition (Photo 10).

Sump 2 was reconstructed in 2013 and was in use during the site visit. It was being used to collect runoff water from Ditches 2 and 5, and the water from Sump 2 was being used as a water supply for underground workings (Photo 11).

The foundation conditions noted in the 2013 annual observation report for Sumps 1 and 5 remain the same. There was still some marginal settlement along the key trenches of Sump 1 as the backfill material was not compacted during original construction. The foundation conditions for Sump 2 are good as this sump was reconstructed in 2013.



Photo 9
Sump 1 about half full of underground mine water. (June 24, 2014)



Photo 10
Sump 5 full of underground sediments and some waste water. (June 24, 2014)

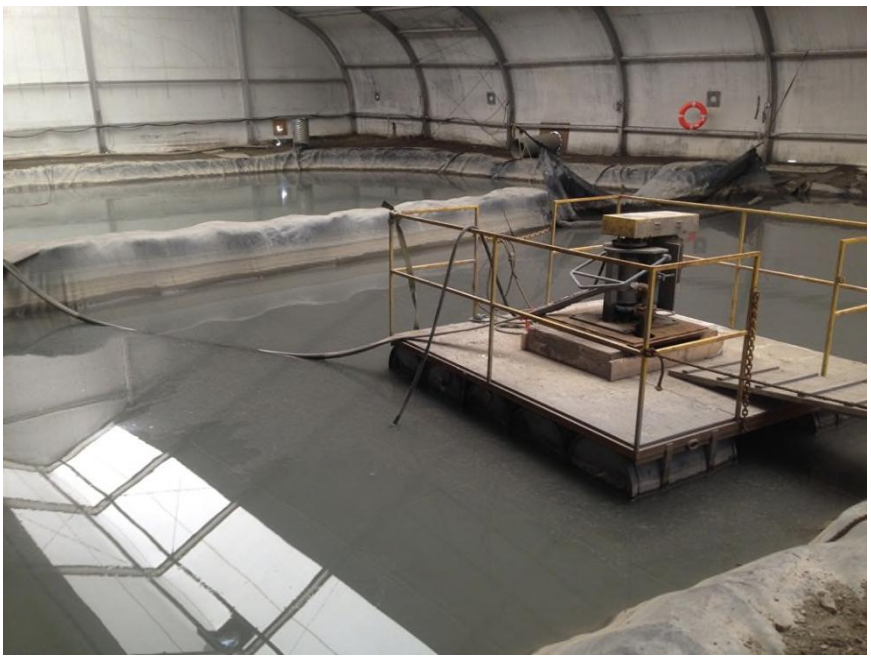


Photo 11
Sump 2 reconstruction complete and full of surface runoff water from Ditches 2 and 5. (June 24, 2014)

6.0 INDUSTRIAL COMPLEX DIVERSION DITCH 1 AND COLLECTION DITCHES 2, 3, 4 AND 5

During the previous site visits, it is was noted that there were sections of diversion Ditch 1 that were lined with non-woven geotextile but for the most part the ditch remains unlined. There were small amounts of debris or slough from the upper slope deposited in the bottom of the ditch. In the future, this material may have to be removed to allow for continuous water flow along the ditch bottom. As noted in previous observation reports, the tension cracks and areas of settlement along the upper portion of the ditch embankment (Photo 12) were still noticeable. The tension cracks should be monitored and filled in as required to reduce the amount of water infiltration which may lead to instability of the embankment. The recompacted areas of settlement should also be graded to match the upper and lower sections of the ditch embankment.

Ditch 2 was observed and only a portion of the collection ditch along the lower section between the mill building location and the lower by pass road was lined. The inlet end of the culvert coming from the upper mill pad should be monitored for potential plugging and may require periodic cleaning to allow for positive flow through the culvert. The lower portion of Ditch 2 was in good shape allowing for surface runoff to flow towards Ditch 3 (Photo 13).

Ditch 3 liner was replaced last year and during this site visit there was no water flowing through it. Tetra Tech EBA was informed that it performed well for directing surface water collected from the Mill Pad through Ditch 2 during the Spring freshet. All surface runoff flowing through Ditch 2 and 3 is now directed into Sump 2. During the site visit there were small tension cracks noted along the exterior slope (Photo 14).

As noted in previous observation reports, there were still many small tears or punctures to the northern portion of the liner along both side slopes of Ditch 4. The base of the liner appeared to be undamaged but the side slopes still require repair. As noted in previous report,s there were still small tension cracks, areas of settlement located along the crest and downslope side of the ditch and erosion channels throughout the downslope side. There was no evidence of more recent additional movement as the crest and slope soils were promoting vegetation growth (Photo 15). As mentioned in the previous reports, these areas should be monitored and repaired as required. YZC did mention to Tetra Tech EBA that repairs to Ditch 4 are scheduled for this summer. It was also noted that along the upslope side of the ditch there was a lower portion of the embankment (native material) that was sluffing away undercutting the fill material for the lower bypass road next to the shotcrete batch plant (Photo 16).

Ditch 5 was observed and the upper portion of the ditch on the mill pad had some construction debris littered throughout that could potentially plug off the inlet end or buried portion of the culvert (Photo 17). The discharge end of the culvert located at the bottom of the MSE wall had been cleaned out and future surface runoff is now able to flow towards Sump 2 (Photo 18).



Photo 12
Tension cracks and depression of an upper portion of the Ditch 1 embankment. (June 24, 2014)



Photo 13
The inlet end of the culvert from the upper mill pad to the lower section of Ditch 2. (June 24, 2014)



Photo 14
The reconstructed Ditch 3. (June 24, 2014)



Photo 15
Vegetation growth throughout the tension cracks, areas of settlement and erosion channels. (June 24, 2014)



Photo 16
The lower sluffing portion of the fill slope of the lower bypass road near the shotcrete plant. (June 24, 2014)



Photo 17
The inlet end of the Ditch 5 culvert on the mill pad. (June 24, 2014)



Photo 18
The discharge end of the Ditch 5 culvert allowing surface runoff flow towards Sump 2. (June 24, 2014)

7.0 MINE CAMP PAD AREA INCLUDING UPPER GENERATOR AND POTABLE WATER TREATMENT PAD, SEWAGE TREATMENT PLANT PAD AND TREATED EFFLUENT POND

The 2:1 cut and 1.5:1 fill slopes for the camp pad, upper generator and water treatment pad, sewage treatment plant pad, and the treated sewage effluent pond were observed and the slopes were considered stable (Photos 19 and 20).

As noted during previous site visits, there were still some noticeable tension cracks and erosion channels along the perimeter of the fill slope of the camp pad. As mentioned in the previous reports, these areas should be monitored and repaired as required. There was one area of the fill slope at the southwestern end of the camp pad that developed into a very large drainage channel during spring freshet. To reduce the any further erosion of the fill slope, YZC filled in the channel with rock (Photo 21).

The treated effluent pond is no longer being used as originally intended and was half full of precipitation runoff, allowing for only partial visual observation of the liner (Photo 22). There were no indications of slumping or bulging of the liner. The perimeter exterior fill slopes were also observed and there were no noticeable signs of instability.



Photo 19
The backslope of the camp pad. (June 25, 2014)



Photo 20
The downslope side of the camp pad. (June 25, 2014)



Photo 21
The southwestern erosion channel that was filled in with rock. (June 25, 2014)



Photo 22
The former sewage effluent pond for the camp. (June 24, 2014)

8.0 TEMPORARY WASTE ROCK AND ORE STORAGE FACILITY

The cut and fill slopes in the facility were observed and considered stable (Photo 23). The collection sump was also observed and at the time was full of runoff water (Photo 24).



Photo 23
The waste rock and ore stockpile. (June 24, 2014)



Photo 24
The ore stockpile area water run-off collection sump. (July 24, 2014)

9.0 LAND TREATMENT FACILITY (HYDROCARBON CONTAMINATED MATERIAL) INCLUDING RUNOFF COLLECTION SUMP

The berms and the liner of the land treatment facility (LTF) were observed and there was no noticeable deterioration of the berms or damage to the exposed liner (Photo 25). The LTF was about 50% full of hydrocarbon contaminated material and the collection sump was about 25% full of seasonal runoff (Photo 26).



Photo 25
The containment area of the LTF. (June 24, 2014)



Photo 26
The LTF sump was ¾ full. (June 24, 2014)

10.0 VENT RAISE AND PROPANE TANK PAD

The 2:1 cut slopes for the vent raise and propane tank pad were observed and were considered stable (Photos 27 and 28). The vent raise back slope is showing some signs of erosion and should be monitored for instabilities at the top of the slope.



Photo 27
The backslope of the vent raise. (June 24, 2014)



Photo 28
The backslope behind the propane tank pad. (June 24, 2014)

11.0 TRUCK SHOP PAD

The 2:1 cut and fill slopes for the truck shop pad were observed and the majority of the slopes were considered stable (Photos 29 and 30). The northwestern end of the backslope has a small area of slumping that should be monitored and repaired as required.



Photo 29
The downslope of the truck shop pad. (June 24, 2014)



Photo 30
The backslope behind the truck shop pad. (June 24, 2014)

12.0 CONCLUSIONS

Tetra Tech EBA has concluded that all of the tension cracks, sloughing, erosion channels, damage to liners and areas of settlement associated with the on-site earth structures pose no significant risk to the environment or human health and safety. These areas of interest still require frequent monitoring (monthly) and repairs as required. Collection Ditch 4 will require repair to the tears and punctures in the liners and filling of the tension cracks, settlement areas, erosion channels and undercut area; prior to freshet in spring 2015 to avoid possible complete failure of the upslope and downslope ditch embankments. A summary of recommendations is presented in the following Table 1:

Table 1: Summary of Recommendations from 2014 Observations

Item Description	Recommended Maintenance	Status
Mill Area	Fill erosion channels with coarse grained material. Still large erosion channel that requires filling at southwestern corner of the mill pad	Majority of channels completed spring 2014.
Mill Area	The MSE wall has small rocks working their way through the mesh that are considered falling hazards and should be monitored and removed as required.	
Fuel Tank Farm and Genset Pads	Small erosion channel between the two pads along the southwestern slope that requires monitoring – repair as necessary.	
Genset Pad	The main drainage channel's splash trough has broken loose and should be repaired to reduce the amount of additional extensive erosion.	
Water Treatment Sump 1	Settlement in geomembrane anchor/key trench.	No work required. Planning decommissioning for summer 2014.
Ditch 1	Fill tension cracks and areas of settlement along berm.	Still only monitoring.
Ditch 3	Minor tension cracks in new fill placement.	Monitoring.
Ditch 4	Repair liner, fill tension cracks, areas of settlement and erosion channels.	Repair work planned for summer 2014.
Ditch 5	Clean out discharge towards Sump 2.	Completed spring 2014.
Ditch 5	Clean out construction debris from upper mill pad portion of ditch.	
Camp Area	Monitor tension cracks and erosion channels – repair as necessary.	Major southwestern erosion channel has been filled in with rock.
Truck Shop Area	Small area of slumping – repair as necessary	

13.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Yukon Zinc Corporation and their agents. Tetra Tech EBA Inc. does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Yukon Zinc Corporation, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in the General Conditions attached.

14.0 CLOSURE

We trust this report meets your present requirements. Should you have any questions or comments, please contact the undersigned.

Sincerely,
Tetra Tech EBA Inc.



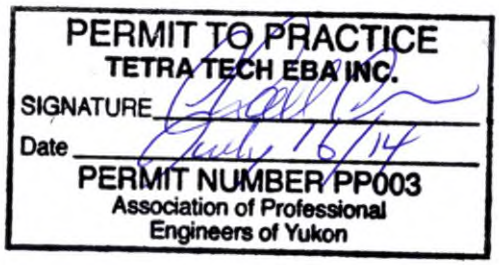


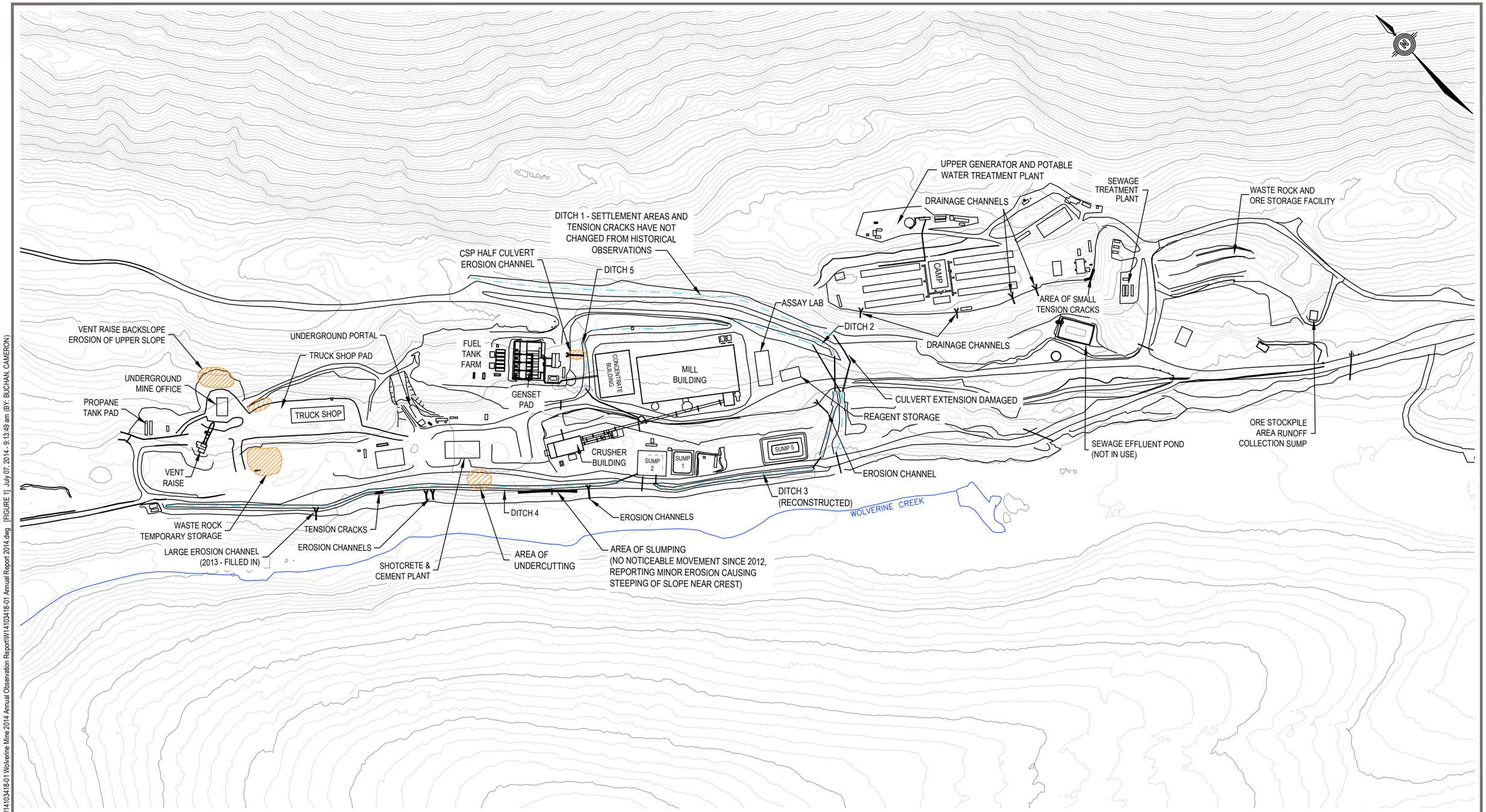
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Attachments: Figure 1: Site Plan Showing Location of On-site Earth Structures
Tetra Tech EBA's General Conditions - Geotechnical

/chr





LEGEND:

- TENSION CRACKS
- EROSION CHANNEL
- WATER COURSE
- AREAS OF INTEREST (APPROXIMATE)

STATUS
ISSUED FOR USE

0 200
Scale: 1: 4 000 (metres)

CLIENT
YukonZinc CORP

WOLVERINE MINE ANNUAL OBSERVATION REPORT
WOLVERINE MINE, SOUTH EASTERN YUKON

SITE PLAN SHOWING ON-SITE EARTH STRUCTURES

TETRA TECH EBA

PROJECT NO.	DWN	CKD	REV
W14103418-01	CB	CPC	0

OFFICE	DATE
EBA-WHSE	June 26, 2014

Figure 1

Q:\Whitehorse\Data\0201drawings\Campbell Hwy\W14103418-01 Wolverine Mine 2014 Annual Observation Report\W14103418-01 Annual Report 2014.dwg [FIGURE 1] July 07, 2014 - 9:13:49 am (BY: BUCHAN, CAMERON)

GENERAL CONDITIONS

GEOTECHNICAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of Tetra Tech EBA’s Client. Tetra Tech EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA’s Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA’s instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. Tetra Tech EBA’s instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, Tetra Tech EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. Tetra Tech EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

5.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. Tetra Tech EBA does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

7.0 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

8.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

9.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

10.0 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

11.0 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

12.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

13.0 SAMPLES

Tetra Tech EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

14.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

During the performance of the work and the preparation of the report, Tetra Tech EBA may rely on information provided by persons other than the Client. While Tetra Tech EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, Tetra Tech EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	January, 2014	**Avg. Daily Temp.**	Average: -7.9◦C ; Low: -23◦C; High: 6.2◦C

Mill Record Data:

Total Monthly Tailings Deposition	10,775	Dry Tonnes
Average Monthly Tailings % Solids	20.9	%
Total Monthly Tailings Slurry Volume	44,632.6	m^3
Total Monthly Reclaimed Water Volume	40,912.0	m^3

Site Measurements:

Date of survey January 29, 2014 **Pond Elevation** 1305.92 m **Estimated volume** 807,800 m^3

Total Monthly Precipitation	6.8	mm
Total Monthly Underground Input	8,963	m^3
Total Monthly STP Effluent Input	584	m^3
Total Monthly Industrial Complex Runoff Input	0	m^3
Total Volume from Seepage collection pond to Facility	0	m^3
Average Monthly Under drain Flow Rate	1.11	L/s
Average Monthly Ditch A Flow Rate	Unknown – but flowing	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	31.7	Ft

See page 3 to Annotate Pond Diagram

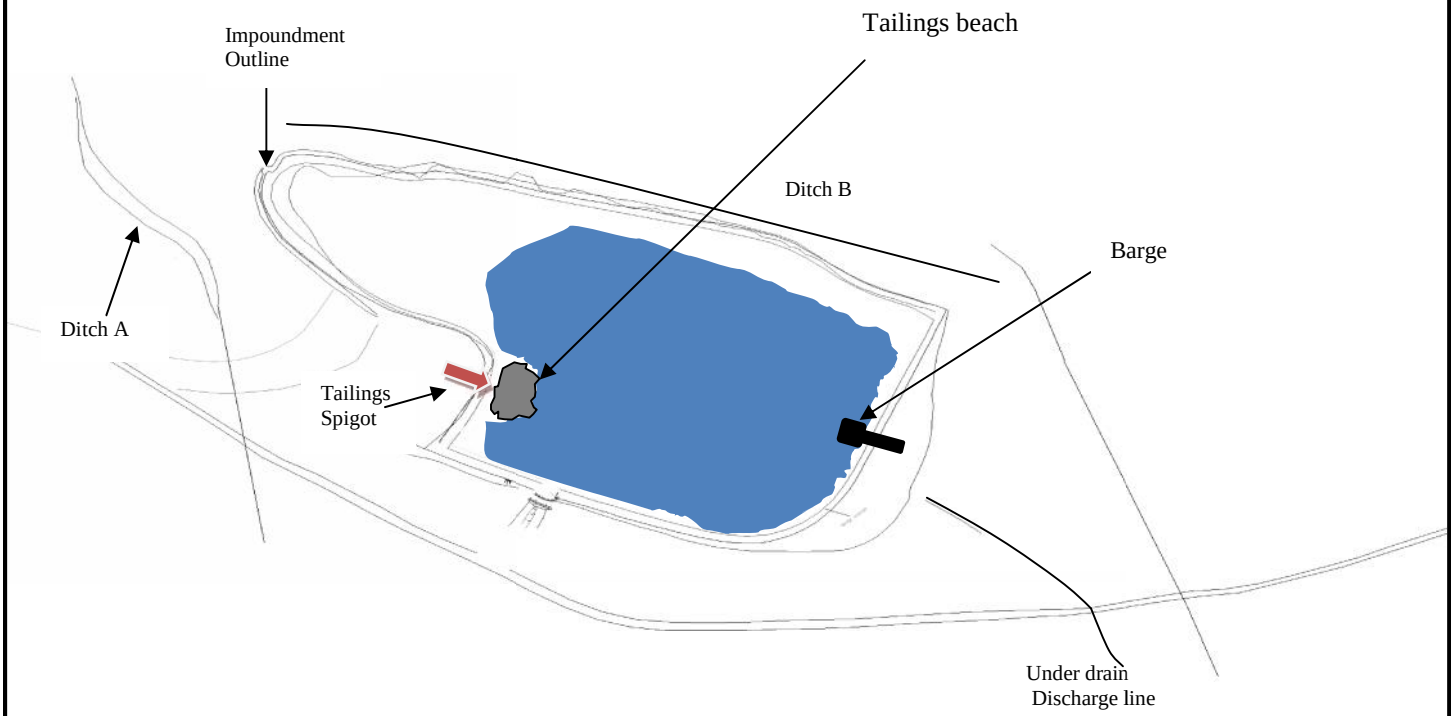
Pictures Taken? Y ☒ N ☐ **Photo Sheet Attached?** Y ☒ N ☐

Special Remarks:

1. Milling rates averaged 1,803 dry tonnes per day (Total of 11 Operating Days), processing 17,673 tonnes ore with 2,359 dmt of tailings reported to underground for paste fill and 10,775 dmt tailings to TSF.
2. Brief on any maintenance: De-icing at the barge resumed in month with the installation of new pump, as shown in attached pictures; de-icing has improved significantly.
3. The mill resumed normal operations during this month

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Robin McCall/ Dave Archibald **Signature** _____

Supervisor/Manager Peter Nelega **Signature & Date** _____

	
Photo 1: Looking at mill tailings discharge line with pump reclaim water pump house overflow line in foreground	**Photo 2:** Looking towards barge from North West corner of TSF
	
Photo 3: South wall view with walk way to the barge.	**Photo 4**: Barge with new de-icing pump effectively opening up the area around barge

	
Photo 5: looking at East wall from barge	**Photo 6:** looking west from barge capturing south west corner of TSF
	
Photo 7: looking north from barge ramp	**Photo 8:** looking west from south east corner of TSF

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	February, 2014	Avg. Daily Temp.	Average: -17.2◦C ; Low: -31.3◦C; High: -4.3◦C

Mill Record Data:

Total Monthly Tailings Deposition	13999.9	Dry Tonnes
Average Monthly Tailings % Solids	15.4	%
Total Monthly Tailings Slurry Volume	81,686.7	m^3
Total Monthly Reclaimed Water Volume	76,859.1	m^3

Site Measurements:

Date of survey: February 26, 2014 | Pond Elevation: 1305.91 m | Estimated volume: 806,650 m^3

Total Monthly Precipitation	0	mm
Total Monthly Underground Input	9,864	m^3
Total Monthly STP Effluent Input	566	m^3
Total Monthly Industrial Complex Runoff Input	0	m^3
Total Volume from Seepage collection pond to Facility	0	m^3
Average Monthly Under drain Flow Rate	1.10	L/s
Average Monthly Ditch A Flow Rate	Unknown – but flowing	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	31.7	Ft

See page 3 to Annotate Pond Diagram

Pictures Taken? Y ☒ N ☐ Photo Sheet Attached? Y ☒ N ☐

Special Remarks:

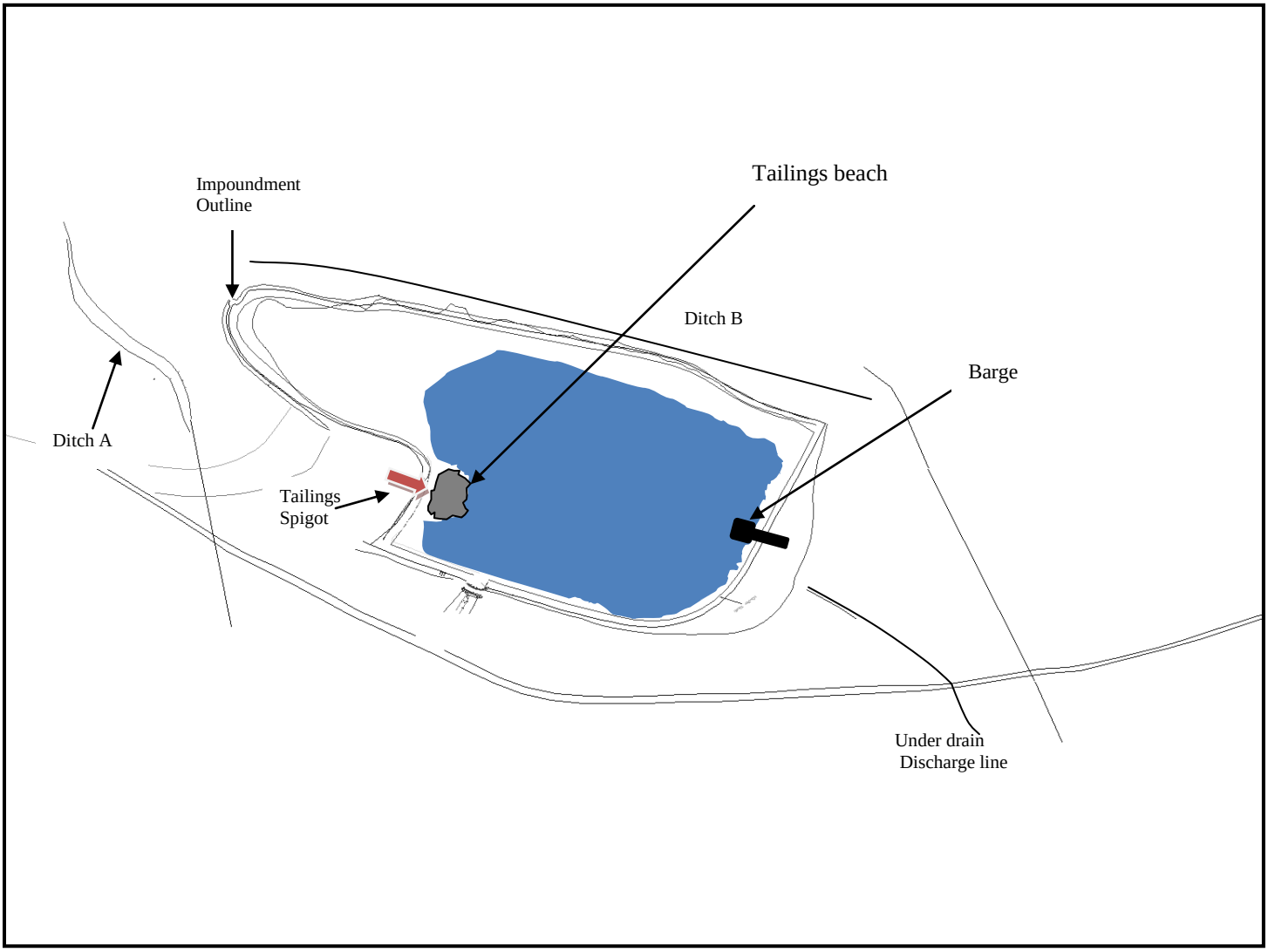
1. Milling rates averaged 1621 dry tonnes per day (Total of 21 Operating Days), processing 34061.3 tonnes ore with 9844.1dmt of tailings reported to underground for paste fill and 13999.9 dmt tailings to TSF.

2. Brief on any maintenance: No maintenance was performed on pumps other than routine inspections

3. Mill operating schedule continues to budget for 3 weeks operating and 1 week scheduled maintenance down time.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Andrea Kenward/ Dave Archibald **Signature** _____

Supervisor/Manager Dave Archibald **Signature & Date** _____

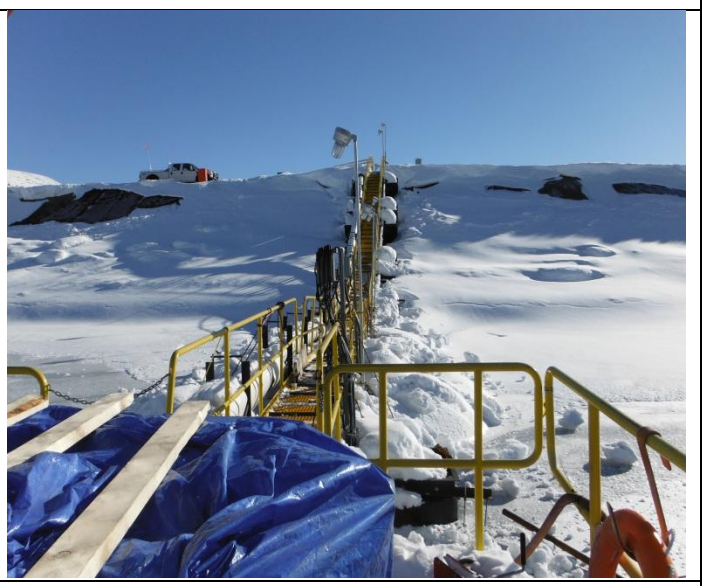
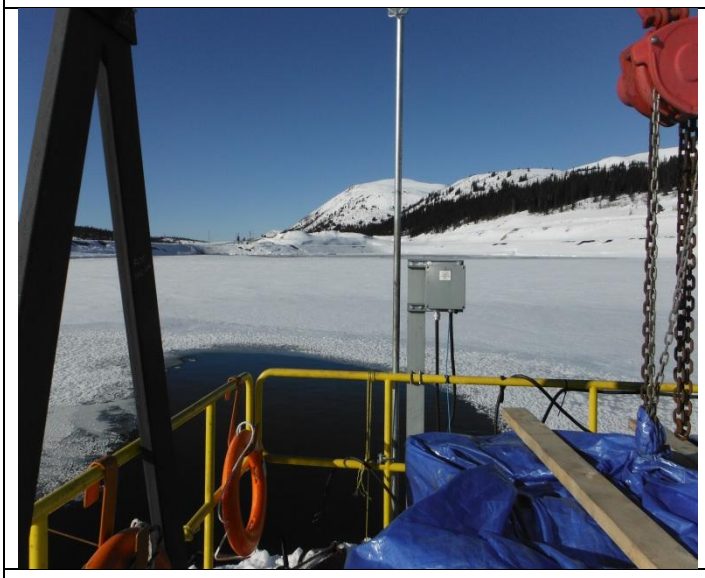
	
Photo 1: Looking at mill tailings discharge line with pump reclaim water pump house overflow line in foreground	**Photo 2:** Looking towards barge from North West corner of TSF
	
Photo 3: South wall view with walk way to the barge.	**Photo 4**: From Barge looking up walkway at South Wall

	
Photo 5: looking at East wall from South East corner of TSF	**Photo 6:** looking at west wall from South wall of TSF
	
Photo 7: looking north from barge	**Photo 8:** looking west from south east corner of TSF

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	March, 2014	Avg. Daily Temp.	Average: -12.1◦C ; Low: -26.1◦C; High: 0.6◦C

Mill Record Data:

Total Monthly Tailings Deposition	20,394.2	Dry Tonnes
Average Monthly Tailings % Solids	19.8	%
Total Monthly Tailings Slurry Volume	89,649.3	m^3
Total Monthly Reclaimed Water Volume	82,616.8	m^3

Site Measurements:

Date of survey: Mach 31, 2014 — Pond Elevation: 1306.02 m — Estimated volume: 818,500 m^3

Total Monthly Precipitation	0	mm
Total Monthly Underground Input	10,826	m^3
Total Monthly STP Effluent Input	652	m^3
Total Monthly Industrial Complex Runoff Input	1,272	m^3
Total Volume from Seepage collection pond to Facility	0	m^3
Average Monthly Under drain Flow Rate	1.14	L/s
Average Monthly Ditch A Flow Rate	Unknown – but flowing	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	31.7	Ft

See page 3 to Annotate Pond Diagram

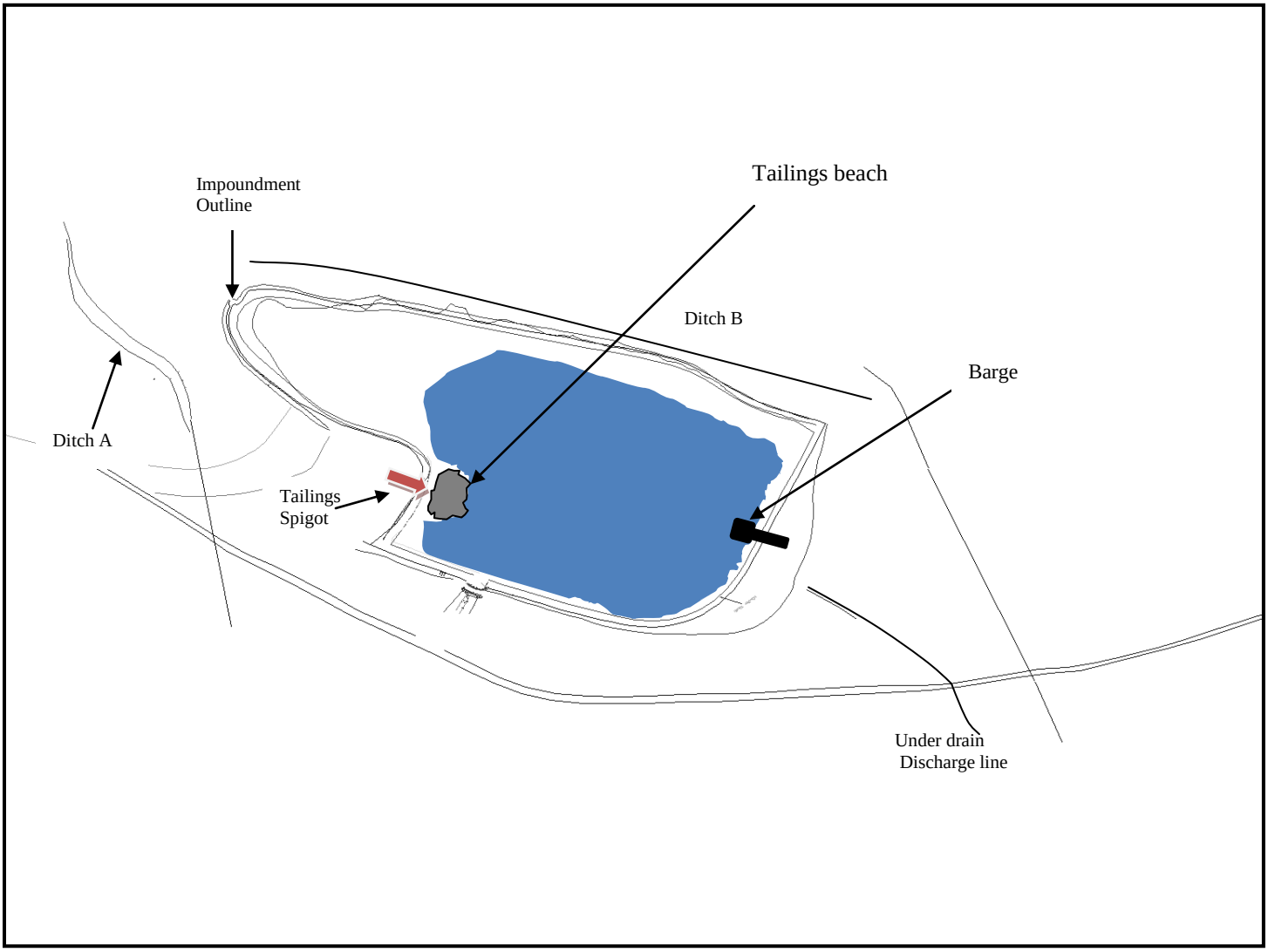
Pictures Taken? Y ☒ N ☐ — Photo Sheet Attached? Y ☒ N ☐

Special Remarks:

1. Milling rates averaged 1,756 dry tonnes per day (total of 24 Operating Days); processing 42,138.2 tonnes ore with 10,337.1dmt of tailings reported to underground for paste fill and 20,394.2 dmt tailings to TSF.
2. Brief on any maintenance: Barge pumps underperforming, significantly affected the supply of pond water to the mill. Installed 4" line & utilized de-icing pump as supplementary water. Significant scaling was observed on both pumps. Both pumps de-scaled & cleaned, used pump 1 on service & pump 2 on standby (out of water to avoid scaling). Windings on the pump motor was rewound (electrical issues) & were fixed.
3. Mill operating schedule continues to budget for 3 weeks operating and 1 week scheduled maintenance down time.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Robin McCall / Dave Archibald **Signature** _____

Supervisor/Manager Dave Archibald **Signature & Date** _____

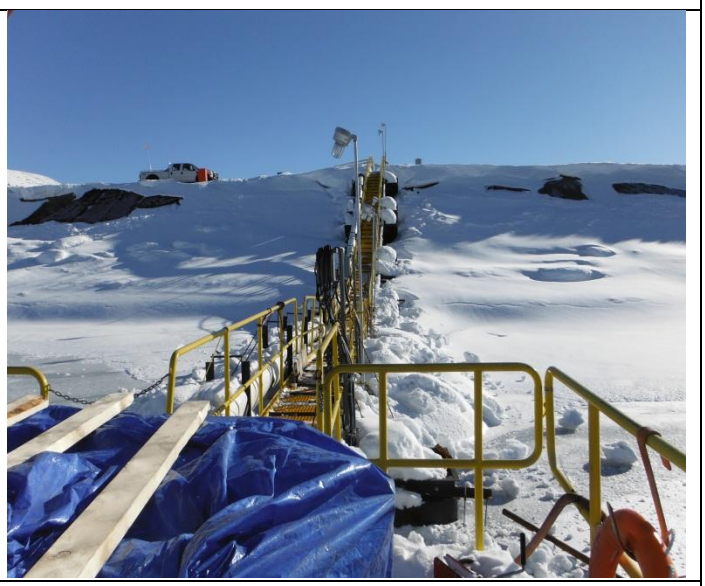
	
Photo 1: Looking at mill tailings discharge line with pump reclaim water pump house overflow line in foreground	**Photo 2:** Looking towards barge from North West corner of TSF
	
Photo 3: South wall view with walk way to the barge.	**Photo 4**: From Barge looking up walkway at South Wall



Photo 5: looking at East wall from South East corner of TSF



Photo 6: looking at west wall from South wall of TSF

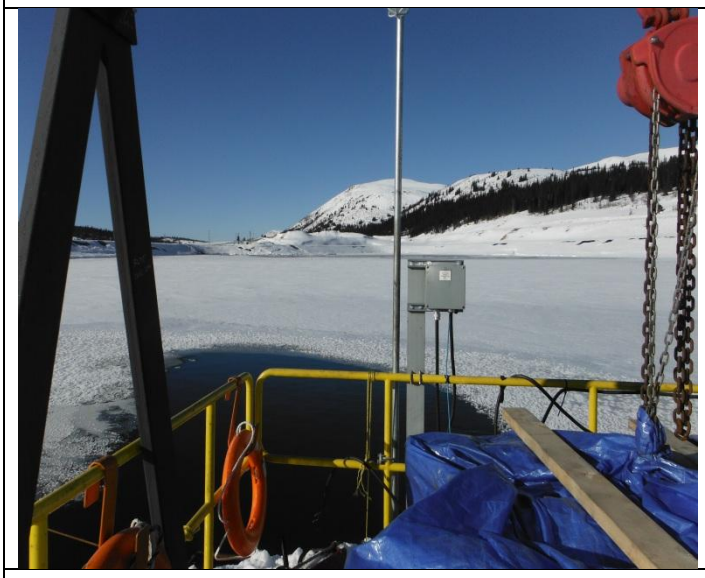


Photo 7: looking north from barge



Photo 8: looking west from south east corner of TSF

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	April, 2014	Avg. Daily Temp.	Average: -3.0◦C ; Low: -16.7◦C; High: 7.8◦C

Mill Record Data:

Total Monthly Tailings Deposition	16,726.3	Dry Tonnes
Average Monthly Tailings % Solids	18.0	%
Total Monthly Tailings Slurry Volume	81,791.6	m^3
Total Monthly Reclaimed Water Volume	76,023.9	m^3

Site Measurements:

Date of survey: April 28, 2014 Pond Elevation: 1306.32 m Estimated volume: 850,320 m^3

Total Monthly Precipitation	5.4	mm
Total Monthly Underground Input	12,622	m^3
Total Monthly STP Effluent Input	608	m^3
Total Monthly Industrial Complex Runoff Input	3,636	m^3
Total Volume from Seepage collection pond to Facility	6,795	m^3
Average Monthly Under drain Flow Rate	1.01	L/s
Average Monthly Ditch A Flow Rate	Unknown – but flowing	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	31.7	Ft

See page 3 to Annotate Pond Diagram

Pictures Taken? Y ☒ N ☐ Photo Sheet Attached? Y ☒ N ☐

Special Remarks:

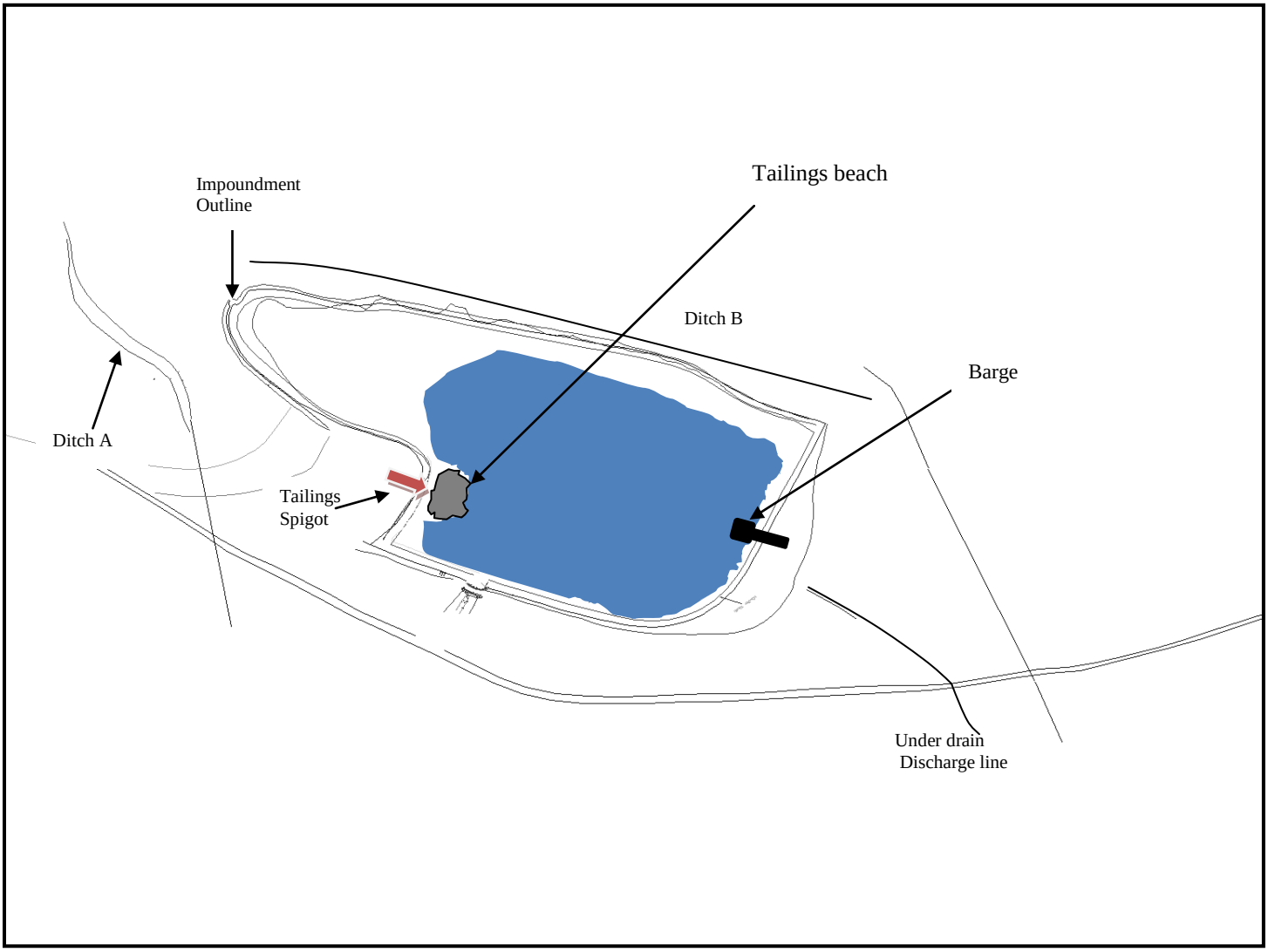
1. Milling rates averaged 1,765 dry tonnes per day (total of 23 Operating Days); processing 40,617.2 tonnes ore with 13,584.9dmt of tailings reported to underground for paste fill and 16,726.3 dmt tailings to TSF.

2. Brief on any maintenance: Switched from #1 pond pump to #2 barge pump due to continued scaling issues.

3. Mill operating schedule continues to budget for 3 weeks operating and 1 week scheduled maintenance down time.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Andrea Kenward / Riley Mooney **Signature** _____

Supervisor/Manager Derrick Colquhoun **Signature & Date** _____

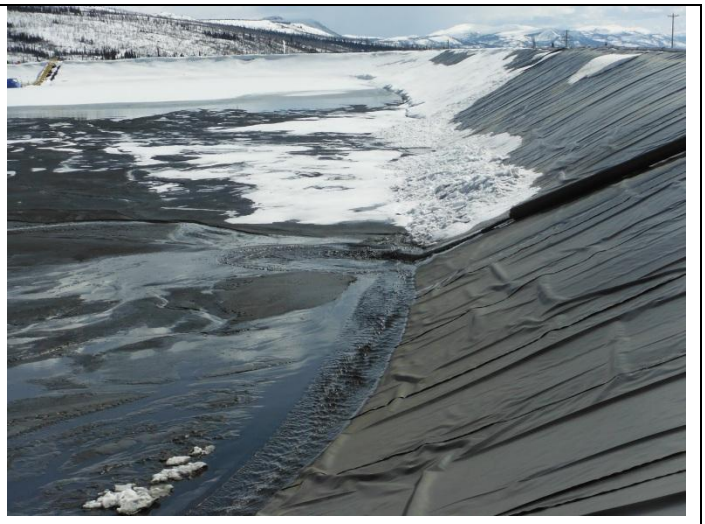
	
Photo 1: Looking at transfer station over flow line from North West corner of TSF	**Photo 2:** Looking at south wall from North West corner of TSF
	
Photo 3: South wall view with walk way to the barge.	**Photo 4**: View of South Wall from North Wall

	
Photo 5: looking at barge from south wall.	**Photo 6:** looking at east wall from South wall.
	
Photo 7: looking at tailings discharge from north west corner of TSF.	**Photo 8:** looking south east from transfer station.

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	May, 2014	Avg. Daily Temp.	Average: 4.8◦C ; Low: -8.38◦C; High: 17.52◦C

Mill Record Data:

Total Monthly Tailings Deposition	15,741	Dry Tonnes
Average Monthly Tailings % Solids	22.9	%
Total Monthly Tailings Slurry Volume	68,519.6	m^3
Total Monthly Reclaimed Water Volume	52,778.6	m^3

Site Measurements:

Date of survey: May 31, 2014 — Pond Elevation: 1306.55 m — Estimated volume: 881,400 m^3

Total Monthly Precipitation	18.8	mm
Total Monthly Underground Input	8,204	m^3
Total Monthly STP Effluent Input	667	m^3
Total Monthly Industrial Complex Runoff Input	2,034	m^3
Total Volume from Seepage collection pond to Facility	9,630	m^3
Average Monthly Under drain Flow Rate	4.66	L/s
Average Monthly Ditch A Flow Rate	3.12	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	33’ 8”	Ft

See page 3 to Annotate Pond Diagram

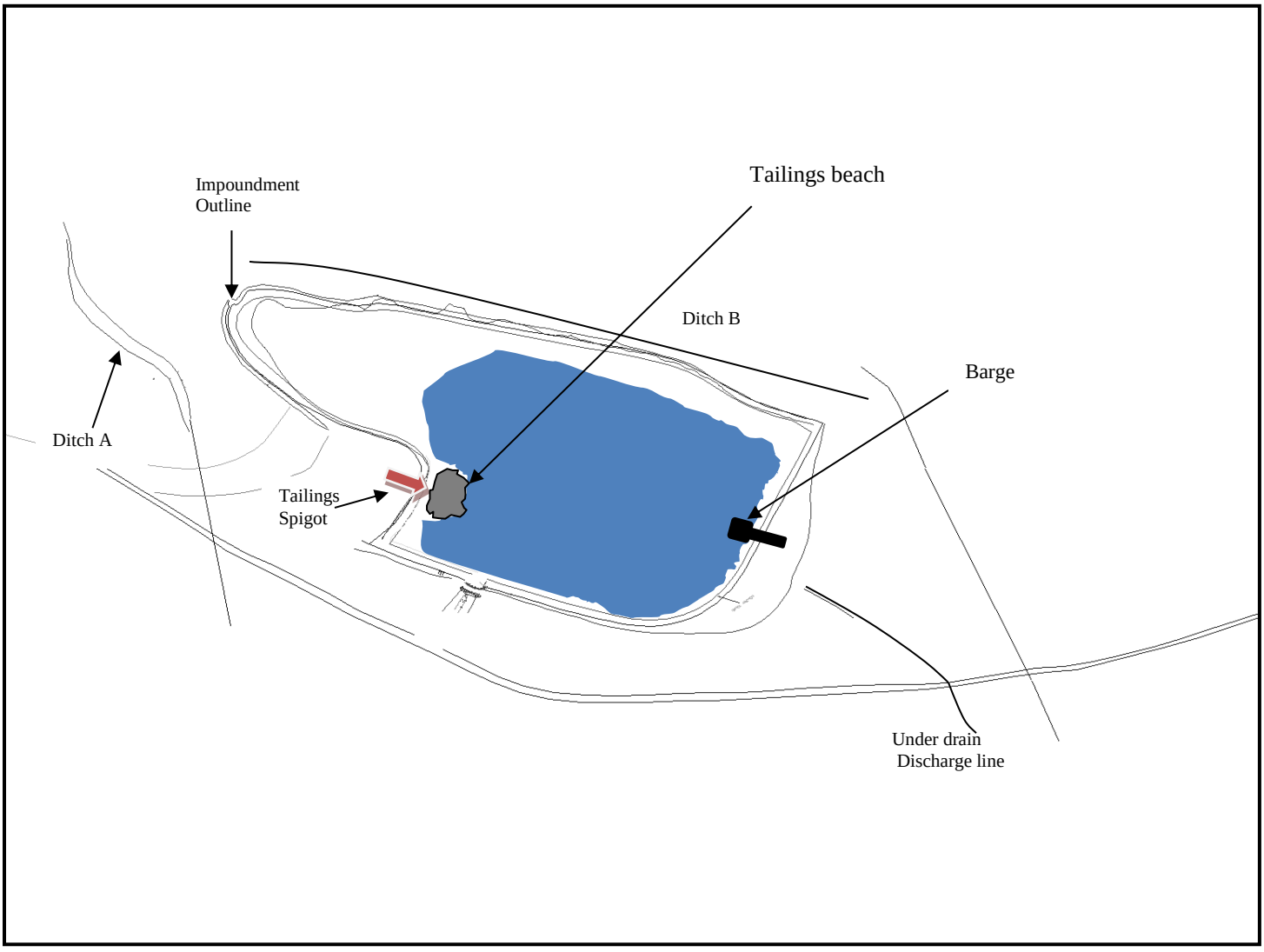
Pictures Taken? Y ☒ N ☐ — Photo Sheet Attached? Y ☒ N ☐

Special Remarks:

1. Milling rates averaged 1,750.6 dry tonnes per day (total of 22 Operating Days); processing 39,421.4 tonnes ore with 15,741.3dmt of tailings reported to underground for paste fill and 13,967.7 dmt tailings to TSF.
2. Brief on any maintenance: Switched from #2 pond pump to #1 barge pump due to continued scaling issues. During our week scheduled down time we descaled booster station pump headers. Mill shut down 18 hrs. Early due to ripped belt in mill.
3. Mill operating schedule continues to budget for 3 weeks operating and 1 week scheduled maintenance down time.

Sketch to Include:

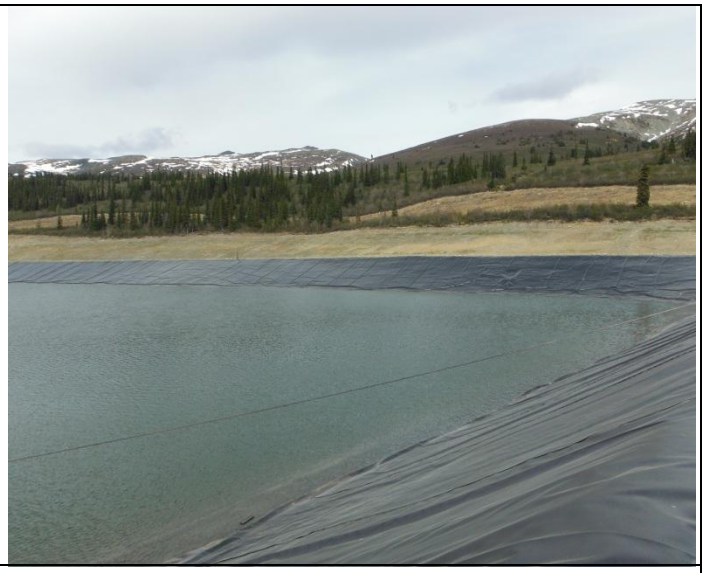
- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Andrea Kenward / Riley Mooney **Signature** _____

Supervisor/Manager Dave Archibald **Signature & Date** _____

	
Photo 1: Looking at transfer station over flow line from North West corner of TSF	**Photo 2:** Looking at south wall from North West corner of TSF with Tailing discharge line in foreground.
	
Photo 3: South wall view with walk way to the barge.	**Photo 4**: View of South Wall from North Wall

	
Photo 5: looking at barge from south wall.	**Photo 6:** looking at east wall from South wall.
	
Photo 7: looking at south west corner of TSF.	**Photo 8:** looking east from transfer station.

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	June 2014	Avg. Daily Temp.	Average: 9.1◦C ; Low: -0.2◦C; High: 21◦C

Mill Record Data:

Total Monthly Tailings Deposition	13,304.8	Dry Tonnes
Average Monthly Tailings % Solids	16.9	%
Total Monthly Tailings Slurry Volume	65,324.2	m^3
Total Monthly Reclaimed Water Volume	69,911.9	m^3

Site Measurements:

Date of survey: July 2, 2014 Pond Elevation: 1306.66 m Estimated volume: 894,500 m^3

Total Monthly Precipitation	64.2	mm
Total Monthly Underground Input	6063	m^3
Total Monthly STP Effluent Input	507	m^3
Total Monthly Industrial Complex Runoff Input	3356	m^3
Total Volume from Seepage collection pond to Facility	368	m^3
Average Monthly Under drain Flow Rate	4.76	L/s
Average Monthly Ditch A Flow Rate	2.19	L/s
Average Monthly Ditch B Flow Rate	0.47	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	34’2’’	Ft

See page 3 to Annotate Pond Diagram

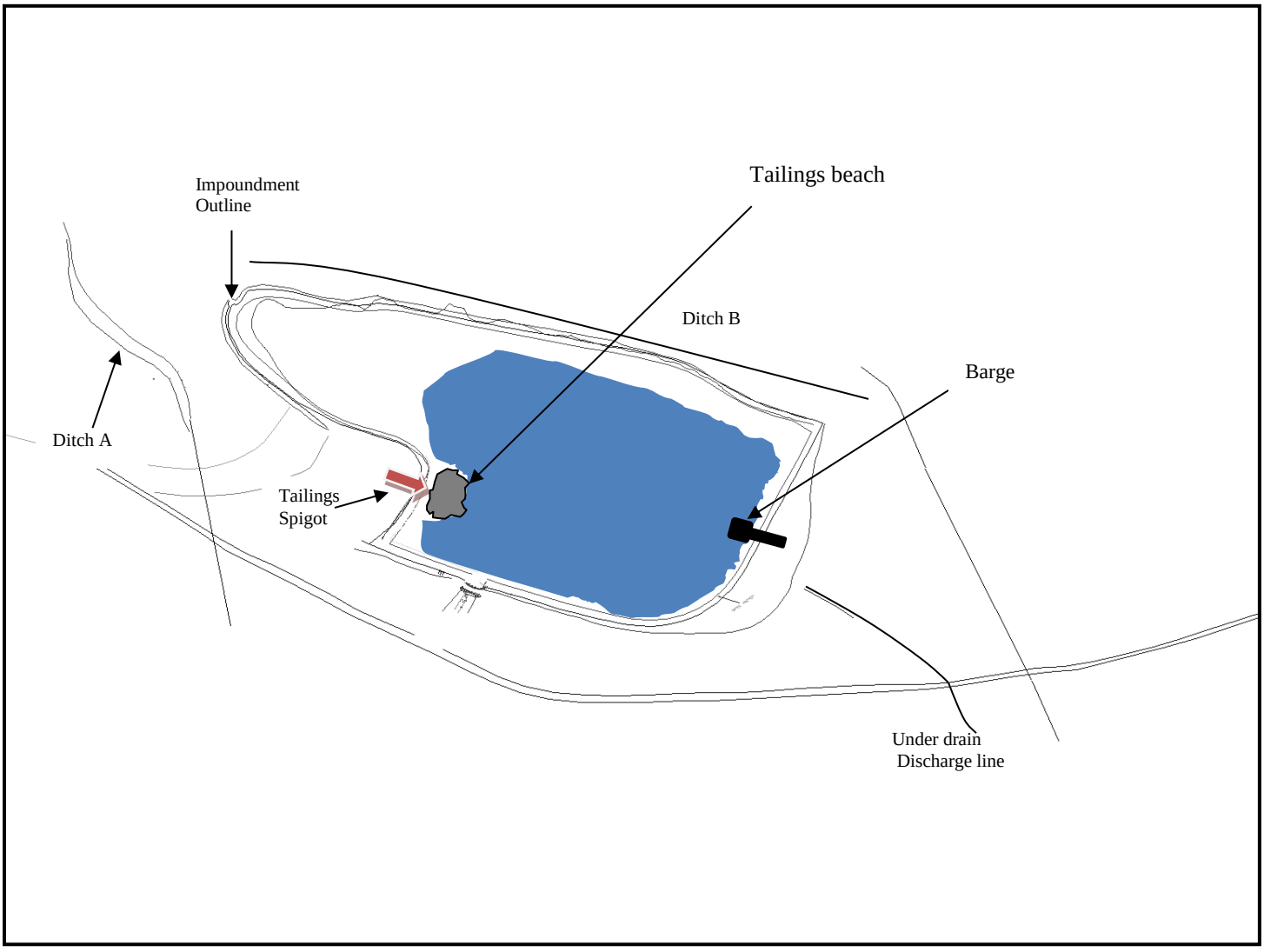
Pictures Taken? Y ☒ N ☐ Photo Sheet Attached? Y ☒ N ☐

Special Remarks:

1. Milling rates averaged 1,769 dry tonnes per day (total of 23 Operating Days); processing 40,685 dry tonnes ore with 17,728.3 dmt of tailings reported to underground for paste fill and 13,304.8 dmt tailings to TSF.
2. Brief on any maintenance: Continue using #1 barge pump for mill water supply. On Jun 7th, started adding Winterhib anti-scalent into the #1 barge pump suction intake at dose rate of 30 cc/min to effectively de-scale the line from barge to booster pump tank and pumps, pump manifold & water line to the mill. Test coupons were installed Jun 7th to monitor and determine if scales are formed 30, 60 & 90 days.
3. Mill operating schedule continues to budget for 3 weeks operating and 1 week scheduled maintenance down time.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Andrea Kenward / Manny Rejano **Signature** _____

Supervisor/Manager Dave Archibald **Signature & Date** _____

	
Photo 1: Looking at barge pumping station and discharge line –walk way @East dam & the South wall of TSF	**Photo 2:** Looking at south wall from North West corner of TSF with Tailing discharge line in foreground.
	
Photo 3: West wall view with slough at upper crest of west wall & disturbance\movements underneath the liners.	**Photo 4**: Expanded view of the Photo 3- West wall & South Wall at fore ground.



Photo 5: looking at the north wall.

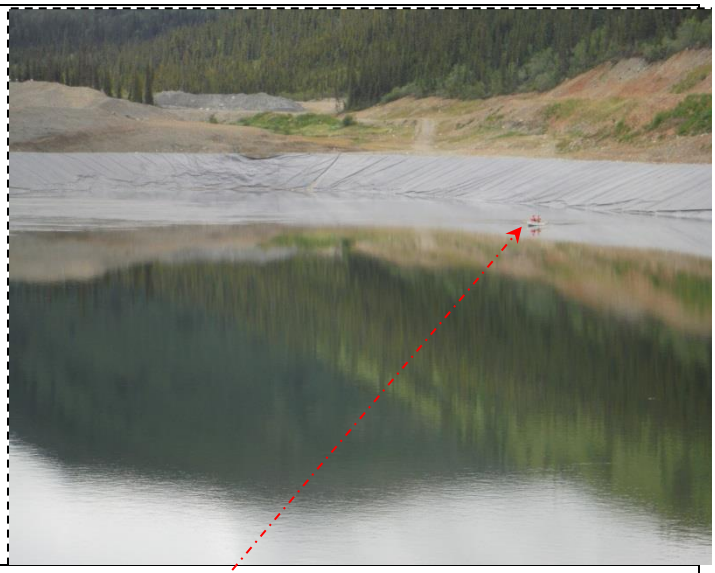


Photo 6: looking at Northwest corner from barge-bathometric survey being performed.



Photo 7: looking at Winterhib anti-scalent at east dam of of TSF.



Photo 8: looking barge pump 1 with Winterhib anti-scalent line being added & tested.

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	July 2014	Avg. Daily Temp.	Average: 9.1◦C ; Low: -0.2◦C; High: 21◦C

Mill Record Data:

Total Monthly Tailings Deposition	18,014.5	Dry Tonnes
Average Monthly Tailings % Solids	20.2	%
Total Monthly Tailings Slurry Volume	77,341.7	m^3
Total Monthly Reclaimed Water Volume	71,129.8	m^3

Site Measurements:

Date of survey: August 2, 2014 — Pond Elevation: 1306.68 m — Estimated volume: 896,900 m^3

Total Monthly Precipitation	64.2	mm
Total Monthly Underground Input	10,194	m^3
Total Monthly STP Effluent Input	789	m^3
Total Monthly Industrial Complex Runoff Input	706	m^3
Total Volume from Seepage collection pond to Facility	368	m^3
Average Monthly Under drain Flow Rate	4.09	L/s
Average Monthly Ditch A Flow Rate	0.92	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	-	Ft

See page 3 to Annotate Pond Diagram

Pictures Taken? Y ☒ N ☐ — Photo Sheet Attached? Y ☒ N ☐

Special Remarks:

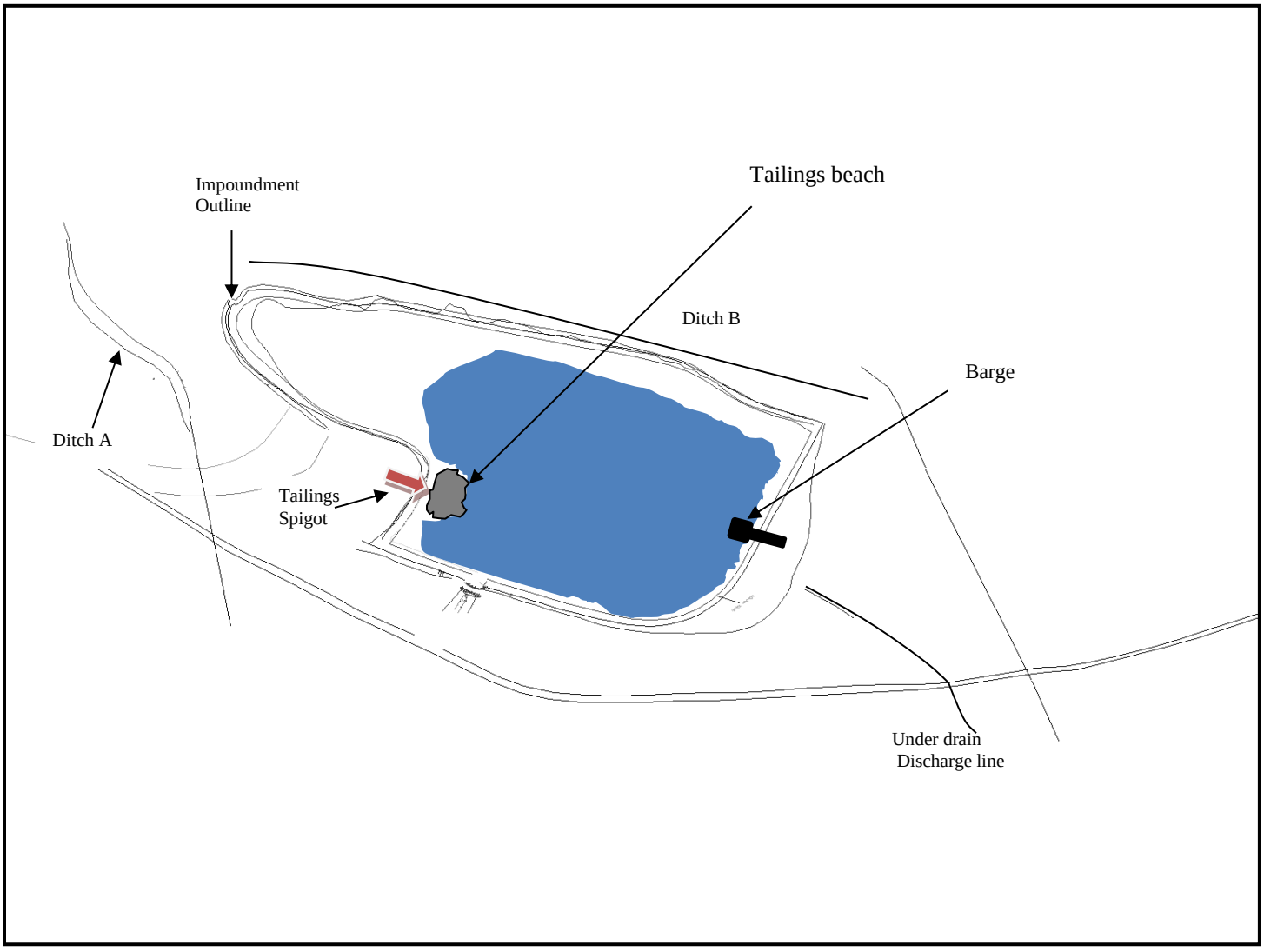
1. Milling rates averaged 1,785 dry tonnes per day (total of 24 Operating Days); processing 42,844.9 dry tonnes ore with 16,252.5 dmt of tailings reported to underground for paste fill and 18,014.5 dmt tailings to TSF. Reclaim water flow rates to the mill was steady as high as 200 m3/hr during the month. On July 28th, the reclaim water discoloration was observed into orange-reddish color.

2. Brief on any maintenance: No major reported service\repair maintenance on barge or booster pump during the month. Winterhib Anti-scalant application into suction inlet the barge pump #1 continues at dose rate of 30 cc/min. The stainless steel coupon that was installed in reclaim water system in the mill will to be removed on Aug 6th to analyze for scale formation after 60-days of anti-scalent application & will send to Power Chemicals in Vancouver. Maintenance is preparing to work on the barge\pumps de-icing blower & moving the 20' sea-can for de-scalant system & lines winterization.

3. Mill operating schedule continues to budget for 3 weeks operating and 1 week scheduled maintenance down time.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Andrea Kenward / Manny Rejano **Signature** _____

Supervisor/Manager Manny Rejano **Signature & Date** _____



Photo 1: Looking at Barge pump station & its discharge line from East side of TSF

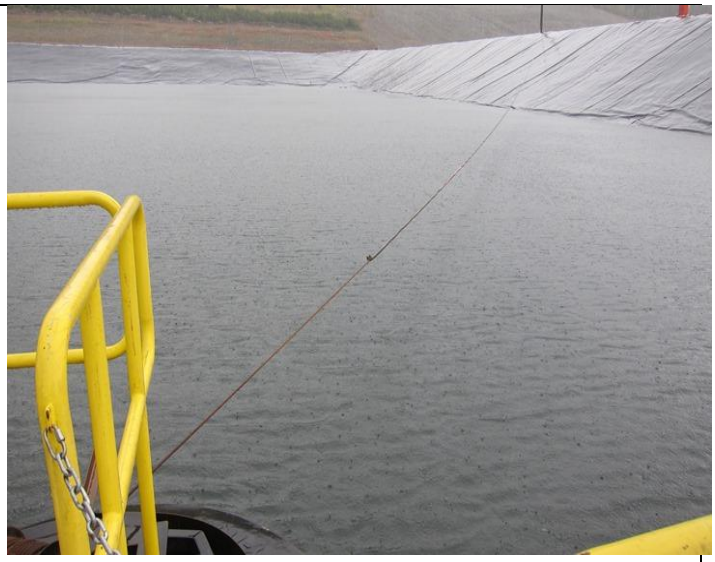


Photo 2: Looking at north-east corner of TSF from Barge, with only one-cable attached at north side of barge.



Photo 3: South-east corner view from east side of TSF.



Photo 4: View of South Wall with tailing slurry discharging- enough room for the tailings.



Photo 5: looking at south-west corner bank showing distorted liner at left corner of west wall.

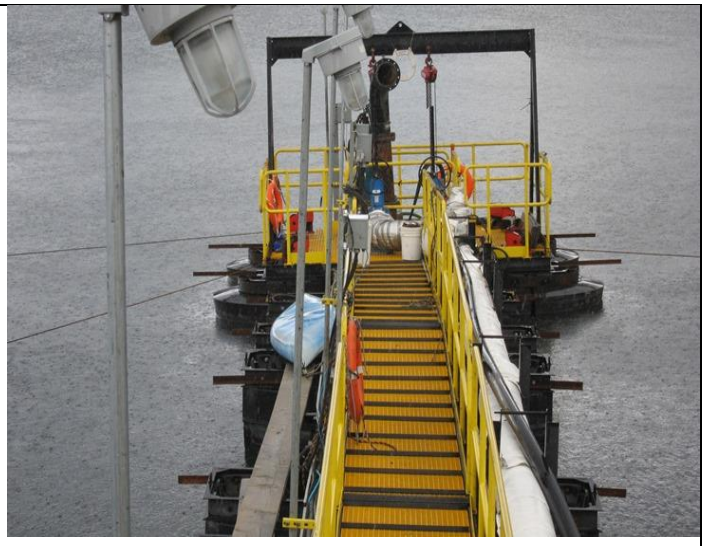


Photo 6: Closer view of barge pump system…showing the 3-anchor cables.



Photo 7: looking at north side of TSF showing riffles on the left corner liner of wall.

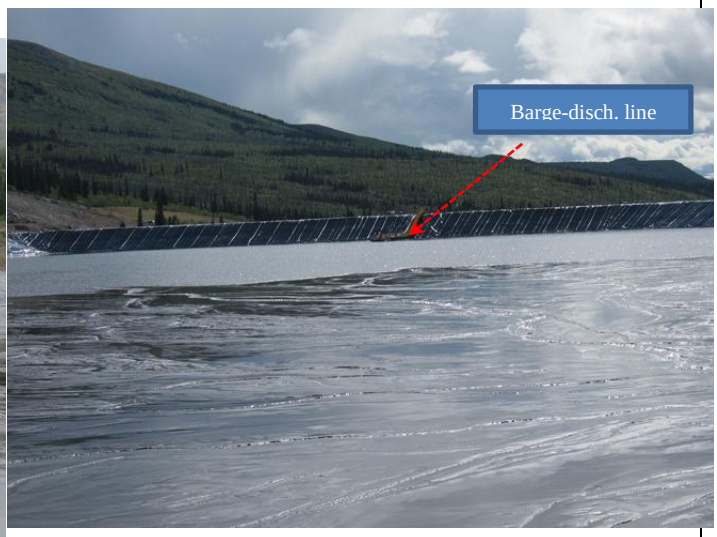


Photo 8: looking east from transfer station.

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	August 2014	Avg. Daily Temp.	Average: 9.5◦C ; Low: 2◦C; High: 23◦C

Mill Record Data:

Total Monthly Tailings Deposition	19,861	Dry Tonnes
Average Monthly Tailings % Solids	16.1	%
Total Monthly Tailings Slurry Volume	11,0485	m^3
Total Monthly Reclaimed Water Volume	103,637	m^3

Site Measurements:

Date of survey: August 31, 2014 Pond Elevation: 1306.75 m Estimated volume: 905,300 m^3

Total Monthly Precipitation	41.6	mm
Total Monthly Underground Input	12,698	m^3
Total Monthly STP Effluent Input	794	m^3
Total Monthly Industrial Complex Runoff Input	811	m^3
Total Volume from Seepage collection pond to Facility	0	m^3
Average Monthly Under drain Flow Rate	1.91	L/s
Average Monthly Ditch A Flow Rate	0.91	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	41.5	Ft

See page 3 to Annotate Pond Diagram

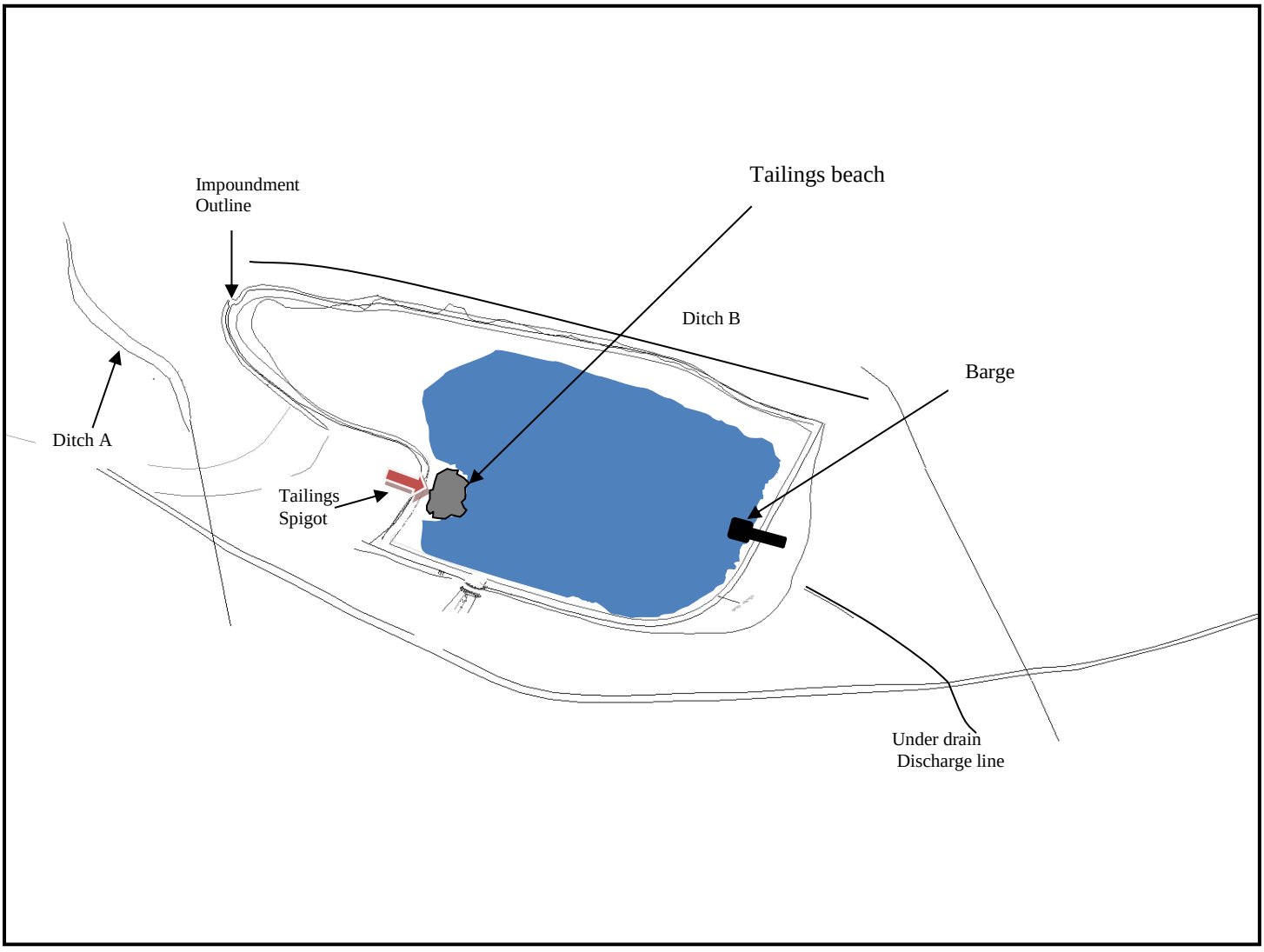
Pictures Taken? Y ☒ N ☐ Photo Sheet Attached? Y ☒ N ☐

Special Remarks:

1. Milling rates averaged 1,806 dry tonnes per day (total of 25 Operating Days); processing 44,642 dry tonnes ore with 15,277 dmt of tailings reported to underground for paste fill and 19,861 dmt tailings to TSF. Reclaim water flow rates to the mill averaged 180 m3/hr during the month.
2. Brief on any maintenance: No major reported service\repair maintenance on barge or booster pump during the month. Winterhib Anti-scalant application into suction inlet the barge pump #1 continues. The stainless steel coupon that was removed on Aug 6th to analyze for scale formation after 60-days of anti-scalent application & will send to Power Chemicals in Vancouver. Mill maintenance work preparation on the barge\pumps de-icing blower & winterization continues.
3. Mill time is expected to continue running for September. No plans for maintenance at this point.
4. Rehabilitation of Ditch A and the North slope of the Tailings Pond was started during the month of August, construction of a new sump to divert overland and groundwater springs is currently underway and work will continue into the month of September.
5. Six survey monuments were installed in the Tailings Dam to replace damaged inclinometer casings. These points will require some further adjustment and then they will be monitored monthly by the surveyor.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Andrea Kenward / Jaime Trejo-Gallardo **Signature** _____

Supervisor/Manager Manny Rejano **Signature & Date** _____

	
Photo 1: Looking at original discharge location on east side of TSF.	**Photo 2:** Looking at north-west corner of TSF showing current location of discharge line.
	
Photo 3: View of Barge for North-east side of TSF.	**Photo 4**: View of South-west wall from the South side of TSF.



Photo 5: View of North-east slope from the South of TSF.



Photo 6: Closer view of barge pump system.



Photo 7: Current construction/rehabilitation of Ditch A on the North end of TSF.

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	September 2014	Avg. Daily Temp.	Average: 3.2◦C ; Low: -10.6◦C; High: 16.8◦C

Mill Record Data:

Total Monthly Tailings Deposition	17,018	Dry Tonnes
Average Monthly Tailings % Solids	18.5	%
Total Monthly Tailings Slurry Volume	93,800.0	m^3
Total Monthly Reclaimed Water Volume	76,400.4	m^3

Site Measurements:

Date of survey: September 30,2014 Pond Elevation: 1306.69 m Estimated volume: 898,100 m^3

Total Monthly Precipitation	40	mm
Total Monthly Underground Input	9,150	m^3
Total Monthly STP Effluent Input	705	m^3
Total Monthly Industrial Complex Runoff Input	1,478	m^3
Total Volume from Seepage collection pond to Facility	0	m^3
Average Monthly Under drain Flow Rate	1.92	L/s
Average Monthly Ditch A Flow Rate	0.76	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	40.8	Ft

See page 3 to Annotate Pond Diagram

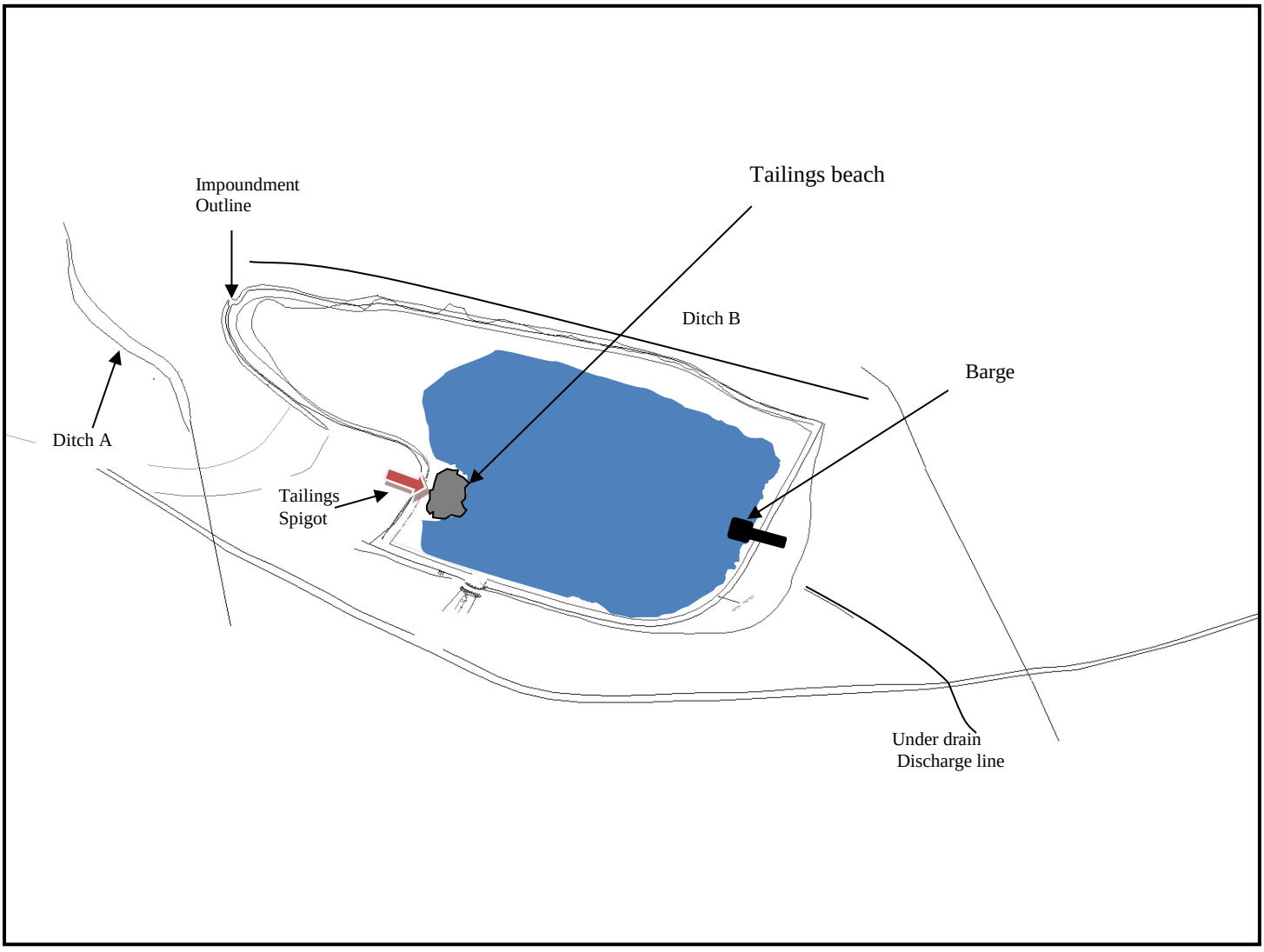
Pictures Taken? Y ☒ N ☐ Photo Sheet Attached? Y ☒ N ☐

Special Remarks:

1. Milling rates averaged 1,797 dry tonnes per day (total of 20.7 Operating Days); processing 37,200 dry tonnes ore with 12,457.3 dmt of tailings reported to underground for paste fill and 17,018 dmt tailings to TSF. Reclaim water flow rates to the mill averaged 178 m3/hr during the month.
2. Brief on any maintenance: No major reported service\repair maintenance on barge or booster pump during the month. Winterhib de-scalant application was stopped due to low temperatures in September that caused jelling of de-scalent. Mill maintenance work preparation on the barge\pumps de-icing blower & winterization continues.
3. Mill time is expected to continue running for September. No plans for maintenance at this point.
4. Rehabilitation of Ditch A and the North slope of the Tailings Pond was started during the month of August/September, construction of a new sump to divert overland and groundwater springs has been completed. The ditch was lined, sediment filter traps installed and road sloping to assist runoff were also completed during September.
5. Six survey monuments were installed in the Tailings Dam to replace damaged inclinometer casings. These points were surveyed for the first time in September.
6. Tailings Pond volume reflects a value lower than the previous month. This is due to the discovery of a elevation settings error in the GPS of 13.8cm, this has been corrected and the volume now reflects an accurate elevation.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Andrea Kenward / Jaime Trejo-Gallardo **Signature** _____

Supervisor/Manager Manny Rejano **Signature & Date** _____



Photo 1: Looking at discharge location at south-west corner side of TSFshowing liner movements in the west wall.

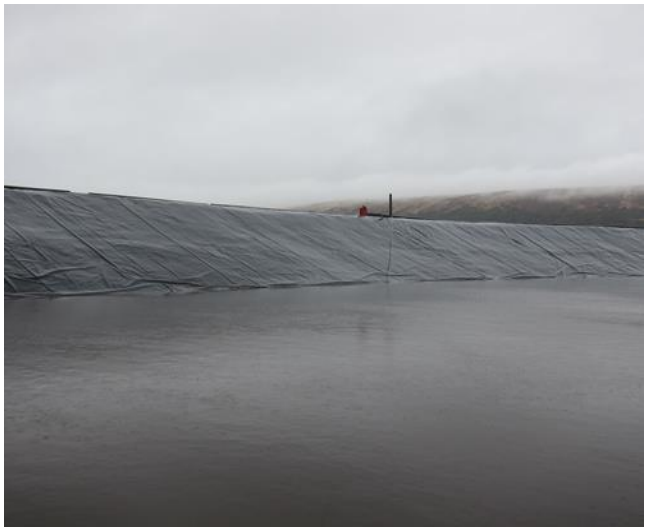


Photo 2: Looking at the south wall of TSF.



Photo 3: Closer view of discharge pipe location North-west corner of TSF.



Photo 4: View of North wall of TSF.



Photo 5: View of North-east slope from the South of TSF.

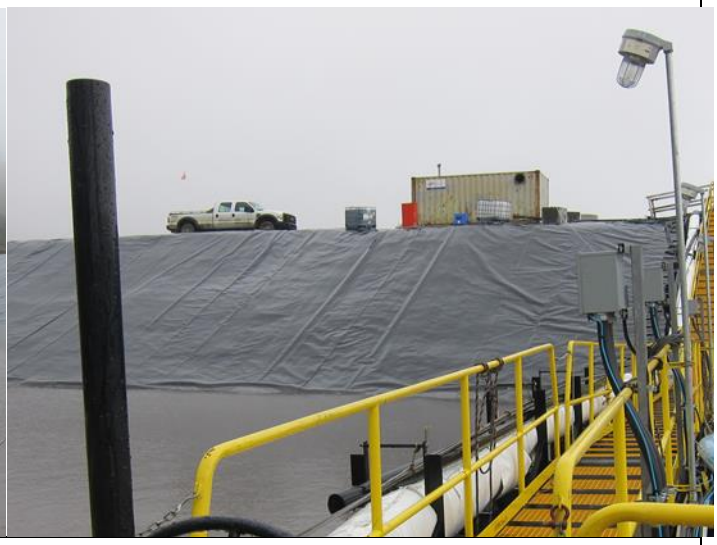


Photo 6: Closer view of barge pump system.



Photo 7: Closer picture of barge pumping station.

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	October 2014	**Avg. Daily Temp.**	Average: 3.2◦C ; Low: -10.6◦C; High: 16.8◦C

Mill Record Data:

Total Monthly Tailings Deposition	18,273.3	Dry Tonnes
Average Monthly Tailings % Solids	20.7	%
Total Monthly Tailings Slurry Volume	94,741.6	m^3
Total Monthly Reclaimed Water Volume	88,440.4	m^3

Site Measurements:

Date of survey October 31, 2014 **Pond Elevation** 1306.93 m **Estimated volume** 926,860 m^3

Total Monthly Precipitation	24	mm
Total Monthly Underground Input	9,041	m^3
Total Monthly STP Effluent Input	771	m^3
Total Monthly Industrial Complex Runoff Input	0	m^3
Total Volume from Seepage collection pond to Facility	0	m^3
Average Monthly Under drain Flow Rate	1.38	L/s
Average Monthly Ditch A Flow Rate	0.79	L/s
Average Monthly Ditch B Flow Rate	0.28	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	35’ 3”	Ft

See page 3 to Annotate Pond Diagram

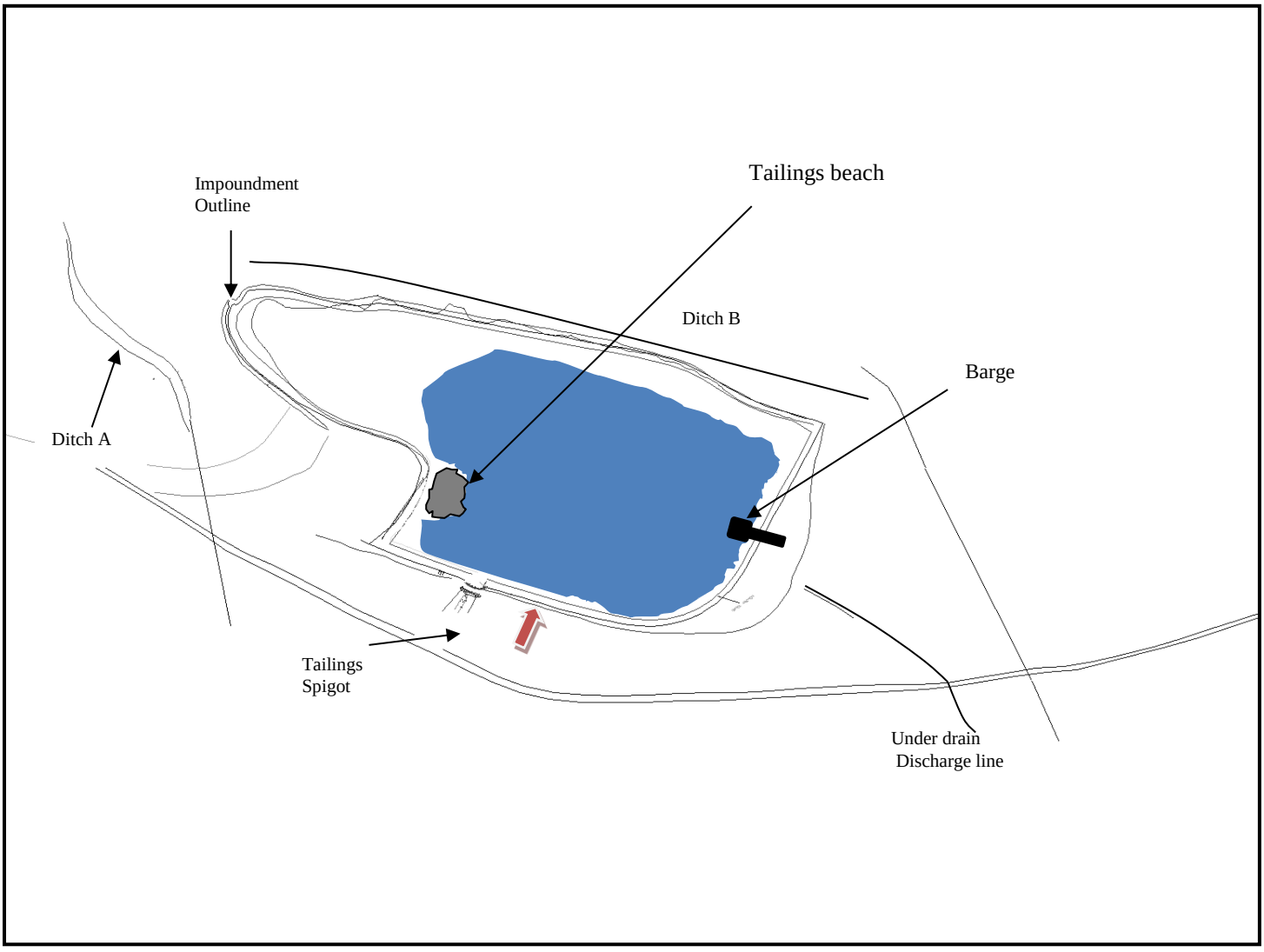
Pictures Taken? Y ☒ N ☐ **Photo Sheet Attached?** Y ☒ N ☐

Special Remarks:

1. Milling rates averaged 1,740.7 dry tonnes per day (total of 21.3 Operating Days); processing 37,014 dry tonnes ore with 10,175.1 dmt of tailings reported to underground for paste fill and 18,273.3 dmt tailings to TSF. Reclaim water flow rates to the mill averaged 151 m3/hr during the month.
2. Brief on any maintenance: No major reported service\repair maintenance on barge or booster pump during the month. Winterhib de-scalant application was stopped due to low temperatures in September that caused jelling of de-scalent. Mill maintenance work the barge pumps de-icing blower is complete and operating.
3. Mill time is expected to continue running for November. No plans for maintenance at this point.
4. Rehabilitation of Ditch A and the North slope of the Tailings Pond was completed during the month of October, including the construction of a new sump to intercept groundwater springs and divert to the new lined Ditch A. The ditch was lined, sediment filter traps installed and road sloping to assist runoff.
5. Six survey monuments that were installed in the Tailings Dam to replace damaged inclinometer casings were surveyed in October.
6. Tailings Pond volume reflects a value lower than the previous month. This is due to the discovery of a elevation settings error in the GPS of 13.8cm, this has been corrected and the volume now reflects an accurate elevation.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Robin McCall / Mike Carney **Signature** _____

Supervisor/Manager Manny Rejano **Signature & Date** _____

	
Photo 1: Looking at south-west corner side of TSF showing liner movements in the west wall.	**Photo 2:** Looking at the south wall of TSF.
	
Photo 3: Closer view of discharge pipe location North-west corner of TSF.	**Photo 4**: View of North wall of TSF.



Photo 5: View of North-east slope from the South of TSF.



Photo 6: Closer view of barge pump system.



Photo 7: Closer picture of barge pumping station.

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	November 2014	Avg. Daily Temp.	Average: -11◦C ; Low: -26◦C; High: -4◦C

Mill Record Data:

Total Monthly Tailings Deposition	20,528.6	Dry Tonnes
Average Monthly Tailings % Solids	21.3	%
Total Monthly Tailings Slurry Volume	82,864.7	m^3
Total Monthly Reclaimed Water Volume	75,785.89	m^3

Site Measurements:

Date of survey: December 2, 2014 Pond Elevation: 1307.10 m Estimated volume: 947,400 m^3

Total Monthly Precipitation	0	mm
Total Monthly Underground Input	6,350	m^3
Total Monthly STP Effluent Input	639	m^3
Total Monthly Industrial Complex Runoff Input	0	m^3
Total Volume from Seepage collection pond to Facility	0	m^3
Average Monthly Under drain Flow Rate	1.09	L/s
Average Monthly Ditch A Flow Rate	Unknown but still flowing	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	35’ 6” (2 Dec, 2 pm)	Ft

See page 3 to Annotate Pond Diagram

Pictures Taken? Y ☒ N ☐ Photo Sheet Attached? Y ☒ N ☐

Special Remarks:

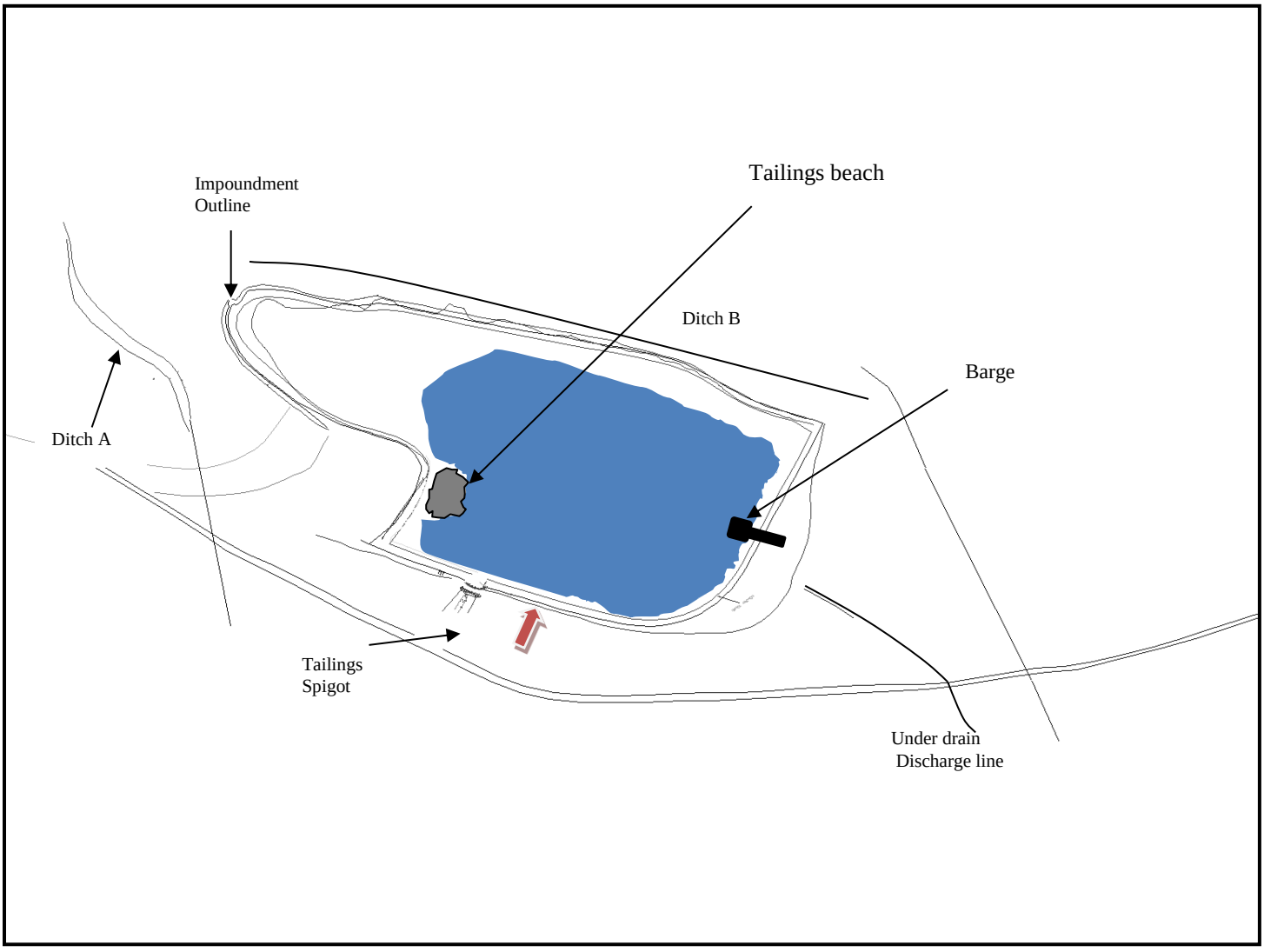
1. Milling rates averaged 1,743.0 dry tonnes per day (total of 18.6 Operating Days); processing 32,485.8 dry tonnes ore with 4,712.3 dmt of tailings reported to underground for paste fill and 20,528.6 dmt tailings to TSF. Reclaim water flow rates to the mill averaged 215 m3/hr during the month while operating the mill.

2. Brief on any maintenance: No major reported service\repair maintenance on barge or booster pump during the month. The Winterhib de-scalant was replaced with a low temperature variant called Winterhib MS-1 and is being applied to the tailings pumps. Mill maintenance worked on the barge pumps de-icing blower is complete and operating.

3. The Six survey monuments that were installed in the Tailings Dam to replace damaged inclinometer casings were re-surveyed in November. The results are being tracked.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Robin McCall / Mike Carney **Signature** _____

Supervisor/Manager Manny Rejano **Signature & Date** _____

	
Photo 1: Looking at south east corner side of TSF and barge station.	**Photo 2:** Looking over the barge station towards the north side.
	
Photo 3: Closer view of discharge pipe location North-west corner of TSF.	**Photo 4**: View of north and west walls of TSF.

	
Photo 5: View of east slope from the north side of the TSF.	**Photo 6:** Closer view of barge pumps.
	
Photo 7: Closer picture of barge pumping station.	**Photo 8**: View of north corner of TSF.

WOLVERINE PROJECT
Tailings Facility Monitoring
Monthly Impoundment Monitoring Report

Month	December 2014	**Avg. Daily Temp.**	Average: -17◦C ; Low: -34◦C; High: -9◦C

Mill Record Data:

Total Monthly Tailings Deposition	12,837	Dry Tonnes
Average Monthly Tailings % Solids	21.8	%
Total Monthly Tailings Slurry Volume	50,488.0	m^3
Total Monthly Reclaimed Water Volume	46,062.4	m^3

Site Measurements:

Date of survey January 1, 2015 **Pond Elevation** 1307.23 m **Estimated volume** 963,151 m^3

Total Monthly Precipitation	0	mm
Total Monthly Underground Input	7198	m^3
Total Monthly STP Effluent Input	524	m^3
Total Monthly Industrial Complex Runoff Input	0	m^3
Total Volume from Seepage collection pond to Facility	0	m^3
Average Monthly Under drain Flow Rate	0.80	L/s
Average Monthly Ditch A Flow Rate	Unknown but still flowing	L/s
Average Monthly Ditch B Flow Rate	0	L/s
Total Monthly Volume Discharged from Water Treatment	0	m^3
Depth of Water at Reclaim Barge	35.8 (3 Jan 15, 4PM)	Ft

See page 3 to Annotate Pond Diagram

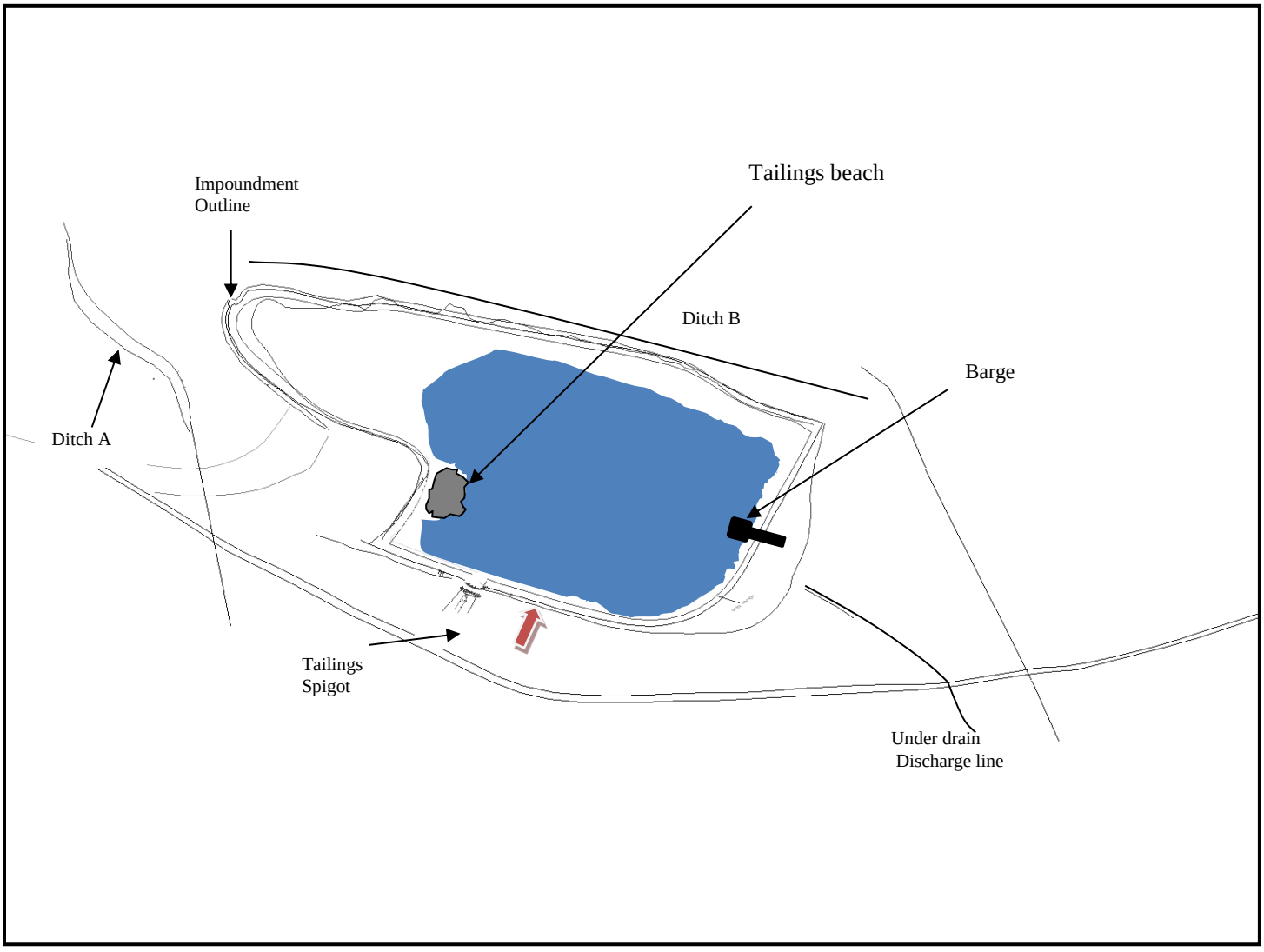
Pictures Taken? Y ☒ N ☐ **Photo Sheet Attached?** Y ☒ N ☐

Special Remarks:

1. Milling rates averaged 1,649.0 dry tonnes per day (total of 14 Operating days); processing 23,095 dry tonnes ore with 6,034 dmt of tailings reported to underground for paste fill and 12,837 dmt tailings to TSF.
2. Brief on any maintenance: Minor service in removing ice buildup on both sides of walkway to barge pump platform. On Dec 31st the reclaim water booster pumps was checked, pumps are good and no observation of scaling inside the casing pump casing & discharge. The Winterhib MS1 was not running when inspected on Jan 4th. Resumed de-scalent at addition rate set at 40.
3. The mill resumed operation on Dec 8th and was shut down on D/S of Dec 22 for scheduled Christmas down to Jan 2′ 2015.
4. The Six survey monuments that were installed in the Tailings Dam to replace damaged inclinometer casings were re-surveyed. The results are being tracked.

Sketch to Include:

- Pond area
- Ice area
- Tailings spigot points
- Tailings beaches
- Reclaim barge location



Operator Andrea Kenward / Manny Rejano **Signature** _____

Supervisor/Manager Manny Rejano **Signature & Date** _____



Photo 1: Looking at barge station.

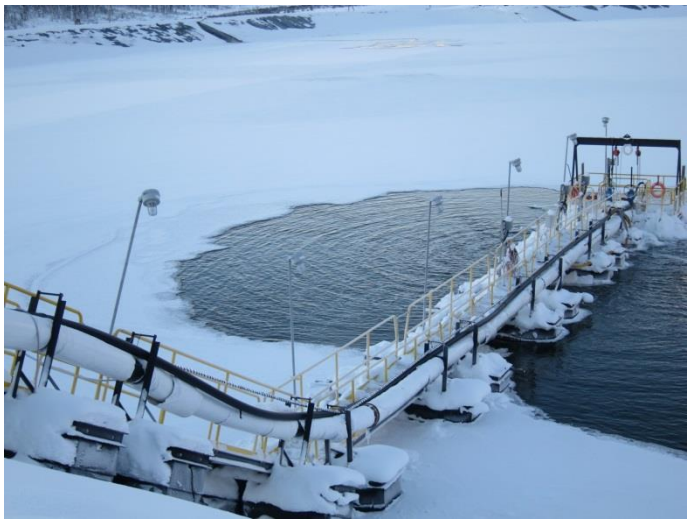


Photo 2: Looking over the barge station from East side of the dam.



Photo 3: Showing NE view corner from barge pump platform.



Photo 4: View of north side walls of TSF.

	
Photo 5: View of east slope from the north side of the TSF.	**Photo 6:** East side of TSF view from barge pumps.
	
Photo 7: View of tails discharge pipe at center south of TSF.	**Photo 8**: View of north west corner of TSF.