



MEADOWBANK DIVISION

Monitoring Program Summary Report
November 2014

Type A Water License 2AM-MEA0815

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SECTION 1 • BACKGROUND

As required under Part I, Item 25 of Type A Water License 2AM-MEA0815, this report documents the water management and monitoring activities at the mine site for the month. This includes water usage, Portage Attenuation Pond discharge water quality, Vault Attenuation Pond discharge water quality, East Dike Seepage discharge water quality, RSF Seepage, Assay Road Seepage and sewage treatment plant discharge water quality (which is directed to the onsite storm water management pond).

In addition, a summary of spills/actions for the month are reported.

SECTION 2 • WATER MANAGEMENT

2.1 WATER USAGE

Freshwater usage for November 2014 is summarized in Table 2.1 below. Total freshwater used for the month was 111,549 m³ for a total year to date of 1,022,179 m³. The total amount of reclaim water used in the mill for November was 207,800 m³. As of November 19th, 2014, the reclaim water was taken from the TSF South Cell instead of TSF North Cell as planned. Tailings deposition also started in the South Cell which has become the new reclaim pond.

Table 2-1: Freshwater Usage (m³)

	November
Freshwater Storage Tank	111,285
Emulsion Plant	264
Water Truck	0
Total	111,549
Year to date total	1,022,179

2.2 WASTE ROCK STORAGE FACILITY SEEPAGE

In November, no water was pumped from ST-16 to the North Cell TSF due to frozen conditions. The total year to date is 32,169 m³ pumped directly to the TSF storage area from ST-16.

AEM continues to complete weekly inspection at RSF and NP-2 Lake. As sump water is frozen monitoring water quality for CN WAD at these locations has stopped. The ice thickness permitted technicians to go on NP-2 Lake to take a monthly sample in November. This was the last sampling event for 2014 on NP-2 Lake and monitoring will restart in the spring as per the Freshet Action Plan.

You will find in Appendix A the report “*Follow up AEM Report – Seepage Water From Waste Rock Storage Facility – Sample Location ST-16*”. This report is provided as an update and summary of the action taken and lake results in 2014. Overall, this report indicates that seepage from ST-16 that reached the NP-2 pond in 2013 was short in duration, low in volume and limited to the nearshore area. Monitoring data in 2014 indicated that the 2013 seepage event did not affect the water quality of the downstream in NP-1, Dogleg and Second Portage Lakes.

2.3 ASSAY ROAD SEEPAGE

In November, water in the interception trench and the original containment berm and sump was not pumped back to the mill. However, during the month of November, water from well MW-203 was pumped back to the mill for a total of 842 m³ during the month. Year to date volume that has been pumped is 13,827 m³.

Weekly inspections of the area were conducted in November. No samples were taken in the sumps or interception trench in November as the water was frozen since the end of October. Well monitoring for CN downstream of the trench, has also ceased as all the water in the wells are frozen. Repairs to the containment areas inside the mill are nearly complete and continue to progress.

2.4 SEWAGE TREATMENT PLANTS

One (1) effluent wastewater sample was taken from the onsite sewage treatment plant (STP's) in October.

The Seprotech STP results are shown in Table 2.3.1 below; the LJ-Mix STP results are shown in Table 2.3.2. The results of the discharge indicate the system is working well. The effluent is discharged to the stormwater management pond and is sent to the TSF and back to the mill as reclaim water. This water is not discharged to land or into the receiving water.

Table 2.3.1: Seprotech Effluent Results

Parameters	Units	November 2, 2014
Ammonia	mg N/L	<0.01
Ammonia-Nitrogen	mg N/L	8.3
Total Kjeldahl Nitrogen	mg N/L	11.7
BOD-5	mg/L	11
COD	mg/L	63
Total Suspended Solids	mg/L	17
Nitrate	mg N/L	23.30
Nitrite	mg N/L	0.16
pH*	Units	5.20
Fecal Coliform	UFC/100 mL	20
Total Coliform	UFC/100 mL	400

*Parameter measured by STP operators

Table 2.3.2: LJ-Mix Effluent Results

Parameters	Units	November 2, 2014
Ammonia	mg N/L	<0.01
Ammonia-Nitrogen	mg N/L	9.3
Total Kjeldahl Nitrogen	mg N/L	9.4
BOD-5	mg/L	2
COD	mg/L	19
Total Suspended Solids	mg/L	5
Nitrate	mg N/L	26.50
Nitrite	mg N/L	0.07
pH*	Units	4.10
Fecal Coliform	UFC/100 mL	1
Total Coliform	UFC/100 mL	6

*Parameter measured by STP operators

2.5 PORTAGE ATTENUATION POND EFFLUENT

July 5th, 2014 was the last day of discharge from the Portage Attenuation Pond. Total year to date is 207,813 m³ of water discharged into Third Portage Lake.

As of November 19th, AEM is no longer using the Portage Attenuation Pond (South Cell) as an attenuation pond, rather tailings are deposited and reclaim water is being recirculated from the South Cell tailings storage facility.

2.6 VAULT ATTENUATION POND EFFLUENT

Vault Attenuation Pond discharge was completed on August 14, 2014. Total year to date (including dewatering water) discharge volume was 329,101 m³.

2.7 EAST DIKE SEEPAGE EFFLUENT

East Dike Discharge was continuous for the month of November. During the month, a total of 16,453 m³ was discharged thru the diffuser into Second Portage Lake for a total year to date of 126,755 m³. Monitoring results are shown in Table 2.7.1 below.

TSS results did not exceed the maximum average concentration (15 mg/L) and maximum allowable grab sample concentration (30 mg/L) permitted by the Water License, Part F, Item 4.

Table 2.7.1: East Dike Seepage Discharge Results

Parameters	Units	4-Nov-14	10-Nov-14	18-Nov-14	25-Nov-14	30-Nov-14	Average Concentration
Total Suspended Solids	mg/L	6	11	<1	5	7	5.9

2.8 NON CONTACT WATER

In November, there was no water discharged through the non-contact water diversion ditches due to freezing conditions.

SECTION 3 • SPILL MANAGEMENT

AEM has developed a thorough internal system of tracking spills on-site. Table 3.1 summarizes the AEM spill reports for the month. Three (3) spills occurred on site and 0 were reported to the GN spill hotline. AEM contained, cleaned up and disposed of the spill material adequately.

Table 3-1: Summary of AEM Internal Spill Reports

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-11-02	Used Oil	50	Outside Incinerator	Operator was cleaning snow around the incinerator and got too close to the tote. Loader damage top of tote.	Loader removed contaminated material with bucket. Tote was brought into incinerator.	No
2014-11-15	Hydraulic oil	40	Vault Parking	Hydraulic oil hose busted on HTR 20	Put absorbents pads on the spills. Scrapped the ground and cleaned up with IT14. Disposal of contaminated material in the roll off bin.	No
2014-11-23	Compressor oil	30	Old Warehouse Cover-all	Air filters were frozen, oil ended up going out through the relief valve	Contaminated soil piled into 1 spot using a grader, picked up with CAT IT-14 than placed inside yellow roll-off bin.	No

Appendix A

**Follow up AEM Report – Seepage Water From Waste
Rock Storage Facility – Sample Location ST-16
(AEM, 2014)**



MEADOWBANK MINE

Follow up AEM Report – Seepage Water From Waste Rock Storage Facility – Sample Location ST-16

DECEMBER 2014

1. INTRODUCTION

In July 2013, it was discovered that seepage from the sump at sample location ST-16, on the north-east side of the Waste Rock Storage Facility (RSF) had migrated through a rockfill perimeter road into the near shore area of NP-2 Lake (see ST-16 on Figure 1 below). Results of sampling indicated that the seepage contained copper, nickel, ammonia and cyanide. It was determined through investigation that the likely source of the contaminants was reclaim water from the North Cell TSF. This water had migrated underneath the RSF through a former watercourse into the seepage sump area (ST-16). By August 4th, 2013 AEM had lowered the level in the seepage area to the point that the seepage through the road had stopped (as the seepage water had been pumped lower than the cut-off berm/rockfill road). More details regarding the cause and action plan are noted in the documents *"Preliminary AEM Report – Seepage Water From Waste Rock Storage Facility – Sample Location ST-16"* (AEM, 2013) and *"Rock Storage Facility Seepage - Meadowbank Gold Mine, Nunavut"* (Golder, 2014) (these reports were previously provided to regulatory agencies as well as the KIA).

This document is a follow up report related to AEM's Action Plan to mitigate and assess this occurrence. Specifically, results of monitoring at the ST-16 location and NP-2 pond and further preventive measures are discussed.

2. ACTION PLAN

In 2014, AEM implemented a Freshet Action Plan (AEM, 2014) which was provided to regulators in Q2 2014. The purpose of the Action Plan is to identify areas of concern around the Meadowbank mine site and the AWAR that need to be managed in an organized and timely manner during the annual freshet period to prevent adverse environmental and operational impacts. This plan describes the actions that Meadowbank environment and water management teams have taken to ensure that off-site water bodies are protected from the beginning of the freshet period which typically occurs during the annual snow and ice melt around mid-May until the beginning of freeze up period around September - October.

Prior to the 2014 freshet, AEM installed a pump and piping system at the ST-16 seepage location to collect and pump seepage water back into the TSF. As predicted, pumping began around May 15th (freshet commenced around the beginning of May) and was terminated around September 15th when the sump began to freeze. Pumped volumes were recorded and a total of 32,169m³ of water was pumped back to TSF in

2014. See Table 1 below for pumped volume per month. All the water was contained in sump ST-16 and no water seeped in NP-2 pond.

From January to April 2014, weekly visual inspections of the seepage area were conducted. On May 1st AEM changed from weekly monitoring and began daily visual inspections of the seeping area and at NP-2 lake nearshore area. Around May 15th, the ice in the sump began thawing and there was enough volume of water in the ST-16 sump to start the pumping to the TSF. During July and August visual inspections were changed from daily to every other day and at the beginning of September the inspection frequency returned to weekly as the quantity of pumped water decreased and the freeze up started.

As soon as the snow and ice began to melt, the sample monitoring commenced. This included:

- A. Monthly: ST-16 and NP-2 South/West/East testing for CN Total, CN Free, and ST-16 Water License requirements (pH, alkalinity, turbidity, ammonia, ammonia-nitrogen, TDS, total metals (arsenic, copper, lead, nickel, zinc)).
- B. Starting in July during the open water - to include new KIA requested parameters (pH, Conductivity, Turbidity, Field Temperature, TDS, Dissolved Oxygen (%), Colour, Anion scan, Dissolved Oxygen (mg/L), Hardness, Alkalinity, DOC, TOC, Low level TSS, Low Level TP, TKN, total ammonia, NO₃, NO₂, Chlorophyll A (lake sites only), Cyanide (WAD), Total Cyanide, CN Free, total metals (ICP-MS), dissolved metals (ICP-MS), Low Level Total Cadmium, Low Level dissolved Cadmium, Trace Level Total Mercury, Trace Level Methyl Mercury) and new locations NP1-West, Dogleg - North, SPL – RSF Seep (see Figure 1); and
- C. Bi-weekly (2x a week): On site assay lab for CN WAD at ST-16 and NP-2 South (see Figure 1). Sampling frequency was changed to weekly (1x a week) after 1 month. This information is used to provide real time results and in case quick actions are necessary – the lab is not accredited and the results are therefore not provided.

The result of this monitoring can be found in Table 2 for ST-16 and NP-2, Table 3 for results in NP-1, Dogleg and Second Portage Lake and Table 4 for the 2014 average for all stations.

The analysis of the data and more particularly Copper, Nickel, Ammonia and Cyanide, confirm that no ST-16 seepage water entered into NP-2 pond in 2014 as the results are considerably below the ST-16 water quality results. In addition the results from 2014 are much lower than those from 2013 monitoring (see 2013 averages in Table 2). Furthermore, the monitoring of NP-1, Dogleg and Second Portage Lake in July, August and September confirmed that these downstream lakes had not been affected by the seepage in 2013.

In addition to the sampling monitoring describe above, AEM also took samples below ice during the winter of 2014 (in January) and in November (results not received to date) at sampling location NP-2 Winter (see Figure 1). Results indicate a significant reduction of the above noted parameters indicating that the seepage is contained at the ST-16 sump location. Also the results from Toxicity testing on August 19, 2014 indicated a non-toxic result for rainbow trout and daphnia. All toxicity results to date indicate a non-toxic environment for rainbow trout.

In 2014, AEM implemented all recommendations provided in the 2013 Interim Report as well as those provided in the Golder Report. These included:

1. Develop and maintain tailings beaches adjacent to RF1 and RF2 and to operate the Reclaim Pond towards the centre of the TSF. This measure is designed to minimize seepage through the RSF at locations RF-1 and RF-2.
2. AEM installed permanent collection and pumping system at the sampling station ST-16 (current sump). Weekly inspections were conducted around the RSF to ensure there was no further seepage of reclaim water, off site, from the TSF. Therefore no additional collection structures were constructed in this regard.
3. The seepage at station ST-16 was collected and redirected to the TSF and monitored (location, quantity, quality). Continued monitoring was done during the winter for seepage water quantity monitoring. The area at ST-16 was kept clean of snow to allow visual observation and to ensure that water at ST-16 does not overflow or seep through the till plug constructed along the rockfill road (Sept, 2013 construction) into NP-2 lake.

4. AEM continued to monitor the tailings and waste rock freeze back in accordance with the Thermistor Monitoring Plan. Four additional thermistors were installed in November 2013 in the Waste Rock Storage Facility.

3. Additional Observation – 2014

During the freshet period in 2014, we successfully caught many fish (Lake Trout) in a small pool at the mouth of the NP-2 lake channel which flows into NP-1 pond (or Dogleg North Pond). This also occurred in the past indicating that fish continue to successfully overwinter and reside in NP-2 (see Photo 1 below).

4. Conclusion

1. With the mitigative measures and monitoring put in place in 2013 and 2014, results to date indicate that seepage from ST-16 that reached the NP-2 pond in 2013 was short in duration, low in volume and limited to the nearshore area. Monitoring data in 2014 indicated that the seepage did not affect the water quality downstream in NP-1, Dogleg and Second Portage Lakes.
2. The construction of the till plug along the rockfill road at the ST-16 location as well as the construction of the permanent pumping system at ST-16 has prevented any further seepage from reaching NP-2 Lake.
3. The comprehensive monitoring program also indicates that appropriate measures were undertaken to prevent any additional seepage from reaching NP-2.

AEM will continue to monitor ST-16, NP-2, NP-1, Dogleg and Second Portage Lake and follow the actions described in the Freshet Action Plan in 2015.

Figure 1: Seepage ST-16 Location

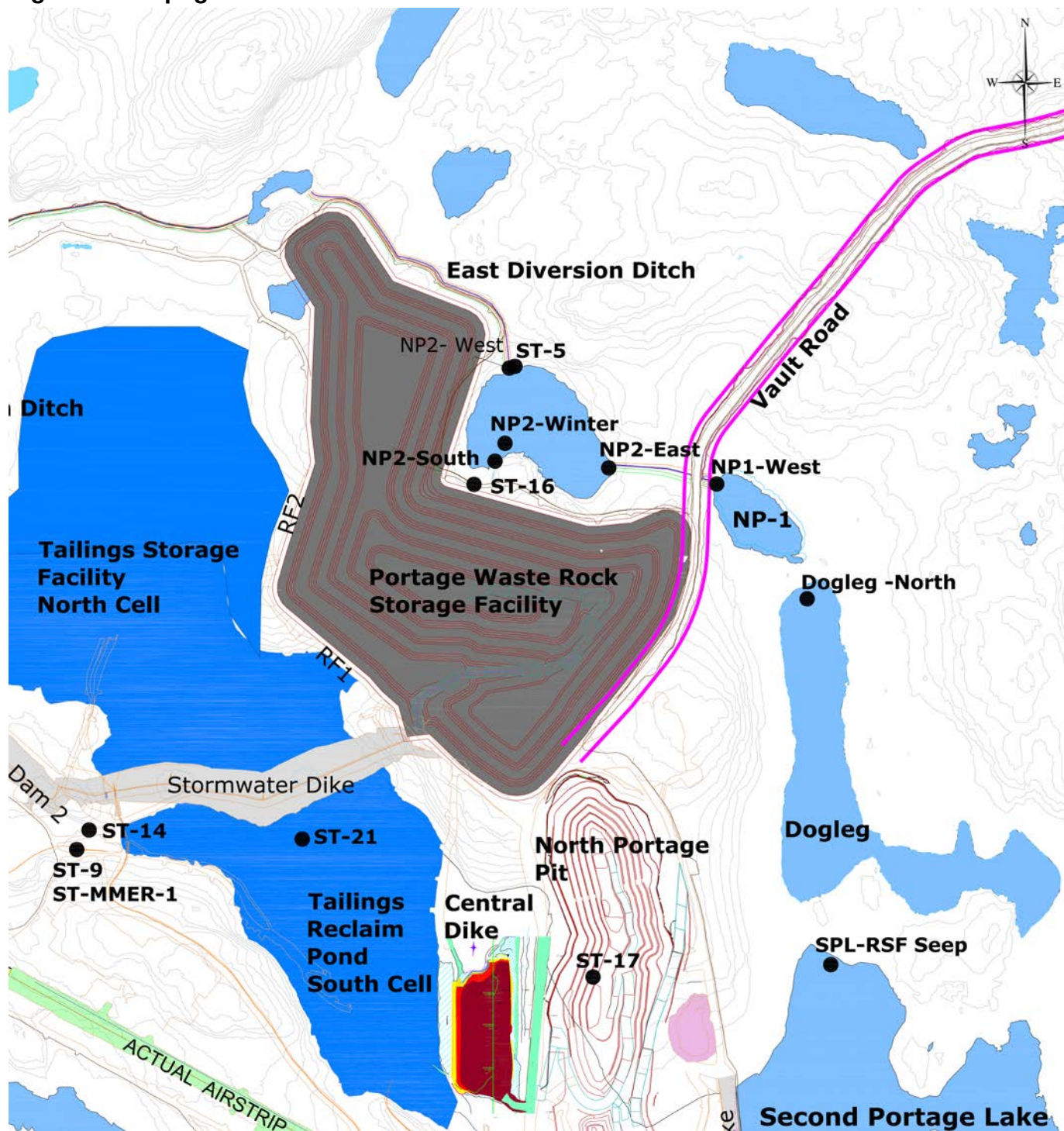


Photo 1 : Lake Trout at the mouth of the NP-2 Lake channel which flows into NP-1 pond



Table 1: 2014 Seepage pumped volume per month

Month	Volume pumped to TSF (m ³)
January	0
February	0
March	0
April	0
May	14,591
June	9,294
July	3,810
August	3,386
September	1,088
October	0
November	0
December	0*

**Estimation*



Table 2: 2014 Monitoring Results for ST-16 and NP-2

Parameters	Date	ST-16											NP-2 South							NP-2 East							NP-2 West				
	Unit	06/05/14	26/05/14	17/06/14	24/06/14	01/07/14	06/07/14	06/08/14	19/08/14	20/08/14	09/09/14	2013 Average	17/06/14	24/06/14	01/07/14	06/07/14	19/08/14	09/09/14	2013 Average	17/06/14	24/06/14	01/07/14	19/08/14	09/09/14	2013 Average	17/06/14	24/06/14	07/01/14	19/08/14	09/09/14	
Alkalinity	mg CaCO3/L	52			227	241		234	53		102	161		41	38		42	40	85		40	39	41	39	54		40	39	55		
Ammonia (NH3)	mg N/L				0.31	1.4		1.1	0.02		0.29			0.02	0.04		0.02	0.01				0.06	0.01	0.01			0.02	0.05	0.01		
Ammonia nitrogen (NH3-NH4)	mg N/L	0.79			51.7	53.8		44.3	6.1		16.4	15.2		4.4	4.4		1.7	1.1	9.6		4.7	4.6	1.3	1.1	3.6		4.6	4.3	0.68		
Kjeldahl nitrogen	mg N/L	1				107			8.6		63.4			4.8			1.6	1.7				5	1.4	6.6				6.2	1.50		
TDS	mg/L	107			2924	8080		3082	568		944	1496		305	278		248	248	915		301	274	158	251	274		299	270	119		
TSS	mg/L	44							8		6			0.5	2		4	0.5				1	6	0.5				0.5	15		
CN total	mg/L	0.01	0.014	0.4800	5.98	2.15	2.19		0.023		0.219	1.591	0.0025	0.009	0.097	0.005	0.0025	0.007	0.027	0.005	0.009	0.006	0.0025	0.008	0.014	0.0025	0.0100	0.0050	0.0100		
CN Free (SGS)	mg/L	0.005	0.005	0.0025	1.34	0.091			0.005	0.017	0.005		0.0025	0.005	0.0025		0.005	0.005		0.0025	0.005	0.0025	0.005	0.005		0.0025	0.005	0.0025	0.005		
CN WAD	mg/L	0.006		0.0459	8.02	0.448		0.304	0.023	0.062	0.0289		0.0204	0.059	0.005		0.007	0.012				0.0025	0.008	0.0025				0.0025	0.014		
Colour	colour	24				21			25		44			7			14	0.5				6	8	3				5	24		
pH (Env. Dept.)		6.22			7.38	7.85		8.07	7.14		7.20	7.05		7.48	7.52		7.38	7.02	7.07		7.61	7.52	7.31	7.22	7.13		7.59	7.38	7.29		
Conductivity (Env. Dept.)	us	261			89.6	5179		5120	793		1511	1352		77.4	316		368	373	420		342	333	322	372	420		337	325	276		
Turbidity (Env. Dept.)	NTU	80.9			11.2	3.53		6.03	19.73		10.56	12.05		2.31	1.33		4.02	1.79	3.38		1.9	1.6	7.04	1.73	3.49		3.69	1.43	13.83		
Dissolved oxygen	%	60.1			76.6									77.1	95.9						80.1	100.8					78.2	100.4			
Dissolved oxygen	mg/L	5.35			7.29	4			8.3		10.18			7.45	9.17		10	11.08			7.81	9.67	10.1	11.3			7.64	9.78	9.40		
Temperature									6.4		4.78						6.1	6.41					6.8	6.82					7.00		
Bromides	mg/L	0.09				1.7			0.2		0.57				0.1		0.1	0.1				0.11	0.07	0.13				0.1	0.03		
Chloride	mg/L	4			997	1031		886	29.9		55.8	201.3		8.8	9.6		10.2	9.8	161.3		9.3	9.5	9	9.9	19		9.70	9.50	7.80		
Fluoride	mg/L	0.08			0.32	0.57		0.55	0.24		0.23	0.26		0.10	0.12		0.11	0.13	0.08		0.1	0.12	0.11	0.14	0.09		0.10	0.12	0.12		
Calcium	mg/L	15.7																													
Sodium	mg/L	4.5																													
Hardness	mg CaCO3/L	51			2016	1221		1040	158		374	590		96	98		97	103	343		99	95	90	103	111		97	96	88		
Nitrate	mg/L	2.2			26.4	25.9		22.8	11		23.7	12.4		0.66	0.69		1.9	2.4	6.8		0.92	0.61	1.6	2.4	1.9		0.74	0.66	1.3		
Nitrite	mg/L	0.04			1	0.61		1.3	0.28		0.43	0.77		0.12	0.17		0.27	0.17	0.21		0.08	0.14	0.22	0.17	0.15		0.11	0.15	0.07		
Sulphate	mg/L	22.4			2449	2254		1786	229		937	928		127	124		126	108	471		123	122	103	106	113		119	123	63.9		
Methyl Mercury	ng/L					14.3									0.09							0.03						0.025			
Thiosulfates (S2O3)	mg/L	0.01				30.3			0.01		0.01				0.01		0.01	0.01				0.01	0.01	0.01				0.01	0.01		
Thiocyanates (SNC)	mg/L	0.05				1.6			12.5		1.5				0.025		0.025	0.025				0.025	0.32	0.025				0.025	2.5		
Ortho-phosphate (O-PO4)	mg P/L	0.01				0.005			0.02		0.01				0.005		0.01	0.005				0.005	0.02	0.005				0.005	0.05		
D.O.C	mg/L	4.9				129			13.7		17.6				4.6		5.5	5.5				5.2	6.2	5.6				4.5	7.8		
T.O.C	mg/L	5.2				107			13.4		18.8				5.9		5.8	5.4				5.7	6.5	5.5				5.7	7.6		
Dissolved Aluminium (Al)	mg/L	0.831			0.016	0.012		0.023	0.027		0.023	0.003		0.026	0.003		0.003	0.012	0.032		0.003	0.003	0.009	0.008	0.006		0.003	0.009	0.024		
Dissolved Antimony (Sb)	mg/L	0.0002				0.0007			0.00005		0.00005				0.00005		0.00005	0.00005				0.00005	0.00005	0.00005				0.00005	0.00005	0.00005	
Dissolved Arsenic (As)	mg/L	0.0025			0.0106	0.006		0.0078	0.0024		0.0019	0.0016		0.0005	0.00025		0.0012	0.00025	0.00074		0.0005	0.00025	0.0019	0.00025	0.00037		0.0007	0.00025	0.0087		
Dissolved Boron (B)	mg/L	0.005				0.2			0.03		0.02				0.03		0.005	0.005				0.005	0.005	0.005				0.005	0.005		
Dissolved Barium (Ba)	mg/L	0.0145			0.1419	0.0596		0.0549	0.0147		0.0321	0.0604		0.0174	0.0163		0.0126	0.0136	0.0429		0.0172	0.0153	0.0116	0.0134	0.0132		0.0168	0.0162	0.0109		
Dissolved Beryllium (Be)	mg/L	0.00025				0.00025			0.00025		0.00025				0.00025		0.00025	0.00025				0.00025	0.00025	0.00025				0.00025	0.00025	0.00025	
Dissolved Cadmium (Cd)	mg/L	0.00001			0.00091	0.00078		0.00062	0.00001		0.00007	0.00020		0.00001	0.00046		0.00001	0.00001	0.00061		0.00001	0.00001	0.00001	0.00001	0.00001		0.00002	0.00004	0.00006		
Dissolved Chromium (Cr)	mg/L	0.0097				0.0003			0.0003		0.0003				0.0003		0.0003	0.0003				0.0003	0.0003	0.0003				0.0003	0.0003		
Dissolved Cobalt (Co)	mg/L	0.0027				0.2541			0.0124		0.0255				0.0051		0.0031	0.0026				0.0044	0.0026	0.0032				0.0045	0.0023		

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Dissolved Copper (Cu)	mg/L	0.0136			5.663	1.463		1.187	0.0309		0.043	0.557		0.0065	0.0075		0.006	0.0076	0.7448		0.0055	0.0059	0.0074	0.006	0.007		0.0056	0.0059	0.0161		
Dissolved Iron (Fe)	mg/L	1.9			0.13	0.07		0.45	0.11		0.67	1.17		0.01	0.04		0.01	0.01	0.14		0.005	0.01	0.02	0.005	0.023		0.01	0.01	0.05		
Dissolved Lead (Pb)	mg/L	0.0003			0.00015	0.00015		0.0023	0.0004		0.00015	0.00015		0.0139	0.00015		0.0005	0.00015	0.00039		0.0251	0.00015	0.0003	0.00015	0.00015		0.0145	0.00015	0.00015	0.00015	
Dissolved Lithium (Li)	mg/L	0.0025				0.0025			0.0025		0.0025			0.0025	0.0025			0.0025	0.0025			0.0025	0.0025	0.0025				0.0025	0.0025	0.0025	
Dissolved Manganese (Mn)	mg/L	0.1833			7.441	2.482		2.263	0.9353		2.4	3.5		0.1129	0.0316		0.0163	0.007	1.455		0.1118	0.0345	0.0118	0.0034	0.1309		0.1026	0.0482	0.0445	0.0445	
Dissolved Magnesium (Mg)	mg/L	3				56.3			13.5		29.5			7.1			7.4	8.6				6.8	7.1	8.5				6.8	7.3		
Dissolved Mercury (Hg)	mg/L	0.000005			0.00005	0.0001		0.0001	0.00005		0.00005	0.00005		0.00005	0.00005		0.00005	0.00005	0.00005		0.00005	0.00005	0.00005	0.00005	0.00005		0.00005	0.00005	0.00005	0.00005	
Dissolved Molybdenum (Mo)	mg/L	0.0034			0.1644	0.2045		0.172	0.0215		0.0303	0.0536		0.0006	0.0045		0.0005	0.00025	0.01901		0.00025	0.001	0.0008	0.00025	0.00072		0.00025	0.0015	0.0024		
Dissolved Nickel (Ni)	mg/L	0.0176			1.286	0.9097		0.2324	0.0536		0.0999	0.5595		0.0186	0.0139		0.0105	0.0095	0.3338		0.0187	0.0131	0.0081	0.0083	0.0274		0.0172	0.0151	0.0077	0.0077	
Dissolved Selenium (Se)	mg/L	0.0005			0.081	0.101		0.094	0.004		0.007	0.008		0.001	0.003		0.0005	0.0005	0.0040		0.0005	0.001	0.0005	0.0005	0.0008		0.001	0.001	0.001	0.001	
Dissolved Strontium (Sr)	mg/L	0.052				0.909			0.187		0.381			0.108			0.104	0.105				0.107	0.098	0.099				0.103	0.099	0.099	
Dissolved Silver (Ag)	mg/L	0.00005			0.00005	0.00005		0.00005	0.00005		0.00005	0.00054		0.00005			0.00005	0.00005	0.00080		0.00005		0.00005	0.00005	0.00005		0.00005		0.00005	0.00005	
Dissolved Tin (Sn)	mg/L	0.0005				0.0005			0.0005		0.0005			0.007			0.0005	0.0005				0.0005	0.0005	0.0005				0.001	0.0005	0.0005	
Dissolved Thallium (Tl)	mg/L	0.0025			0.0025	0.0025		0.0025	0.0025		0.0025	0.0025		0.0025	0.0025		0.0025	0.0025	0.0025		0.005	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	
Dissolved Titanium (Ti)	mg/L	0.04				0.56			0.03		0.08			0.02			0.02	0.01				0.02	0.01	0.01				0.02	0.01		
Dissolved Uranium (U)	mg/L	0.001				0.251			0.005		0.016			0.001			0.0005	0.0005				0.001	0.001	0.0005				0.001	0.003	0.003	
Dissolved Vanadium (V)	mg/L	0.00025				0.00025			0.00025		0.00025			0.00025	0.00025		0.00025	0.00025				0.00025	0.00025	0.00025				0.00025	0.00025	0.00025	
Dissolved Zinc (Zn)	mg/L	0.006			0.006	0.0005		0.001	0.0005		0.0005	0.0137		0.001	0.001		0.0005	0.0005	0.0052		0.001	0.001	0.001	0.0005	0.00525		0.001	0.0005	0.0005	0.0005	
Aluminium (Al)	mg/L	0.831				0.066			0.331		0.14	0.08			0.042		0.126	0.034	0.049				0.045	0.207	0.03	0.06			0.04	0.455	
Antimony (Sb)	mg/L	0.0002				0.0016			0.0002		0.0003	0.0004			0.0001		0.00005	0.00005	0.00014				0.00005	0.00005	0.00005	0.00008			0.00005	0.00005	
Arsenic (As)	mg/L	0.0025			0.0164	0.0097		0.0092	0.0045		0.0027	0.0089		0.0007	0.00025		0.0009	0.0009	0.0020		0.0007	0.00025	0.0017	0.00025	0.00052		0.00025	0.00025	0.0088		
Boron (B)	mg/L	0.005				0.24			0.03		0.05	0.07			0.01		0.005	0.005	0.026				0.005	0.005	0.005	0.026			0.005	0.005	
Barium (Ba)	mg/L	0.0145				0.0632			0.017		0.0343	0.0609			0.0151		0.015	0.0139	0.0458				0.0144	0.0141	0.0134	0.0135			0.0156	0.0147	
Beryllium (Be)	mg/L	0.00025				0.00025			0.00025		0.00025	0.00025			0.00025		0.00025	0.00025	0.00025				0.00025	0.00025	0.00025	0.00025			0.00025	0.00025	
Bismuth	mg/L	0.00025																													
Cadmium (Cd)	mg/L	0.00001				0.00091			0.00001		0.00009	0.00026			0.00001		0.00001	0.00001	0.00008				0.00001	0.00001	0.00001	0.00001			0.00001	0.00003	
Copper (Cu)	mg/L	0.0136	0.0148	0.0368	1.312	1.113	0.5381	1.226	0.0556		0.0737	1.2031	0.0063	0.0085	0.0081	0.0119	0.0081	0.0082	0.5829	0.0057	0.0075	0.0071	0.0099	0.0078	0.0491	0.0058	0.0072	0.0069	0.0227		
Chromium (Cr)	mg/L	0.0097				0.0006			0.0003		0.0003	0.0005			0.0003		0.0003	0.0003	0.0003				0.0003	0.0003	0.0003	0.0007			0.0003	0.0003	
Cobalt (Co)	mg/L	0.0027				0.2657			0.0129		0.0267	0.1167			0.0044		0.0035	0.0023	0.0697				0.0043	0.0029	0.0022	0.0099			0.0044	0.0028	
Iron (Fe)	mg/L	1.9	2	1.2		0.49	0.28		0.7		1.5	6.2	0.23		0.22	0.79	0.2	0.08	5.38	0.17			0.16	0.28	0.04	0.45	0.22		0.16	0.61	
Lithium (Li)	mg/L	0.006				0.0025			0.0025		0.0025	0.0068			0.0025		0.0025	0.0025	0.0055				0.0025	0.0025	0.0025	0.00525			0.0025	0.0025	
Manganese (Mn)	mg/L	0.1833				2.47			0.9151		2.49	4.45			0.0598		0.024	0.0111	1.7177				0.0626	0.0176	0.0059	0.2052			0.0813	0.0549	
Magnesium (Mg)	mg/L	3							13.1		30.9			8.1			7.8	8.8				7.9	7.5	8.7				7.9	7.7		
Mercury (Hg)	mg/L	0.000005				0.00005			0.000005		0.000005	0.000016			0.000005		0.000005	0.000005	0.000009			0.000005	0.000005	0.000005	0.000005			0.000005	0.000005		
Molybdenum (Mo)	mg/L	0.0034				0.211			0.0209		0.0308	0.0549			0.00025		0.00025	0.0005	0.0226				0.00025	0.0007	0.00025	0.00145			0.00025	0.0022	
Nickel (Ni)	mg/L	0.0176			1.563	0.9758		0.2401	0.0573		0.1064	0.7596		0.0194	0.0127		0.0115	0.01	0.34		0.0197	0.0128	0.0090	0.0089	0.0351		0.0172	0.0146	0.0096		
Lead (Pb)	mg/L	0.0003			0.00015	0.00015		0.00015	0.0096		0.00015	0.00038		0.00015	0.00015		0.0023</														

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Titanium (Ti)	mg/L	0.04				0.58			0.03		0.08	0.21			0.03		0.02	0.01	0.12			0.02	0.02	0.01	0.02			0.02	0.03
Thallium (Tl)	mg/L	0.0025				0.0025			0.0025		0.0025	0.0025			0.0025		0.0025	0.0025	0.0025			0.0025	0.0025	0.0025	0.0025			0.0025	0.0025
Tellurium (Te)	mg/L	0.00025																											
Uranium (U)	mg/L	0.001				0.252			0.005		0.016	0.051			0.001		0.0005	0.0005	0.0370			0.001	0.001	0.0005	0.0015			0.001	0.003
Vanadium (V)	mg/L	0.00025				0.00025			0.00025		0.00025	0.00025			0.00025		0.00025	0.00025	0.00025			0.00025	0.00025	0.00025	0.00025			0.00025	0.00025
Zinc (Zn)	mg/L	0.006			0.01	0.002		0.024	0.006		0.003	0.017		0.0005	0.0005		0.002	0.0005	0.0020		0.001	0.0005	0.002	0.0005	0.0020		0.004	0.0005	0.003
Daphnia Magna CL50 48 hrs	>100% v/v															>100													
Rainbow trout CL50 96 hrs	>100% v/v															>100													
Chlorophyll A								1.56						0.82		2.22	0.94				0.76	1.2	0.31	0.31			0.9700	0.7200	

***Italic data represent half limit detection*



Table 3: 2014 Monitoring Results for NP1, Dogleg and Second Portage Lake

Parameters	Date	NP-1 West			Dogleg - North			SPL-RSF Seep			NP2- winter			
	Unit	01/07/2014	19/08/2014	09/09/2014	01/07/2014	19/08/2014	09/09/2014	01/07/2014	19/08/2014	09/09/2014	14/01/2014	12/02/2014	24/11/2014	2013 Average
Alkalinity	mg CaCO3/L	37	46	47	21	26	29	17	16	40	51	No samples taken, ice thicker than 5 feet		44
Ammonia (NH3)	mg N/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005				
Ammonia nitrogen (NH3-NH4)	mg N/L	0.33	0.005	0.31	0.005	0.005	0.03	0.02	0.005	0.03	7.1			5.4
Kjeldahl nitrogen	mg N/L	0.77	0.48	5.4	0.92	0.42	2.9	0.73	1.3	1.5				
TDS	mg/L	154	142	222	52	53	73	42	15	53	362			366
TSS	mg/L	2	4	0.5	1	1	0.5	0.5	1	0.5				
CN total	mg/L	0.0025	0.0025	0.005	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.027			0.017
CN Free (SGS)	mg/L	0.0025	0.005	0.005	0.0025	0.005	0.005	0.0025	0.005	0.005				
CN WAD	mg/L	0.0025	0.006	0.0025	0.0025	0.005	0.0025	0.0025	0.005	0.0025	0.0459			
Colour	colour	4	9	4	3	5	2	2	0.5	1				
pH (Env. Dept.)	units	7.31	7.41	7.16	7.14	7.67	7.26	6.77	7.74	7.04	6.43		6.67	6.96
Conductivity (Env. Dept.)	us	181	240	321	58	99.8	100	90	39.3	76	526		397	511
Turbidity (Env. Dept.)	NTU	0.59	4.46	0.79	0.23	1.1	0.1	0.07	0.32	0	6.97		1.91	4.28
Dissolved oxygen	%	103.1			102.3			111.6						
Dissolved oxygen	mg/L	10.24	10.1	11.63	10.22	10.3	10.09	11.56	9.4	10.49				
Temperature	°C		5.9	4.91		6.5	6.54		5.4	5.83			2	
Bromides	mg/L	0.04	0.1	0.18	0.005	0.01	0.06	0.01	0.005	0.05		No samples taken, ice thicker than 5 feet		
Chloride	mg/L	4.8	14.5	13.3	1.2	3.5	3.6	1	0.7	2.5	18.8			18.2
Fluoride	mg/L	0.16	0.17	0.18	0.12	0.12	0.15	0.11	0.07	0.12	0.11			0.13
Calcium	mg/L													
Sodium	mg/L													
Hardness	mg CaCO3/L	75	88	105	29	35	39	22	13	29	43			110
Nitrate	mg/L	1.8	1.6	2.5	0.14	0.23	0.24	0.11	0.02	0.12	1.3			2.2
Nitrite	mg/L	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.21			0.18
Sulphate	mg/L	52.6	52.5	75.1	12.3	18.1	18.7	8.3	4.2	13.3	178			141
Methyl Mercury	ng/L	0.02			0.015			0.015						
Thiosulfates (S2O3)	mg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01				
Thiocyanates (SNC)	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025				
Ortho-phosphate (O-PO4)	mg P/L	0.005	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.005				
D.O.C	mg/L	3.6	6	5	3.1	3.8	3.5	2.4	2	2.7	5.5			
T.O.C	mg/L	4.7	5.8	5.2	3.4	3.8	3.6	2.8	2.1	3.1	5.4			
Dissolved Aluminium (Al)	mg/L	0.021	0.007	0.032	0.003	0.003	0.015	0.003	0.003	0.01	0.003			0.003
Dissolved Antimony (Sb)	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005			
Dissolved Arsenic (As)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025			0.00025
Dissolved Boron (B)	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005			



Parameters	Date	NP-1 West			Dogleg - North			SPL-RSF Seep			NP2- winter			
	Unit	01/07/2014	19/08/2014	09/09/2014	01/07/2014	19/08/2014	09/09/2014	01/07/2014	19/08/2014	09/09/2014	14/01/2014	12/02/2014	24/11/2014	2013 Average
Dissolved Barium (Ba)	mg/L	0.0103	0.0093	0.0125	0.0032	0.0034	0.004	0.0031	0.002	0.0029	0.02			0.02
Dissolved Beryllium (Be)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025			
Dissolved Cadmium (Cd)	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.0005			0.00001
Dissolved Chromium (Cr)	mg/L	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003			
Dissolved Cobalt (Co)	mg/L	0.0014	0.0008	0.0011	0.00025	0.00025	0.00025	0.00025	0.00025	0.0016	0.0026			
Dissolved Copper (Cu)	mg/L	0.0015	0.0016	0.0024	0.0007	0.0007	0.0008	0.00025	0.0006	0.0006	0.008			0.003
Dissolved Iron (Fe)	mg/L	0.01	0.02	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005			0.005
Dissolved Lead (Pb)	mg/L	0.0014	0.00015	0.0235	0.0004	0.00015	0.00015	0.0018	0.00015	0.00015	0.0005			0.00015
Dissolved Lithium (Li)	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025				
Dissolved Manganese (Mn)	mg/L	0.0009	0.0076	0.0048	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.18			0.10
Dissolved Magnesium (Mg)	mg/L	5.6	7.3	9	2.3	3.2	3.7	1.8	1	2.7				
Dissolved Mercury (Hg)	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005			0.00005
Dissolved Molybdenum (Mo)	mg/L	0.0018	0.0019	0.0013	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.005			0.001
Dissolved Nickel (Ni)	mg/L	0.0028	0.0039	0.0058	0.0007	0.001	0.0015	0.0006	0.00025	0.0007	0.03			0.03
Dissolved Selenium (Se)	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005			0.0005
Dissolved Strontium (Sr)	mg/L	0.087	0.1	0.107	0.026	0.036	0.033	0.02	0.015	0.025				
Dissolved Silver (Ag)	mg/L		0.00005	0.00005		0.00005	0.00005		0.00005	0.00005	0.00015			0.00005
Dissolved Tin (Sn)	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005				
Dissolved Thallium (Tl)	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025			0.0025
Dissolved Titanium (Ti)	mg/L	0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.005	0.005				
Dissolved Uranium (U)	mg/L	0.001	0.001	0.001	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005				
Dissolved Vanadium (V)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025				
Dissolved Zinc (Zn)	mg/L	0.002	0.0005	0.0005	0.001	0.0005	0.0005	0.002	0.0005	0.0005	0.0005			0.0005
Aluminium (Al)	mg/L	0.051	0.173	0.041	0.026	0.042	0.021	0.016	0.044	0.023	0.079			0.055
Antimony (Sb)	mg/L	0.0002	0.0001	0.0001	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.0005			0.00005
Arsenic (As)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.0005			0.00025
Boron (B)	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025			0.005
Barium (Ba)	mg/L	0.01	0.0123	0.0127	0.0026	0.0045	0.0038	0.0018	0.0031	0.0032	0.01			0.02
Beryllium (Be)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.001			
Bismuth	mg/L													
Cadmium (Cd)	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001			0.00006
Copper (Cu)	mg/L	0.0012	0.0023	0.0028	0.00025	0.001	0.001	0.00025	0.0007	0.0008	0.034			0.013
Chromium (Cr)	mg/L	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0025			0.0003
Cobalt (Co)	mg/L	0.0013	0.0009	0.0011	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.0099			0.0075
Iron (Fe)	mg/L	0.08	0.23	0.04	0.03	0.08	0.03	0.01	0.03	0.02	0.22			0.24
Lithium (Li)	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.05			0.0025



Parameters	Date	NP-1 West			Dogleg - North			SPL-RSF Seep			NP2- winter			
	Unit	01/07/2014	19/08/2014	09/09/2014	01/07/2014	19/08/2014	09/09/2014	01/07/2014	19/08/2014	09/09/2014	14/01/2014	12/02/2014	24/11/2014	2013 Average
Manganese (Mn)	mg/L	0.0052	0.0119	0.0055	0.0034	0.0035	0.00025	0.0007	0.001	0.00025	0.21			0.09
Magnesium (Mg)	mg/L	6.6	7.8	9.2	2.8	3.3	3.8	2.1	1.2	2.7				
Mercury (Hg)	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005			0.000005
Molybdenum (Mo)	mg/L	0.0011	0.0018	0.0014	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.0018			0.00025
Nickel (Ni)	mg/L	0.0025	0.0048	0.0056	0.0007	0.0013	0.0011	0.0005	0.0005	0.0007	0.036			0.029
Lead (Pb)	mg/L	0.00015	0.0009	0.00015	0.00015	0.0012	0.00015	0.00015	0.00015	0.00015	0.00086			0.00015
Phosphorus (P)	mg P/L	0.0327	0.0074	0.005	0.0051	0.0024	0.01	0.0395	0.001	0.01				
Potassium	mg/L	2.5	3.2	4	0.89	1.2	1.2	0.66	0.51	0.92				
Selenium (Se)	mg/L	0.0005	0.001	0.0005	0.0005	0.0005	0.001	0.0005	0.0005	0.0005	0.0015			0.0005
Silver (Ag)	mg/L		0.00005	0.00005		0.00005	0.00005		0.00005	0.00005				
Silica	mg/L													
Tin (Sn)	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0021			0.0005
Strontium (Sr)	mg/L	0.085	0.104	0.111	0.029	0.036	0.037	0.023	0.016	0.027	0.17			0.14
Titanium (Ti)	mg/L	0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.0005			0.0100
Thallium (Tl)	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.001			0.0025
Tellurium (Te)	mg/L													
Uranium (U)	mg/L	0.001	0.001	0.001	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005			0.001
Vanadium (V)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.001			0.00025
Zinc (Zn)	mg/L	0.002	0.003	0.0005	0.0005	0.001	0.0005	0.0005	0.001	0.001	0.54			0.0005
Daphnia Magna CL50 48 hrs	>100% v/v													
Rainbow trout CL50 96 hrs	>100% v/v													
Chlorophyll A		0.55	0.52	0.14	0.5	0.88	0.27	0.3	1.64	0.31				

**Italic data represent half limit detection

Table 4: All sampling station 2014 Average

Parameters	Date Unit	2014 Average							
		ST-16	NP-2 South	NP-2 East	NP-2 West	NP-1 West	Dogleg North	SPL-RSF Seep	NP-2 Winter
Alkalinity	mg CaCO ₃ /L	152	40	40	44	43	25	24	51
Ammonia (NH ₃)	mg N/L	0.62	0.02	0.03	0.03	0.01	0.01	0.01	
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L	28.85	2.90	2.93	3.19	0.22	0.01	0.02	7.10
Kjeldahl nitrogen	mg N/L	45.0	2.7	4.3	3.9	2.2	1.4	1.2	
TDS	mg/L	2618	270	246	233	173	59	37	362
TSS	mg/L	19.33	1.75	2.50	6.83	2.17	0.83	0.67	
CN total	mg/L	1.38	0.02	0.01	0.01	0.003	0.003	0.003	0.03
CN Free (SGS)	mg/L	0.18	0.004	0.004	0.004	0.004	0.004	0.004	
CN WAD	mg/L	1.12	0.02	0.004	0.01	0.004	0.003	0.003	0.05
Colour	colour	28.50	7.17	5.67	10.33	5.67	3.33	1.17	
pH (Env. Dept.)	units	7.31	7.35	7.42	7.35	7.29	7.36	7.18	6.55
Conductivity (Env. Dept.)	us	2159	284	342	327	247	86	68	462
Turbidity (Env. Dept.)	NTU	21.99	2.36	3.07	7.86	1.95	0.48	0.13	4.44
Dissolved oxygen	%	68.35	86.5	90.45	89.3	103.1	102.3	111.6	
Dissolved oxygen	mg/L	7.02	9.43	9.72	9.08	10.66	10.20	10.48	
Temperature	°C	5.59	6.255	6.81	6.475	5.405	6.52	5.615	2
Bromides	mg/L	0.64	0.10	0.10	0.07	0.11	0.03	0.02	
Chloride	mg/L	500.62	9.60	9.43	9.15	10.87	2.77	1.40	18.80
Fluoride	mg/L	0.332	0.115	0.118	0.118	0.170	0.130	0.100	0.110
Calcium	mg/L	15.7							
Sodium	mg/L	4.5							
Hardness	mg CaCO ₃ /L	810	98.5	96.75	93.7	89.3	34.3	21.3	43
Nitrate	mg/L	18.67	1.41	1.38	1.25	1.97	0.20	0.08	1.30
Nitrite	mg/L	0.61	0.1825	0.1525	0.1225	0.0067	0.005	0.005	0.21
Sulphate	mg/L	1280	121	114	102	60	16	9	178

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Methyl Mercury	ng/L	14.30	0.09	0.03	0.03	0.02	0.02	0.02	
Thiosulfates (S2O3)	mg/L	7.58	0.01	0.01	0.01	0.01	0.01	0.01	
Thiocyanates (SNC)	mg/L	3.91	0.03	0.12	1.26	0.03	0.03	0.03	
Ortho-phosphate (O-PO4)	mg P/L	0.0113	0.0067	0.0100	0.0217	0.0067	0.0050	0.0050	
D.O.C	mg/L	41.3	5.2	5.7	6.0	4.9	3.5	2.4	5.5
T.O.C	mg/L	36.1	5.7	5.9	6.1	5.2	3.6	2.7	5.4
Dissolved Aluminium (Al)	mg/L	0.16	0.01	0.01	0.01	0.02	0.01	0.01	0.003
Dissolved Antimony (Sb)	mg/L	0.00025	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Dissolved Arsenic (As)	mg/L	0.0052	0.00055	0.00073	0.00271	0.00025	0.00025	0.00025	0.00025
Dissolved Boron (B)	mg/L	0.064	0.013	0.005	0.005	0.005	0.005	0.005	0.005
Dissolved Barium (Ba)	mg/L	0.053	0.015	0.014	0.015	0.011	0.004	0.003	0.020
Dissolved Beryllium (Be)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Dissolved Cadmium (Cd)	mg/L	0.0004	0.00012	0.00001	0.00003	0.00001	0.00001	0.00001	0.00050
Dissolved Chromium (Cr)	mg/L	0.00265	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Dissolved Cobalt (Co)	mg/L	0.0737	0.0036	0.0034	0.0031	0.0011	0.0003	0.0007	0.0026
Dissolved Copper (Cu)	mg/L	1.4001	0.0069	0.0062	0.0087	0.0018	0.0007	0.0005	0.0080
Dissolved Iron (Fe)	mg/L	0.5550	0.0175	0.0100	0.0188	0.0117	0.0050	0.0050	0.0050
Dissolved Lead (Pb)	mg/L	0.000575	0.003675	0.006425	0.003738	0.008350	0.000233	0.000700	0.000500
Dissolved Lithium (Li)	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	
Dissolved Manganese (Mn)	mg/L	2.6174	0.0420	0.0404	0.0509	0.0044	0.0003	0.0003	0.1800
Dissolved Magnesium (Mg)	mg/L	25.58	7.70	7.47	7.80	7.30	3.07	1.83	
Dissolved Mercury (Hg)	mg/L	0.000059	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050
Dissolved Molybdenum (Mo)	mg/L	0.099	0.001	0.001	0.001	0.002	0.00025	0.00025	0.005
Dissolved Nickel (Ni)	mg/L	0.4332	0.0131	0.0121	0.0122	0.0042	0.0011	0.0005	0.0300
Dissolved Selenium (Se)	mg/L	0.04792	0.00125	0.00063	0.00088	0.00050	0.00050	0.00050	0.00050
Dissolved Strontium (Sr)	mg/L	0.382	0.106	0.101	0.103	0.098	0.032	0.020	
Dissolved Silver (Ag)	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00015
Dissolved Tin (Sn)	mg/L	0.0005	0.0027	0.0005	0.0007	0.0005	0.0005	0.0005	
Dissolved Thallium (Tl)	mg/L	0.0025	0.0025	0.003125	0.0025	0.0025	0.0025	0.0025	0.0025



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Dissolved Titanium (Ti)	mg/L	0.178	0.017	0.013	0.013	0.010	0.005	0.005	
Dissolved Uranium (U)	mg/L	0.06825	0.0007	0.0008	0.0020	0.0010	0.0005	0.0005	
Dissolved Vanadium (V)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	
Dissolved Zinc (Zn)	mg/L	0.00242	0.00075	0.00088	0.00063	0.00100	0.00067	0.00100	0.00050
Aluminium (Al)	mg/L	0.342	0.067	0.094	0.248	0.088	0.030	0.028	0.079
Antimony (Sb)	mg/L	0.000575	0.00007	0.00005	0.00005	0.00013	0.00005	0.00005	0.00050
Arsenic (As)	mg/L	0.0075	0.0007	0.0007	0.0031	0.0003	0.0003	0.0003	0.0005
Boron (B)	mg/L	0.081	0.007	0.005	0.005	0.005	0.005	0.005	0.025
Barium (Ba)	mg/L	0.0323	0.0147	0.0140	0.0152	0.0117	0.0036	0.0027	0.0100
Beryllium (Be)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.001
Bismuth	mg/L	0.00025							
Cadmium (Cd)	mg/L	0.000255	0.00001	0.00001	0.00002	0.00001	0.00001	0.00001	0.00001
Copper (Cu)	mg/L	0.4871	0.0085	0.0076	0.0107	0.0021	0.0008	0.0006	0.0340
Chromium (Cr)	mg/L	0.0027	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0025
Cobalt (Co)	mg/L	0.077	0.003	0.003	0.004	0.001	0.00025	0.00025	0.010
Iron (Fe)	mg/L	1.153	0.304	0.163	0.330	0.117	0.047	0.020	0.220
Lithium (Li)	mg/L	0.0034	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0500
Manganese (Mn)	mg/L	1.5146	0.0316	0.0287	0.0681	0.0075	0.0024	0.0007	0.2100
Magnesium (Mg)	mg/L	15.67	8.23	8.03	7.80	7.87	3.30	2.00	
Mercury (Hg)	mg/L	0.000016	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
Molybdenum (Mo)	mg/L	0.06653	0.00033	0.00040	0.00123	0.00143	0.00025	0.00025	0.00180
Nickel (Ni)	mg/L	0.4934	0.0134	0.0126	0.0138	0.0043	0.0010	0.0006	0.0360
Lead (Pb)	mg/L	0.00175	0.00069	0.00154	0.01282	0.00040	0.00050	0.00015	0.00086
Phosphorus (P)	mg P/L	0.125	0.008	0.010	0.021	0.015	0.006	0.017	
Potassium	mg/L	41.8	5.2	4.8	4.1	3.2	1.1	0.7	
Selenium (Se)	mg/L	0.02788	0.00100	0.00067	0.00075	0.00067	0.00067	0.00050	0.00150
Silver (Ag)	mg/L	0.00382	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	
Silica	mg/L	2.3							
Tin (Sn)	mg/L	0.00088	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00210

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Strontium (Sr)	mg/L	0.397	0.107	0.105	0.106	0.100	0.034	0.022	0.170
Titanium (Ti)	mg/L	0.183	0.020	0.017	0.025	0.010	0.005	0.005	0.001
Thallium (Tl)	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.001
Tellurium (Te)	mg/L	0.00025							
Uranium (U)	mg/L	0.0685	0.0007	0.0008	0.0020	0.0010	0.0005	0.0005	0.0005
Vanadium (V)	mg/L	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00100
Zinc (Zn)	mg/L	0.0085	0.0009	0.0010	0.0025	0.0018	0.0007	0.0008	0.5400
Chlorophyll A	mg/L	1.56	1.33	0.76	0.85	0.40	0.55	0.75	

***Italic data represent half limit detection*