

Table 1.1: List of Reporting Requirements

Authorization Reference	Reporting Requirement	Report Section
NIRB Project Certificate No.004 Condition 4	Take prompt and appropriate action to remedy any noncompliance with environmental laws and regulations and/or regulatory instruments, and shall report any non compliance as required by law immediately and report the same to NIRB annually.	11.4
NIRB Project Certificate No.004 Condition 8	Continue to undertake semi-annual groundwater samples and re-evaluate the groundwater quality after each sample collection; report the results of each re-evaluation to NIRB's Monitoring Officer, INAC and EC	8.6
NIRB Project Certificate No.004 Condition 15	Within two (2) years of commencing operations re-evaluate the characterization of mine waste materials, including the Vault area, for acid generating potential, metal leaching and non-metal constituents to confirm FEIS predictions, and re-evaluate rock disposal practices by conducting systematic sampling of the waste rock and tailings in order to incorporate preventive and control measures into the Waste Management Plan to enhance tailing management during operations and closure; results of the re-evaluations shall be provided to the NWB and NIRB's Monitoring Officer	5.1
NIRB Project Certificate No.004 Condition 19	Report to NIRB's Monitoring Officer for the annual reporting of freezeback effectiveness.	5.3.2
NIRB Project Certificate No.004 Condition 23	Ensure that water quality monitoring performed at locations within receiving waters that allow for an assimilative capacity assessment of concern to regulators, be carried out by an independent contractor and submitted to an independent accredited lab for analysis, on a type and frequency basis as determined by the NWB; results of analysis shall be provided to the NWB and NIRB's Monitoring Officer	8.3.6
NIRB Project Certificate No.004 Condition 28	Cumberland shall become a signatory to the International Cyanide Management Code, communicate this to shippers, and do so prior to Cumberland storing or handling cyanide for the Project.	11.3
NIRB Project Certificate No.004 Condition 29	Report to NIRB if and when [Cumberland] develops plans for an expansion of the Meadowbank Gold Mine, and in particular if those plans affect the selection of Second Portage Lake as the preferred alternative for tailings management	11.8
NIRB Project Certificate No.004 Condition 32e	Prior to opening of the road, and annually thereafter, advertise and hold at least one community meeting in the Hamlet of Baker Lake to explain to the community that the road is a private road with non-mine use of the road limited to approved, safe and controlled use by all-terrain-vehicles for the purpose of carrying out traditional Inuit activities.	11.5.2
NIRB Project Certificate No.004 Condition 32f	Place notices at least quarterly on the radio and television to explain to the community that the road is a private road with non mine use of road limited to authorized, safe and controlled use by all-terrain-vehicles for the purpose of carrying out traditional Inuit activities.	11.5.2
NIRB Project Certificate No.004 Condition 32g	Record all authorized non-mine use of the road, and require all mine personnel using the road to monitor and report unauthorized non-mine use of the road, and collect and report this data to NIRB one (1) year after the road is opened and annually thereafter.	11.5.1
NIRB Project Certificate No.004 Condition 32h	Report all accidents or other safety incidents on the road, to the GN, KivIA [KIA], and the Hamlet immediately, and to NIRB annually.	11.5.2
NIRB Project Certificate No.004 Condition 33	Cumberland shall update the Access and Air Traffic Management Plan to: 1. include an All-weather Private Access Road Management Plan, including a right-of-way policy developed in consultation with the KivIA, GN, INAC and the Hamlet of Baker Lake, for the safe operation of the all-weather private access road; and 2. to facilitate monitoring of the environmental and socio-economic impacts of the private road and undertake adaptive management practices as required, including responding to any concerns regarding the locked gates.	11.5.1
NIRB Project Certificate No.004 Condition 36	Inuit observation and encounter reports for on-board vessels transporting goods and fuel through Chesterfield Inlet	11.6
NIRB Project Certificate No.004 Condition 39	Annually advertise and hold a community information meeting in Chesterfield Inlet to report on the Project and to hear from Chesterfield Inlet residents and respond to concerns; a consultation report shall be submitted to NIRB's Monitoring Officer within one month of the meeting.	11.7
NIRB Project Certificate No.004 Condition 40	Report to KIA and NIRB's Monitoring Officer annually on the Traditional Knowledge gathered including any operational changes that resulted from concerns shared at the workshop.	11.7
NIRB Project Certificate No.004 Condition 45	[Cumberland] shall carry, and require contracted shippers to carry adequate insurance to fully compensate losses arising from a spill or accident, including but not limited to the loss of resources arising from the spill or accident; any claims are to be reported to proper officials with a copy to NIRB's Monitoring Officer	11.9

Authorization Reference	Reporting Requirement	Report Section
NIRB Project Certificate No.004 Condition 49	Develop, implement and report on the fish-out programs for the dewatering of Second Portage Lake, Third Portage Lake and Vault Lake	8.8
NIRB Project Certificate No.004 Condition 51	Engage the HTOs in the development, implementation and reporting of creel surveys within waterbodies affected by the Project to the GN, DFO and local HTO	8.12
NIRB Project Certificate No.004 Condition 54	a. Updated terrestrial ecosystem baseline data; e. Details of a comprehensive hunter harvest survey to determine the effect on ungulate populations resulting from increased human access caused by the all-weather private access road, including establishing preconstruction baseline harvesting data, to be developed in consultation with local HTOs, the GN-DOE and the Nunavut Wildlife Management Board; f. Details of annual aerial surveys to be conducted to assess waterfowl densities in the regional study area during the construction phase and for at least the first three (3) years of operation, with the data analyzed and compared to baseline data to determine if significant effects are occurring and require mitigation. g. Details of an annual breeding bird plot surveys and transects along the all-weather road to be conducted during the construction phase and for at least the first three (3) years of operation.	8.13.2
NIRB Project Certificate No.004 Condition 55	Annual Wildlife Summary Monitoring Report	8.13.1
NIRB Project Certificate No.004 Condition 56	Information on caribou migration corridors shall be reported to the GN, KIA and NIRB's Monitoring Officer annually.	8.13.3
NIRB Project Certificate No.004 Condition 57	Participate in a caribou collaring program as directed by the GN-DOE.	8.13.4
NIRB Project Certificate No.004 Condition 58	In consultation with Elders and the HTOs and subject to safety requirements, design the lighting and use of lights at the mine site to minimize the disturbance of lights on sensitive wildlife and birds	11.7
NIRB Project Certificate No.004 Condition 59	In consultation with Elders and the HTOs, design and implement means of deterring caribou from the tailing ponds, such as temporary ribbon placement or inukshuks, with such designs not to include the use of fencing	11.7
NIRB Project Certificate No.004 Condition 62	Develop and implement a noise abatement plan to protect wildlife from significant mine activity noise, including blasting, drilling, equipment, vehicles and aircraft; sound meters are to be set up immediately upon issuance of the Project Certificate for the purpose of obtaining baseline data, and monitoring during and after operations	8.10
NIRB Project Certificate No.004 Condition 63	GN and INAC shall form a Meadowbank Gold Mine Socio-Economic Monitoring Committee ("Meadowbank SEMC") to monitor the socio-economic impacts of the Project and the effectiveness of the Project's mitigation strategies; the monitoring shall supplement, not duplicate, the monitoring required pursuant to the IIBA negotiated for the Project, and on the request of Government or NPC, could assist in the coordination of data collection and tracking data trends in a comparable form to facilitate the analysis of cumulative effects; the terms of reference shall focus on the Project, include a plan for ongoing consultation with KivA and affected local governments and a funding formula jointly submitted by GN, INAC and [Cumberland]; the terms of reference shall be submitted to NIRB for review and subsequent direction within six (6) months of the issuance of a Project Certificate; [Cumberland] is entitled to be included in the Meadowbank SEMC	11.10
NIRB Project Certificate No.004 Condition 64	[Cumberland] shall work with the GN and INAC to develop the terms of reference for a socio-economic monitoring program for the Meadowbank Project, including the carrying out of monitoring and research activities in a manner which will provide project specific data which will be useful in cumulative effects monitoring (upon request of Government or NPC) and consulting and cooperating with agencies undertaking such programs; [Cumberland] shall submit draft terms of reference for the socio-economic monitoring program to the Meadowbank SEMC for review and comment within six (6) months of the issuance of a Project Certificate, with a copy to NIRB's Monitoring Officer	11.10
NIRB Project Certificate No.004 Condition 65	Cumberland shall include in its socio-economic monitoring program for the Meadowbank Project the collection and reporting of data of community of origin of hired Nunavummiut	11.11
NIRB Project Certificate No.004 Condition 67	Develop and implement a program to monitor contaminant levels in country foods in consultation with HC; a copy of the plan shall be submitted to NIRB's Monitoring Officer	8.14
NIRB Project Certificate No.004 Condition 69	Carry out the Project to minimize the impacts on archeological sites, including conducting proper archeological surveys of the Project area (including the all-weather road and all quarry sites); [Cumberland] shall provide to the GN an updated baseline report for archeological sites in the Project area"	8.15
NIRB Project Certificate No.004 Condition 71	In consultation with EC, install and fund an atmospheric monitoring station to focus on particulates of concern generated at the mine site. The results of air-quality monitoring are to be reported annually to NIRB.	8.11

Authorization Reference	Reporting Requirement	Report Section
NIRB Project Certificate No.004 Condition 72	Conduct annual stack testing to demonstrate that the on-site incinerators are operating in compliance with these standards. The results of stack testing shall be contained in an annual monitoring report submitted to GN, EC and NIRB's Monitoring Officer.	6.3
NIRB Project Certificate No.004 Commitment 74	Provide annual report of the quantity and type of waste generated at the mine site distinguishing landfilled, recycled and incinerated streams.	6.2
NIRB Project Certificate No.004 Condition 75	Provide a complete list of possible accidents and malfunctions for the Project; it must consider the all-weather road, shipping spills, cyanide and other hazardous material spills, and pitwall/dikes /dam failure, and include an assessment of the accident risk and mitigation developed in consultation with Elders and potentially affected communities	7
NIRB Project Certificate No.004 Condition 80	File annually with NIRB's Monitoring Officer an updated report on progressive reclamation and the amount of security posted, as required by KivIA, INAC, and/or the NWB.	9.2.1
NIRB Project Certificate No.004 Condition 82	Monitor the ingress/egress of ship cargo at Baker Lake and report any accidents or spills immediately to the regulatory agencies as required by law and to NIRB's Monitoring Officer annually.	7
NIRB Project Certificate No.004 Condition 85	Develop a detailed blasting program to minimize the effects of blasting on fish and fish habitat, water quality, and wildlife and terrestrial VECs	8.5
NWB 2AM-MEA1525 Schedule B-1	Construction Details for dikes and dams.	3.1
NWB 2AM-MEA1525 Schedule B-2	Monthly and annual volume of fresh Water obtained from Third Portage Lake.	4.1
NWB 2AM-MEA1525 Schedule B-3	Monthly and annual volume of fresh Water obtained from Wally Lake.	4.2
NWB 2AM-MEA1525 Schedule B-4	Results of lake level monitoring conducted under the protocol developed as per Part D Item 5	4.3
NWB 2AM-MEA1525 Schedule B-5	Summary of reporting results for the Water Balance Water Quality model and any calibrations as required in Part E Items 7-9.	4.4
NWB 2AM-MEA1525 Schedule B-6	The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshalling Facility	4.5
NWB 2AM-MEA1525 Schedule B-7	Geochemical monitoring results.	5.1
NWB 2AM-MEA1525 Schedule B-8	Volumes of waste rock used in construction and placed in the Rock Storage Facilities	5.2
NWB 2AM-MEA1525 Schedule B-9	An update on the remaining capacity of the Tailings Storage Facility.	5.3.1
NWB 2AM-MEA1525 Schedule B-10	Summary of quantities and analysis of seepage and runoff monitoring from the Landfills, Waste Rock Storage facility and Central Dike.	6.1
NWB 2AM-MEA1525 Schedule B-11	A summary report of all general waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal.	6.2
NWB 2AM-MEA1525 Schedule B-12	Report of Incinerator test results including the materials burned and the efficiency of the Incinerator as they relate to water and the deposit of waste into water.	6.3
NWB 2AM-MEA1525 Schedule B-13	A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken.	7
NWB 2AM-MEA1525 Schedule B-14	A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities.	11.1
NWB 2AM-MEA1525 Schedule B-15	The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.	8.3
NWB 2AM-MEA1525 Schedule B-16	The results of monitoring under the AEMP including Core Receiving Monitoring Program (CREMP), Metal Mining Effluent Regulation (MMER) Monitoring, Mine Site Water Quality and Flow Monitoring (and evaluation of NP-2), visual AWAR water quality monitoring, Blast Monitoring and Groundwater Monitoring.	8
NWB 2AM-MEA1525 Schedule B-17	A summary of any progressive closure and reclamation work undertaken including photographic records of site conditions before and after completion of operations, and an outline of any work anticipated for the next year, including any changes to implementation and scheduling.	9.1.1
NWB 2AM-MEA1525 Schedule B-18	A summary of on-going field trials to determine effective capping thickness for the Tailings Storage Facility and Waste Rock Storage Facilities for the purpose of long term environmental protection.	5.3.2
NWB 2AM-MEA1525 Schedule B-19	An updated estimate of the current restoration liability based on project development monitoring, results of restoration research and any changes or modifications to the Appurtenant Undertaking.	9.2.1
NWB 2AM-MEA1525 Schedule B-20	A summary of any studies requested by the Board that relate to Water use, Waste disposal or Reclamation, and a brief description of any future studies planned.	10.1
NWB 2AM-MEA1525 Schedule B-21	Where applicable, revisions as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals.	10.2
NWB 2AM-MEA1525 Schedule B-22	An executive summary in English, Inuktitut and French of all plans, reports, or studies conducted under this Licence.	10.3
NWB 2AM-MEA1525 Schedule B-23	A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector.	11.4
NWB 2AM-MEA1525 Schedule B-24	A summary of public consultation and participation with local organizations and the residents of the nearby communities, including a schedule of upcoming community events and information sessions.	11.7
NWB 2AM-MEA1525 Schedule B-25	Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.	4.7/6.4
NWB 2AM-MEA1525 Part E Item 9	The Licensee shall, on an annual basis during Operations, compare the predicted water quantity and quality within the pits, to the measured water quantity and quality.	4.6

Authorization Reference	Reporting Requirement	Report Section
NWB 2AM-MEA1525 Part I Item 12	The Licensee shall submit to the Board as part of the Annual Report required under Part B Item 2, all reports and performance evaluations prepared by the Independent Geotechnical Expert Review Panel.	3.1.2
NWB 2AM-MEA1525 Part I Item 14	The Licensee shall submit the results and interpretation of the Seepage Monitoring program required in Part I, Item 13 in the Annual Report required under Part B, Item 2.	8.3.7
DFO S-08/09-1040 NU	The result of monitoring under the AEMP	8.9
DFO S-08/09-1040 NU	Result of fisheries monitoring along AWAR	8.3.5
DFO-03-1914.4 NU	Results of the fish out program	8.8
DFO HADD NU-03-0190 AWPAP Condition 5.2.4	Creel survey results.	8.12
DFO HADD NU-03-0191 Mine Site Condition 6.1	Submit Written Report and Photographic Record summarizing monitoring program results.	8.7
INAC Land Lease 66A/8-71-2 Condition 19	The lessee shall submit to the Minister every two years after the commencement date of this lease, a report describing any variations from the Abandonment and Restoration Plan and updated cost estimates.	9.2.2
INAC Land Lease 66A/8-71-2 Condition 33	The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with the approved Abandonment and Restoration Plan, as well as any variations from the said Plan.	9.1.2
INAC Land Lease 66A/8-72-2 Condition 8	The lessee shall file a report, annually ...	3.2
	i. Quantity of material removed and location of removal, for the immediately preceding calendar year	
	ii. Such other data as are reasonably required by the Minister from time to time.	
INAC Land Lease 66A/8-72-2 Condition 25	The lessee shall file, annually, a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.	3.2
INAC Quarry Lease 66A/8-72-2 Condition 33	The lessee shall file annually a report for the preceding year, outlining ongoing restoration completed in conformity with C&R Plan, as well as any variations from the said Plan.	9.1.2
INAC Land Lease 66A/8-72-2 Condition 37	The lessee shall submit to the Minister every 2 years after the commencement date of this lease, a report describing cumulative variations from the C&R Plan with updated cost estimates.	9.2.2
KIA ROW KVRW06F04 Condition 14	Submit to KIA every two years on each anniversary of the commencement date, a report describing any variations from the Abandonment and Restoration Plan and updated cost estimates.	9.2.2
KIA ROW KVRW06F04 Condition 26	File annually a progress report for the preceding year, outlining any ongoing restoration completed, in conformity with the Abandonment and Restoration plan.	9.1.2
KIA ROW KVRW06F04 Schedule E - Condition 8	The lessee shall file annually a report for the preceding year, outlining the ongoing borrow area operations completed in conformity with the approved Borrow Management Plan, as well as any variations from the Plan.	3.2
GN - Department of Cultural and Heritage	Annual Permit Report. Annual Archaeology Site Status Report.	Submitted on February 28 2016 to Department of Culture and Heritage.

Table 1.2: Status of Sampling Stations

NWB Station	Description	Phase	2015 Reporting Status
ST-DC-1 to TBD	Monitoring stations during DiKE Construction as defined in Part D Item 5	Construction	Not applicable in 2015
ST-DD-1 to TBD	Monitoring stations during DiKE Dewatering as defined in Part D Item 5	Construction	Not applicable in 2015
ST-1	Water Intake for camp, mill and re-flooding	Water Intake for camp, mill and re-flooding	Section 4.1
ST-1W	Water Intake for re-flooding	Water Intake for camp, mill and re-flooding	Not applicable in 2015
ST-3	Water Intake for Emulsion Plant	Late operation, closure	Section 4.1
ST-4	Water reclaimed from Tailings Storage Facility	Late operation, closure	Not applicable in 2015
ST-5	Portage Area (east) diversion ditch	Late operation, closure	Section 8.3.3.20
ST-6	Portage Area (west) diversion ditch	Late operation, closure	Section 8.3.3.20
ST-8	East DiKE Seepage Discharge	Late operation, closure	Section 8.3.3.5
ST-9	Portage Attenuation Pond prior to discharge through Third Portage Lake Outfall Diffuser	Early operation	Not applicable in 2015
ST-10	Vault Attenuation Pond prior to discharge through Wally Lake Outfall Diffuser	Late operation	Section 8.3.3.4
ST-11	Tailings Storage Facility	Post closure	Not Applicable in 2015
ST-12	Portage/ Goose Pit Lake	Post closure	Not Applicable in 2015
ST-13	Vault Pit Lake	Post closure	Not Applicable in 2015
ST-14 (TEH-11)	Discharge to the land from Landfarm sump at mine site	Late operation, closure	Section 8.3.3.16
ST-16	Portage Rock Storage Facility	Late operation, closure	Section 8.3.3.11
ST-17**	North Portage Pit Sump	Operations	Section 8.3.3.7
	Portage Pit Lake	Late operation, closure	Not Applicable in 2015
ST-19**	South Portage Pit Sump	Early operations	Section 8.3.3.8
	Portage Pit Lake	Late operations	Not Applicable in 2015
ST-20	Goose Island Pit Sump	Early operations	Section 8.3.3.9
	Goose Island Pit Lake	Late operations, closure	Section 8.3.3.9
ST-21	Tailings Reclaim Pond	Late operations	Section 8.3.3.6
ST-22	Tailings Storage Facility	Closure (drainage run-off)	Not Applicable in 2015

NWB Station	Description	Phase	2015 Reporting Status
ST-23	Vault Pit Sump	Late operations	Section 8.3.3.10
ST-24	Vault Rock Storage Facility	Late operation, closure	Section 8.3.3.13
ST-25	Vault Attenuation Pond	Late operation	Section 8.3.3.3
ST-26	Vault Pit Lake	Closure	Not Applicable in 2015
ST-S-1 to TBD	Seeps (to be determined)	Late operations, closure	Sections 8.3.3.14/8.3.3.15
ST-GW-1 to TBD	Groundwater wells (to be determined)	Late operations, closure	Section 8.6 & Appendix G7
ST-AEMP-1 to TBD	Receiving AEMP	Late operations, closure	Section 8.9
ST-MMER-1 to TBD	Vault, East dike and Portage effluent outfall	Late operations	Section 8.2
ST-37	Secondary containment sump at the Bulk Fuel Storage Facility at Meadowbank	Late operation, closure	Sections 8.3.4
ST-38	Secondary containment at the Bulk Fuel Storage Facility in Baker Lake - Jet-A containment	Late operation, closure	Sections 8.3.4
ST-40.1 (MEA-4)	Secondary containment sump at the Bulk Fuel Diesel Storage Facility in Baker Lake (Fuel tanks 5&6)	Late operation, closure	Sections 8.3.4
ST-40.2 (MEA-4)	Secondary containment sump at the Bulk Fuel Diesel Storage Facility in Baker Lake (Fuel tanks 1-4)	Late operation, closure	Sections 8.3.4

Table 8.1. Meadowbank GPS Coordinates

Sample Location Description	Sample ID	GPS Coordinates Easting / Northing
<i>MMER and EEM</i>		
Vault effluent water quality monitoring and toxicity testing	ST-10 / ST-MMER-2	15W 0359842 7219555
East Dike Seepage effluent water quality monitoring and toxicity testing	ST-8 / ST-MMER-3	14W 0639336 7213920
Vault water quality monitoring in receiving environment - discharge area	WLE	15W 0360880 7220513
East Dike Seepage water quality monitoring in receiving environment - discharge area	SPLE	14W 0639459 7213913
Water quality monitoring in receiving environment - reference area	TPS	14W 0633840 7208079
<i>Sewage Treatment Plant</i>		
STP discharge to stormwater management pond	STP	14W 0638042 7214140
<i>Incinerator</i>		
Ash sampling; waste oil sampling	Incinerator	14W 0638189 7213412
<i>Meadowbank Bulk Fuel Storage Facilities</i>		
Water quality monitoring of discharge from secondary containment area	ST-37	14W 0638258 7213430
<i>Baker Lake Bulk Fuel Storage Facility</i>		
Water quality monitoring of discharge from secondary containment area for Jet-A tank	ST-38	15W 0357487 7134617
Water quality monitoring of discharge from secondary containment area for new tank 5-6	ST-40.1	15W 0357598 7134539
Water quality monitoring of discharge from secondary containment area for old tank 1-4	ST-40.2	15W 0357543 7134445
<i>Tailings Reclaim Pond</i>		
Water quality monitoring in North Cell	ST-21	14W 0637608 7215745
Water quality monitoring in South Cell	ST-21	14W 0638166 7215045
<i>North Portage Pit Sump</i>		
Water quality monitoring from area of water accumulation	ST-17	14W 0638951 7214783
<i>South Portage Pit Sump</i>		
Water quality monitoring from area of water accumulation	ST-19	14W 0638898 7213939
<i>Bay Goose Pit Sump</i>		
Water quality monitoring from area of water accumulation	ST-20	14W 0638339 7212681
<i>Vault Pit Sump</i>		
Water quality monitoring from area of water accumulation	ST-23	14W 0640865 7220103
<i>East Dike Seepage</i>		
Water quality monitoring of seepage from East Dike	ST-S-1	14W 0639316 7213937
<i>Vault Attenuation Pond</i>		
Water quality monitoring	ST-25	15W 0359030 7219607
<i>Portage Rock Storage Facility</i>		
Water quality monitoring of seepage from Waste Rock Storage Facility	ST-16	14W 0638617 7216164
<i>Vault Rock Storage Facility</i>		

Sample Location Description	Sample ID	GPS Coordinates Easting / Northing
Water quality monitoring of seepage from Waste Rock Storage Facility	ST-24	14W 0640919 7220711
<i>Saddle Dam 1 Seepage</i>		
Water quality monitoring of seepage from Saddle Dam 1	ST-S-2	14W 0636977 7216000
<i>Central Dike Seepage</i>		
Water quality monitoring of seepage from Central Dike	ST-S-5	14W 0638743 7214571
<i>Landfarm</i>		
Discharge to the land from landfarm sump	ST-14	14W 0637537 7215195
<i>Diversion Ditch Non-Contact Water</i>		
Portage Area (West) diversion ditch (North Cell Diversion Ditch)	ST-6	14W 0636771 7216026
Portage area (East) diversion ditch around RSF	ST-5	14W 0638732 7216495
<i>West Extension Pool</i>		
Water Quality monitoring of seepage from RSF - WEP1	ST-30	14W 0638419 7216707
Water Quality monitoring of seepage from RSF - WEP2	ST-31	14W 0638625 7216557

Table 8.2 - 2015 Water Treatment Plan FDP Discharge MMER Effluent Monitoring

Date	Units	Maximum Allowable Concentration	January	February	March	April	May	June
Arsenic	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Copper	mg/L	0.6	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Cyanide	mg/L	2	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Lead	mg/L	0.4	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Nickel	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Zinc	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Total Suspended Solids	mg/L	30	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Radium 226	Bq/L	1.11	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
pH	units	6-9.5	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Daphnia magna	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Rainbow trout	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	NDEP

Date	Units	Maximum Allowable Concentration	July	August	September	October	November	December
Arsenic	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Copper	mg/L	0.6	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Cyanide	mg/L	2	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Lead	mg/L	0.4	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Nickel	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Zinc	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Total Suspended Solids	mg/L	30	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Radium 226	Bq/L	1.11	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
pH	units	6-9.5	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Daphnia magna	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Rainbow trout	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	NDEP

Footnotes:

NDEP (No Deposit) = measurement not taken because there was no deposit from the final discharge point

NMR (No Measurement Required) = measurement not taken in accordance with the conditions set out in section 12 or 13 of the MMER

Table 8.3 - 2015 Water Treatment Plan FDP MMER Effluent Volume (ST-MMER-1)

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0		0	0	0	0	0	0	0	0	0	0
30	0		0	0	0	0	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Total (m³)	0	0	0	0	0	0	0	0	0	0	0	0

Table 8.4 - 2015 Vault Discharge MMER Effluent Monitoring

Date	Units	Maximum Allowable Concentration	January	February	March	April	May	June	8-Jul-15
Arsenic	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	<0.0005
Copper	mg/L	0.6	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	0.003
Cyanide	mg/L	2	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	<0.005
Lead	mg/L	0.4	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	<0.0003
Nickel	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	0.0044
Zinc	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	<0.001
Total Suspended Solids	mg/L	30	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	6
Radium 226	Bq/L	1.11	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	0.005
pH *	units	6-9.5	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	7.1
Daphnia magna	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NMR
Rainbow trout	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NMR

Date	Units	Maximum Allowable Concentration	13-Jul-15	21-Jul-15	29-Jul-15	4-Aug-15	10-Aug-15	17-Aug-15	24-Aug-15
Arsenic	mg/L	1	<0.0005	<0.0005	<0.0005	<0.0005	0.004	<0.0005	0.0088
Copper	mg/L	0.6	0.0013	0.0023	0.0016	<0.0005	0.0033	0.0015	0.0028
Cyanide	mg/L	2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Lead	mg/L	0.4	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.014	0.0031
Nickel	mg/L	1	0.0033	0.0033	0.0032	0.0038	0.003	0.0034	0.0032
Zinc	mg/L	1	<0.001	0.001	<0.001	<0.001	0.004	0.001	<0.001
Total Suspended Solids	mg/L	30	2	6	1	2	1	3	1
Radium 226	Bq/L	1.11	0.005	0.002	0.006	0.003	0.002	0.021	0.008
pH *	units	6-9.5	6.58	6.98	7.66	7.08	7.96	6.92	7.73
Daphnia magna	LC50 %		NMR	>100	NMR	NMR	>100	NMR	NMR
Rainbow trout	LC50 %		NMR	>100	NMR	NMR	>100	NMR	NMR

Date	Units	Maximum Allowable Concentration	1-Sep-15	8-Sep-15	October	November	December
Arsenic	mg/L	1	<0.0005	<0.0005	NDEP	NDEP	NDEP
Copper	mg/L	0.6	0.0028	0.0025	NDEP	NDEP	NDEP
Cyanide	mg/L	2	<0.005	<0.005	NDEP	NDEP	NDEP
Lead	mg/L	0.4	0.0095	<0.0003	NDEP	NDEP	NDEP
Nickel	mg/L	1	0.0029	0.0019	NDEP	NDEP	NDEP
Zinc	mg/L	1	<0.001	<0.001	NDEP	NDEP	NDEP
Total Suspended Solids	mg/L	30	10	1	NDEP	NDEP	NDEP
Radium 226	Bq/L	1.11	0.002	0.006	NDEP	NDEP	NDEP
pH *	units	6-9.5	7.37	7.67	NDEP	NDEP	NDEP
Daphnia magna	LC50 %		NMR	>100	NDEP	NDEP	NDEP
Rainbow trout	LC50 %		NMR	>100	NDEP	NDEP	NDEP

Footnotes:

* Parameter measured in the field by Environmental Technicians

NDEP (No Deposit) = measurement not taken because there was no deposit from the final discharge point

NMR (No Measurement Required) = measurement not taken in accordance with the conditions set out in section 12 or 13 of the MMER

Table 8.5 - 2015 Vault Discharge MMER Effluent Volume

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	0	0	0	0	0	0	17,453	17,303	0	0	0
2	0	0	0	0	0	0	0	18,054	17,301	0	0	0
3	0	0	0	0	0	0	0	22,136	6,323	0	0	0
4	0	0	0	0	0	0	0	22,136	5,249	0	0	0
5	0	0	0	0	0	0	0	11,754	6,815	0	0	0
6	0	0	0	0	0	0	0	17,579	11,097	0	0	0
7	0	0	0	0	0	0	15,110	19,349	14,566	0	0	0
8	0	0	0	0	0	0	17,269	17,752	14,093	0	0	0
9	0	0	0	0	0	0	17,269	10,632	13,804	0	0	0
10	0	0	0	0	0	0	17,269	18,415	12,406	0	0	0
11	0	0	0	0	0	0	17,269	17,777	0	0	0	0
12	0	0	0	0	0	0	14,459	16,752	0	0	0	0
13	0	0	0	0	0	0	17,246	16,764	0	0	0	0
14	0	0	0	0	0	0	17,246	18,931	0	0	0	0
15	0	0	0	0	0	0	14,339	14,649	0	0	0	0
16	0	0	0	0	0	0	16,286	24,822	0	0	0	0
17	0	0	0	0	0	0	16,855	18,415	0	0	0	0
18	0	0	0	0	0	0	16,449	21,363	0	0	0	0
19	0	0	0	0	0	0	19,123	16,347	0	0	0	0
20	0	0	0	0	0	0	15,785	19,298	0	0	0	0
21	0	0	0	0	0	0	16,464	19,120	0	0	0	0
22	0	0	0	0	0	0	16,636	18,552	0	0	0	0
23	0	0	0	0	0	0	17,089	18,668	0	0	0	0
24	0	0	0	0	0	0	17,093	19,346	0	0	0	0
25	0	0	0	0	0	0	16,992	18,086	0	0	0	0
26	0	0	0	0	0	0	16,258	18,558	0	0	0	0
27	0	0	0	0	0	0	17,125	23,868	0	0	0	0
28	0	0	0	0	0	0	17,125	0	0	0	0	0
29	0		0	0	0	0	15,570	15,550	0	0	0	0
30	0		0	0	0	0	16,163	18,166	0	0	0	0
31	0		0		0			17,694	0	0	0	0
Total (m³)	0	0	0	0	0	0	398,490	547,986	118,957	0	0	0

Table 8.6: 2015 EEM Monitoring at Vault

Vault Discharge Effluent characterization		Date Units	21-Jul-15	24-Aug-15
Alkalinity	mg CaCO ₃ /L		34	34
Aluminium	mg/L		0.018	0.008
Ammonia nitrogen	mg N/L		0.89	1.19
Cadmium	mg/L		<0.00002	<0.00002
Conductivity	µs/cm		172	178
Hardness	mg CaCO ₃ /L		53	72
Iron	mg/L		0.08	0.13
Mercury	mg/L		<0.00001	<0.00001
Molybdenum	mg/L		0.0031	0.0086
Nitrate	mg N/L		1.82	3.97
Selenium	mg/L		<0.001	<0.001
Temperature	°C		4.21	13.4

Vault Discharge Sub-lethal toxicity testing		Date Units	21-Jul-15	24-Aug-15
Fathead Minnow IC25	% v/v		>100	>100
Fathead Minnow LC50	% v/v		>100	>100
Ceriodaphnia dubia IC25	% v/v		86.1	>100
Ceriodaphnia dubia LC50	% v/v		>100	>100
Freshwater Alga IC25	% v/v		>90.9	>90.91
Lemna minor IC25 (dw)	% v/v		>97.09	> 97.09
Lemna minor IC25 (ff)	% v/v		>97.09	> 97.09

Vault Discharge WLE (Exposure Area) Water Quality Monitoring		Date Units	27-Jul-15	2-Sep-15
Alkalinity	mg CaCO ₃ /L		15	21
Aluminum	mg/L		<0.006	<0.006
Ammonia nitrogen	mg N/L		<0.01	0.03
Arsenic	mg/L		<0.0005	<0.0005
Cadmium	mg/L		<0.00002	<0.00002
Conductivity	µs/cm		41	85
Copper	mg/L		0.0009	0.0007
Cyanide	mg/L		<0.005	0.009
Dissolved oxygen *	mg/L		8.62	14.63
Hardness	mg CaCO ₃ /L		17	20
Iron	mg/L		0.01	0.02
Lead	mg/L		<0.0003	<0.0003
Mercury	mg/L		0.00001	<0.00001
Molybdenum	mg/L		<0.0005	0.0009
Nickel	mg/L		<0.0005	0.0006
Nitrate	mg N/L		0.14	0.44
pH *	Units		7.27	6.84
Radium 226	Bq/L		<0.002	<0.002
Selenium	mg/L		<0.001	<0.001
Temperature *	(°C)		12.62	9.84
Total suspended solids	mg/L		2	5
Zinc	mg/L		<0.001	0.001

TPS (Reference Area) Water Quality Monitoring	Date Units	27-Jul-15	2-Sep-15
Alkalinity	mg CaCO ₃ /L	9	13
Aluminum	mg/L	<0.006	<0.006
Ammonia nitrogen	mg N/L	<0.01	<0.01
Arsenic	mg/L	<0.0005	<0.0005
Cadmium	mg/L	<0.00002	<0.00002
Conductivity	µs/cm	28	212
Copper	mg/L	<0.0005	<0.0005
Cyanide	mg/L	<0.005	0.009
Dissolved oxygen *	mg/L	11.67	15.83
Hardness	mg CaCO ₃ /L	8	8
Iron	mg/L	<0.01	<0.01
Lead	mg/L	<0.0003	0.0046
Mercury	mg/L	0.00001	<0.00001
Molybdenum	mg/L	<0.0005	<0.0005
Nickel	mg/L	<0.0005	0.0005
Nitrate	mg N/L	0.07	0.04
pH *	Units	7.28	7.89
Radium 226	Bq/L	<0.002	<0.002
Selenium	mg/L	<0.001	<0.001
Temperature *	(°C)	5.34	9.66
Total suspended solids	mg/L	1	3
Zinc	mg/L	<0.001	0.001

Footnotes:

NMR: no measurement required

* Parameter measured in the field by Environmental Technicians

Table 8.7 - 2015 East Dike Seepage Discharge MMER Effluent Monitoring

Date Units	Arsenic mg/L	Copper mg/L	Cyanide mg/L	Lead mg/L	Nickel mg/L	Zinc mg/L	TSS mg/L	Radium 226 Bq/L	pH * units	Daphnia magna LC50 %	Rainbow trout LC50 %
Maximum Allowable Concentration	1	0.6	2	0.4	1	1	30	1.11	6 - 9.5		
6-Jan-15	0.008	0.0009	<0.005	<0.0003	0.0007	0.001	8	<0.002	6.87	NMR	NMR
13-Jan-15	<0.0005	0.0009	<0.005	<0.0003	0.0005	<0.001	3	<0.002	6.43	NMR	NMR
19-Jan-15	0.0007	0.0009	<0.005	<0.0003	0.0005	0.004	12	<0.002	7.31	NMR	NMR
26-Jan-15	0.0016	0.0009	<0.005	<0.0003	<0.0005	0.002	5	<0.002	7.52	<100	<100
2-Feb-15	<0.0005	0.0011	<0.005	<0.0003	0.0008	0.026	8	<0.002	7.35	NMR	NMR
10-Feb-15	<0.0005	0.0026	<0.005	<0.0003	<0.0005	0.011	9	<0.002	7.06	<100	<100
16-Feb-15	<0.0005	<0.0005	<0.005	<0.0003	0.0006	0.008	9	<0.002	7.26	NMR	NMR
23-Feb-15	<0.0005	0.0009	<0.005	<0.0003	0.0007	0.003	7	0.002	7.17	NMR	NMR
3-Mar-15	<0.0005	0.0012	<0.005	<0.0003	<0.0005	0.012	4	<0.002	7.09	NMR	NMR
10-Mar-15	<0.0005	0.0014	<0.005	<0.0003	<0.0005	0.006	<1	<0.002	7.86	NMR	NMR
18-Mar-15	0.0497	0.0008	<0.005	<0.0003	0.0007	0.006	1	<0.002	7.23	NMR	NMR
23-Mar-15	<0.0005	<0.0005	<0.005	<0.0003	<0.0005	<0.001	8	<0.002	6.96	<100	<100
30-Mar-15	<0.0005	0.0009	<0.005	<0.0003	0.0006	0.002	5	<0.002	6.92	NMR	NMR
7-Apr-15	<0.0005	0.0046	<0.005	<0.0003	0.0006	0.002	5	<0.002	7.56	<100	<100
13-Apr-15	<0.0005	0.001	<0.005	<0.0003	0.0009	0.003	11	<0.002	7.4	NMR	NMR
20-Apr-15	<0.0005	0.0014	<0.005	<0.0003	0.0017	<0.001	5	<0.002	7.32	NMR	NMR
28-Apr-15	<0.0005	0.0005	<0.005	<0.0003	<0.0005	0.006	5	<0.002	6.84	NMR	NMR
5-May-15	<0.0005	0.0024	<0.005	<0.0003	<0.0005	<0.001	1	<0.002	6.89	NMR	NMR
11-May-15	<0.0005	0.0008	<0.005	<0.0003	0.0005	0.005	3	<0.002	7.65	<100	<100
18-May-15	<0.0005	<0.0005	<0.005	<0.0003	0.0006	0.011	1	<0.002	7.69	NMR	NMR
26-May-15	<0.0005	0.0005	<0.005	0.0054	0.0008	<0.001	1	<0.002	7.3	NMR	NMR
1-Jun-15	<0.0005	<0.0005	<0.005	0.0008	0.0016	0.001	4	NA	8.56	<100	<100
9-Jun-15	<0.0005	0.0016	<0.005	<0.0003	0.0064	0.001	20	0.004	7.2	NMR	NMR
July	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
8-Aug-15	0.0099	0.0007	<0.005	<0.0003	0.0038	0.008	4	<0.002	6.98	NMR	NMR
10-Aug-15	0.0064	0.0006	<0.005	<0.0003	0.0027	0.015	2	<0.002	8	NMR	NMR
17-Aug-15	<0.0005	<0.0005	<0.005	0.0214	0.0019	0.003	<1	<0.002	7.12	NMR	NMR
25-Aug-15	<0.0005	<0.0005	<0.005	<0.0003	0.0011	<0.001	2	<0.002	8.04	<100	<100
1-Sep-15	<0.0005	0.0007	<0.005	0.0158	0.0013	<0.001	5	<0.002	8.02	NMR	NMR
8-Sep-15	<0.0005	0.0006	<0.005	<0.0003	<0.0005	<0.001	<1	<0.002	7.67	<100	<100
16-Sep-15	<0.0005	0.0007	<0.005	<0.0003	<0.0005	0.006	4	<0.002	7.99	NMR	NMR
22-Sep-15	<0.0005	0.0005	<0.005	<0.0003	0.0016	0.001	6	0.003	7.11	NMR	NMR
28-Sep-15	<0.0005	0.0005	<0.005	<0.0003	0.0011	<0.001	2	<0.002	7.47	NMR	NMR
6-Oct-15	0.0065	0.0007	<0.005	<0.0003	<0.0005	<0.001	<1	0.002	8.02	<100	<100
13-Oct-15	0.0137	0.0008	<0.005	<0.0003	<0.0005	0.002	7	<0.002	8.76	NMR	NMR
20-Oct-15	0.0007	0.0007	<0.005	<0.0003	<0.0005	<0.001	<1	<0.002	6.89	NMR	NMR
25-Oct-15	0.0024	0.0007	<0.005	0.0007	0.0008	0.002	4	0.002	7.61	NMR	NMR
2-Nov-15	0.0207	0.002	<0.005	<0.0003	<0.0005	<0.001	2	<0.002	7.96	<100	<100
10-Nov-15	0.0038	0.0183	<0.005	<0.0003	<0.0005	0.012	11	<0.002	7.57	NMR	NMR
19-Nov-15	<0.0005	0.0007	<0.005	<0.0003	<0.0005	0.001	5	<0.002	7.62	NMR	NMR
23-Nov-15	<0.0005	0.0013	<0.005	<0.0003	<0.0005	0.001	3	<0.002	7.28	NMR	NMR
1-Dec-15	<0.0005	0.0065	<0.005	<0.0003	<0.0005	0.001	<1	<0.002	8.37	<100	<100
9-Dec-15	0.0433	0.0006	<0.005	<0.0003	0.0005	0.003	1	0.002	8.21	NMR	NMR
15-Dec-15	<0.0005	0.0009	<0.005	<0.0003	0.0006	<0.001	1	0.005	7.58	NMR	NMR
21-Dec-15	0.0036	0.0055	<0.005	<0.0003	0.0027	0.034	26	<0.002	6.58	NMR	NMR
29-Dec-15	<0.0005	0.0009	<0.005	<0.0003	<0.0005	0.019	4	<0.002	7.6	NMR	NMR

NDEP (No Deposit) = measurement not taken because there was no deposit from the final discharge point

NMR (No Measurement Required) = measurement not taken in accordance with the conditions set out in section 12 or 13 of the MMER

NA: Technician forgot to collect water for this analysis. When AEM received notification from lab that no bottle was sent it was too late to take another sample for the week.

Table 8.8 - 2015 East Dike Seepage Discharge MMER Effluent Volume

Date	Jan	Feb	Mar	Apr	May*	Jun*	Jul	Aug*	Sep*	Oct*	Nov*	Dec
1	506	460	515	561		424.8	0	0	621.6			497
2	501	469	510	547			0	0		559.2	537.6	497
3	492	459	500	552			0	0				490
4	562	460	571	550			0	0				495
5	497	459	505	556	415		0	0	595.0			497
6	486	457	495	535			0	0		544.8		498
7	495	456	503	537			0	0				493
8	491	459	499	540			0	600.0			547.0	498
9	478	455	487	711		559.0	0					356
10	482	456	491	598			0	595.0			499.0	350
11	481	459	489	643	410		0					674
12	480	459	488	568			0					495
13	495	461	504	556			0				544.0	495
14	481	458	489	566			0					493
15	483	457	491	573			0					493
16	504	454	513	563		0	0		624.0	661.0		493
17	482	453	490	576		0	0	629.0				501
18	478	450	486	551	413	0	0					499
19	482	448	490	547		0	0				540.0	496
20	486	448	495	551		0	0					498
21	478	446	486	579		0	0					495
22	523	446	532	528		0	0					496
23	492	448	501	541		0	0			520.8	535.2	488
24	468	447	476	563		0	0	604.8				493
25	470	454	477	549		0	0	607.0				486
26	472	450	480	566	408	0	0		703.0	523.0		491
27	621	449	632	550		0	0				511.0	493
28	462	453	469	552		0	0		588.0			492
29	473		481	546		0	0					492
30	492		500	563		0	0			667.0		490
31	474		482				0					487
Total (m³)	15,269	12,729	15,526	16,918	12,755**	7,521**	0	14,586**	18,792**	17,959**	15,917**	15,211

*Flowmeter not functioning properly and was sent for repair. Instant readings were taken when collecting samples.

**Monthly total effluent volume was estimated by summing instant flow measurements and using average for days when no flow measurement was taken.

Table 8.9: 2015 EEM Monitoring

East Dike Discharge Effluent characterization	Date Units	19-Jan-15	7-Apr-15	17-Aug-15	22-Sep-15
Alkalinity	mg CaCO ₃ /L	48	29	32	34
Aluminium	mg/L	0.061	0.064	0.037	0.059
Ammonia nitrogen	mg N/L	<0.01	<0.01	0.03	<0.01
Cadmium	mg/L	<0.00002	<0.00002	<0.00002	<0.00002
Conductivity	µs/cm	62.4	74.9	61.2	108.2
Hardness	mg CaCO ₃ /L	25	28	41	42
Iron	mg/L	<0.01	0.08	0.05	0.07
Mercury	mg/L	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	mg/L	<0.0005	<0.0005	<0.0005	0.0006
Nitrate	mg N/L	0.05	0.08	0.73	0.55
Selenium	mg/L	<0.001	<0.001	<0.001	<0.001
Temperature	°C	12.3	3.6	15.8	10.8

East Dike Discharge - SPLE (Exposure Area) Water Quality Monitoring	Date Units	17-May-15	2-Sep-15	15-Nov-15	16-Dec-15
Alkalinity	mg CaCO ₃ /L	18	16	17	51
Aluminum	mg/L	0.006	<0.006	0.001	<0.006
Ammonia nitrogen	mg N/L	0.11	<0.01	0.03	0.05
Arsenic	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium	mg/L	<0.00002	<0.00002	<0.00002	0.00002
Conductivity	µs/cm	47	61	45.4	39
Copper	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Cyanide	mg/L	<0.005	<0.005	<0.005	<0.005
Dissolved oxygen *	mg/L	14.26	14.78	10.3	13.1
Hardness	mg CaCO ₃ /L	18	11	10	12
Iron	mg/L	<0.01	0.01	<0.01	<0.01
Lead	mg/L	<0.0003	0.0122	<0.0003	<0.0003
Mercury	mg/L	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Nickel	mg/L	0.0006	<0.0005	0.0188	<0.0005
Nitrate	mg N/L	<0.01	<0.01	<0.01	<0.01
pH *	Units	7.57	6.93	7.56	7.31
Radium 226	Bq/L	<0.002	<0.002	<0.002	<0.002
Selenium	mg/L	<0.001	<0.001	<0.001	<0.001
Temperature *	(°C)	1.11	9.94	6.39	2.03
Total suspended solids	mg/L	<1	4	<1	<1
Zinc	mg/L	<0.001	0.001	0.001	<0.001

TPS (Reference Area) Water Quality Monitoring	Date Units	17-May-15	2-Sep-15	15-Nov-15	16-Dec-15
Alkalinity	mg CaCO ₃ /L	9	13	12	42
Aluminum	mg/L	<0.006	<0.006	0.014	<0.006
Ammonia nitrogen	mg N/L	0.12	<0.01	<0.01	0.06
Arsenic	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium	mg/L	<0.00002	<0.00002	<0.00002	0.00005
Conductivity	µs/cm	30	212	41.6	42.3
Copper	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Cyanide	mg/L	<0.005	0.009	<0.005	<0.005
Dissolved oxygen *	mg/L	13.49	15.83	9.9	13.3
Hardness	mg CaCO ₃ /L	9	8	6	8
Iron	mg/L	<0.01	<0.01	<0.01	<0.01
Lead	mg/L	<0.0003	0.0046	<0.0003	<0.0003
Mercury	mg/L	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Nickel	mg/L	<0.0005	0.0005	0.0179	<0.0005
Nitrate	mg N/L	0.06	0.04	0.04	0.02
pH *	Units	7.6	7.89	7.56	7.43
Radium 226	Bq/L	<0.002	<0.002	<0.002	0.002
Selenium	mg/L	<0.001	<0.001	<0.001	<0.001
Temperature *	(°C)	1.04	9.66	6.58	0.5
Total suspended solids	mg/L	<1	3	3	<1
Zinc	mg/L	<0.001	0.001	0.001	<0.001

Footnotes:

NMR: no measurement required

* Parameters measured in the field

Table 8.10: 2015 Water Transfers around the Mine Site

Water Pumped From	North Portage Pit (ST-17)	South Portage Pit (ST-19)	Stormwater Management Pond	Goose Pit (ST-20)	Portage Rock Storage Facility (ST-16)	Waste Extention Pool (WEP) Collection Sytem	Vault Pit (ST-23)	West Diversion Ditch Sump	North Cell TSF
Water Pumped To	South Cell TSF	South Cell TSF	South Cell TSF	South Cell TSF	North Cell TSF	North Cell TSF	Vault Attenuation Pond	North Cell TSF	South Cell TSF
January	0	0	0	14,286	0	0	0	0	0
February	0	0	0	5,588	0	0	0	0	0
March	0	0	0	15,912	0	0	0	0	0
April	0	0	0	16,167	0	0	0	0	0
May	0	0	0	1,528	1,625	0	0	0	0
June	0	4,074	36,536	3,108	10,832	5,434	41,133	126,269	9,150
July	0	28,620	0	0	3,414	6,653	27,503	24,514	389,501
August	0	1,889	0	0	1,365	104	11,224	8,346	286,584
September	18,935	8,783	14,414	0	2,000	3,378	34,476	10,787	189,733
October	25,688	1,320	2,444	0	0	0	3,904	1,298	259,206
November	5,275	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0
Total	49,898	44,686	53,394	56,590	19,236	15,569	118,240	171,214	1,134,174

Table 8.11: 2015 Vault Attenuation Pond Water Quality Monitoring (ST-25)

Date	Units	16-Jun-2015	8-Jul-2015	4-Aug-2015	14-Sep-2015
Field Parameters					
pH		6.46	6.90	6.93	7.44
Conductivity	µS/cm	111	140	278	315
Turbidity	NTU	8.93	3.73	10.01	21.3
Conventional Parameters					
Alkalinity	mg CaCO ₃ /L	23	52	47	45
Hardness	mg CaCO ₃ /L		48	82	
TDS	mg/L	73	90	168	198
Nutrients and Biological Indicators					
Ammonia (NH ₃)	mg N/L	< 0.01	< 0.01	0.06	0.04
Ammonia-nitrogen (NH ₃ -NH ₄)	mg N/L	1.13	0.88	4.11	2.79
Nitrate	mg N/L		1.34	6.51	
Nitrite	mg N/L		0.02	0.19	
Major Ions					
Chloride	mg/L		4.3	7.8	
Fluoride	mg/L		0.06	0.09	
Sulphate	mg/L		13.6	0.6	
Cyanide					
Total Cyanide	mg/L	0.007	< 0.005	0.014	< 0.005
Total Metals					
Aluminum	mg/L		0.023		
Antimony	mg/L		0.0004		
Arsenic	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Boron	mg/L		< 0.01		
Barium	mg/L		0.011		
Beryllium	mg/L		< 0.0005		
Cadmium	mg/L		< 0.00002		
Chromium	mg/L		< 0.0006		
Copper	mg/L	0.0014	0.0017	0.0034	0.0079
Iron	mg/L		0.11		
Lead	mg/L	< 0.0003	< 0.0003	0.0018	< 0.0003
Lithium	mg/L		< 0.005		
Manganese	mg/L		0.028		
Mercury	mg/L		< 0.00001		
Molybdenum	mg/L		0.0045		
Nickel	mg/L	0.0031	0.0027	0.004	0.0042
Selenium	mg/L		< 0.001		
Strontium	mg/L		0.066		
Tin	mg/L		< 0.001		
Titanium	mg/L		0.01		
Thallium	mg/L		< 0.005		
Uranium	mg/L		0.001		
Vanadium	mg/L		< 0.0005		
Zinc	mg/L	< 0.001	< 0.001	< 0.001	0.007
Dissolved Metals					
Aluminum	mg/L		0.023	0.006	
Arsenic	mg/L		< 0.0005	< 0.0005	
Barium	mg/L		0.01	0.02	
Cadmium	mg/L		< 0.00002	0.00008	
Copper	mg/L		0.0017	0.0028	
Iron	mg/L		0.01	0.01	
Lead	mg/L		< 0.0003	0.0018	
Manganese	mg/L		0.02	0.03	
Mercury	mg/L		< 0.00001	< 0.00001	
Molybdenum	mg/L		0.0046	0.020	
Nickel	mg/L		0.0026	0.0041	
Selenium	mg/L		< 0.001	< 0.001	
Silver	mg/L		< 0.0001	0.0001	
Thallium	mg/L		< 0.005	< 0.005	
Zinc	mg/L		< 0.001	0.053	

Table 8.12: 2015 Vault Attenuation Pond Discharge (ST-10)

Parameters	Units	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration	Prior to discharge: 29-Jun-2015	8-Jul-2015	13-Jul-2015	21-Jul-2015	29-Jul-2015	4-Aug-2015	10-Aug-2015	17-Aug-2015	24-Aug-2015	1-Sep-2015	8-Sep-2015
Field Parameters														
pH	pH Unit	6-9.0	6-9.0		7.1	6.58	6.98	7.66	7.08	7.96	6.92	7.73	7.37	7.67
Conductivity	µS/cm				564	171	151	176	180	210	193	178	207	205
Turbidity	NTU	15	15		13.7	2.72	1.01	1.2	1.81	2.46	2.73	2.23	6.54	2.25
Conventional Parameters														
Total alkalinity	mg CaCO ₃ /L			52	52	28	36	28	29	31	32	34	35	39
Bicarbonate alkalinity	mg/L				52	28	36	28	29	31	32	34	35	39
Carbonate alkalinity	mg/L				< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Hardness	mg CaCO ₃ /L			62	56	53	54	54	68	62	68	84	64	78
DOC	mg/L			8	3.4	2.7	3.5	3.3	3.4	3.2	3	3.3	3.9	4
TOC	mg/L			7.6	3.5	2.4	3.4	3.6	3.9	3.9	4.2	4	3.9	4.4
TDS	mg/L	1400	1400	114	108	99	103	100	103	109	117	126	135	132
TSS	mg/L	15	30	1	6	2	6	1	3.5	1	3	1	10	1
Nutrients and Biological Indicators														
Ammonia-nitrogen	mg N/L	20	40	1.24	1.1	0.99	0.99	0.84	0.59	0.96	1.2	1.17	1.66	0.88
Total Kjeldahl nitrogen	mg N/L			1.13	1.07	0.99	0.62	0.91	1.3	1.62	1.58	1.2	2.24	1.15
Nitrate	mg N/L	50	100	1.68	1.92	1.64	1.73	1.91	2.2	2.47	3.2	3.85	3.95	3.74
Nitrite	mg N/L			0.02	0.02	0.02	0.02	0.03	0.04	0.06	0.06	0.06	0.07	0.04
Ortho-phosphate	mg P/L			0.02	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	< 0.01
Total phosphorous	mg P/L	1.5	3.0	< 0.01	0.02	0.02	0.03	0.01	< 0.01	0.01	0.06	< 0.01	< 0.01	< 0.01
Reactive silica	mg/L			1.72	1.08	1.07	0.96	0.53	0.69	0.46	0.7	3.17	0.27	0.27
Major Ions														
Chloride	mg/L	500	1000	4.2	4.3	4.7	9.9	3.9	3.9	4.5	5.5	5.9	6.7	5.7
Fluoride	mg/L			0.06	0.06	0.06	0.07	0.09	0.07	0.07	0.08	0.1	0.07	0.06
Sulphate	mg/L			31	24	27	29	49	27	30	33	36	33	36
Cyanide														
Total cyanide	mg/L				< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Metal														
Aluminum	mg/L	1.5	3.0	< 0.006	0.089	0.62	0.034	0.011	0.038	< 0.006	0.075	0.023	0.102	0.06
Antimony	mg/L			< 0.0001	0.0003	0.0003	0.0003	0.0004	< 0.0001	0.0005	0.0008	0.0009	0.0012	0.0008
Arsenic	mg/L	0.10	0.20	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.004	< 0.005	0.0088	< 0.005	< 0.005
Boron	mg/L			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Barium	mg/L			0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Beryllium	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	0.002	0.004	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	0.00004	< 0.00002	< 0.00002
Calcium	mg/L			18	16	15	15	14	19	18	19	23	18	21
Chromium	mg/L			< 0.0006	< 0.0006	0.0006	< 0.0006	0.0014	0.002	< 0.0006	0.06	< 0.0006	< 0.0006	
Copper	mg/L	0.1	0.2	0.0017	0.003	0.0013	0.0023	0.0016	< 0.0005	0.0033	0.0015	0.0028	0.0028	0.0025
Iron	mg/L			0.49	0.03	0.14	0.08	0.04	0.1	0.08	0.14	0.13	0.19	0.13
Lead	mg/L	0.1	0.2	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0.014	0.0031	0.0095	< 0.0003
Lithium	mg/L			< 0.005	< 0.005	< 0.005	< 0.005	0.016	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Magnesium	mg/L			4.5	4.0	3.8	3.9	4.6	5.2	4.5	5.2	6.9	4.7	5.6
Manganese	mg/L			0.062	0.054	0.044	0.037	0.025	0.023	0.017	0.020	0.026	0.022	0.022
Mercury	mg/L	0.004	0.008	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L			0.0036	0.0039	0.0042	0.0031	0.0045	0.0053	0.0057	0.0072	0.0085	0.0101	0.0075
Nickel	mg/L	0.2	0.4	0.0042	0.0044	0.0033	0.0033	0.0032	0.0038	0.003	0.0034	0.0032	0.0029	0.0019
Potassium	mg/L			1.9	2.0	1.7	1.8	1.7	1.9	1.8	2.2	2.7	2.7	2.3
Selenium	mg/L			< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001
Sodium	mg/L			1.9	1.8	1.7	1.7	2.1	2.2	2.0	2.0	2.0	2.4	2.7
Strontium	mg/L			0.079	0.08	0.084	0.083	0.076	0.067	0.067	103	0.1	0.12	0.12
Tin	mg/L			< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Titanium	mg/L			0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01
Thallium	mg/L			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005	< 0.005
Uranium	mg/L			0.001	0.001	0.001	< 0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001
Vanadium	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.021	< 0.0005	< 0.0005
Zinc	mg/L	0.2	0.4	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	0.004	0.001	< 0.001	< 0.001	< 0.001

Parameters	Units	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration	Prior to discharge: 29-Jun-2015	8-Jul-2015	13-Jul-2015	21-Jul-2015	29-Jul-2015	4-Aug-2015	10-Aug-2015	17-Aug-2015	24-Aug-2015	1-Sep-2015	8-Sep-2015
Dissolved Metals														
Aluminum	mg/L	1.0	2.0	0.01	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Antimony	mg/L			< 0.0001	< 0.0001	0.0003	< 0.0001	0.0004	< 0.0001	0.0006	0.0009	0.001	0.0009	0.0008
Arsenic	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Boron	mg/L			< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Barium	mg/L			0.02	0.20	0.016	0.014	0.012	0.018	0.016	0.019	0.019	0.201	0.023
Beryllium	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L			< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	0.00003	0.00006	< 0.00002	< 0.00002	< 0.00002
Chromium	mg/L			< 0.0006	< 0.0006	< 0.0006	0.0008	< 0.0006	0.0023	< 0.0006	0.0006	< 0.0006	< 0.0006	< 0.0006
Copper	mg/L			0.0017	0.0021	0.0005	0.0015	0.0012	0.0021	0.0024	0.0012	0.0019	0.001	0.002
Iron	mg/L			0.03	0.02	< 0.01	< 0.01	< 0.01	0.01	0.01	< 0.01	0.01	< 0.01	< 0.01
Lead	mg/L			< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0.0005	< 0.0003	0.014	< 0.0003	0.0034	< 0.0003
Lithium	mg/L			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Manganese	mg/L			0.056	0.048	0.036	0.025	0.016	0.016	0.012	0.017	0.020	0.017	0.017
Mercury	mg/L			< 0.00001	0.00003	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	0.00001	< 0.00001
Molybdenum	mg/L			0.0037	0.0041	0.0038	0.0031	0.0047	0.0048	0.0063	0.0077	0.0085	0.010	0.0075
Nickel	mg/L			0.0037	0.0039	0.0029	0.0025	0.0028	0.0036	0.003	0.0031	0.0027	0.0026	0.0018
Selenium	mg/L			< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Strontium	mg/L			0.08	0.08	0.081	0.081	0.072	0.067	0.073	0.096	0.10	0.12	0.12
Tin	mg/L			< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Titanium	mg/L			0.01	0.01	0.01	0.01	< 0.01	0.01	0.01	0.01	0.01	0.01	0.01
Thallium	mg/L			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Uranium	mg/L			0.001	0.001	< 0.001	< 0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Vanadium	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Zinc	mg/L			< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Hydrocarbons														
TPH	mg/L			< 0.01	0.2	< 0.01	< 0.1	0.1	0.1	0.2	0.01	0.1	< 0.1	< 0.1
Toxicity														
Daphnia Magna	%v/v			> 100			> 100			> 100				> 100
Rainbow trout	%v/v			> 100			> 100			> 100				> 100

Table 8.13: 2015 East Dike Seepage Discharge (ST-8)

Date	Units	Maximum Average Concentration	Maximum Allowable Grab Sample	6-Jan-2015	16-Feb-2015	10-Mar-2015	7-Apr-2015	5-May-2015	1-Jun-2015	8-Aug-2015	16-Sep-2015	6-Oct-2015	2-Nov-2015	1-Dec-2015
pH*				6.87	7.26	7.86	7.56	6.89	8.6	6.98	8.04	8.02	7.96	8.37
Turbidity*	NTU			1.12	1.21	0.81	1.96	2.2	4.84	7.21	7.99	0.35	0.12	0.41
TSS	mg/L	15	30	8	9	< 1	5	1	4	4	4	< 1	2	< 1
Sulphate	mg/L			5	5.3	5.7	5.8	190	6.8	19.9	17.9	9.8	3.9	9.1
Total Cyanide	mg/L			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Radium 226	mg/L			< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	**	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Aluminum	mg/L			0.066	0.023	0.034	0.045	0.022	0.084	0.034	0.062	0.029	0.047	0.047
Arsenic	mg/L			0.008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0099	< 0.0005	0.0065	0.0207	< 0.0005
Copper	mg/L			0.0009	< 0.0005	0.0014	0.0046	0.0024	< 0.0005	0.0007	0.0006	0.0007	0.002	0.0065
Lead	mg/L			< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0.0008	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Nickel	mg/L			0.0007	0.0006	< 0.005	0.0006	< 0.005	0.0016	0.0038	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Zinc	mg/L			0.001	0.008	0.006	0.002	< 0.001	0.01	0.008	0.006	< 0.001	< 0.001	< 0.001

Footnotes:

*Measured in the field by Environmental Technicians.

** Parameter was not analysed. When AEM noticed, it was too late to collect another sample for the month.

Table 8.14: 2015 Tailings Reclaim Pond Water Quality Monitoring (ST-21)

Date	Units	15-Jan-2015	10-Feb-2015	4-Mar-2015	7-Apr-2015	5-May-2015	1-Jun-2015	6-Jul-2015	3-Aug-2015	8-Sep-2015	6-Oct-2015	1-Nov-2015	12-Jan-2014
Field Parameters													
pH			8.6	8.6	8.5	8.1	8.5	7.2	6.6	7.6	8.2	7.9	8.6
Turbidity	NTU		11.95	16.81	20.6	16.5	13.45	2.44	5.53	7.12	11.58	3.25	5.25
Conventional Parameters													
Alkalinity	mg CaCO ₃ /L	117	116	126	113	80	76	107	157	150	135	137	144
Hardness	mg CaCO ₃ /L	894	1099	1224	1325	1395	1329	1315	1029	1176	1222	1263	1461
TDS	mg/L	1924	2190	2628	2946	3411	2801	2270	2328	2230	2184	2433	2926
TSS	mg/L						21			4	12	10	10
Nutrients and Biological Indicators													
Ammonia (NH ₃)	mg N/L	3.4	7.1	7.3	6.3	7.6	3.4	2.0	0.4	0.6	0.1	0.6	1.6
Ammonia-Nitrogen	mg N/L	31.3	53.7	54.6	59.7	57	57.3	45.8	16.1	31.2	5.8	35.4	35.4
Nitrate	mg N/L	7.5	9.1	11	10.8	10.7	10.4	10.5	8.5	7.3	7.8	9.1	10.7
Nitrite	mg N/L	0.32	0.57	0.3	0.27	0.35	0.33	0.35	0.48	0.28	0.29	0.21	0.22
Major Ions													
Chloride	mg/L	406	439	543	638	770	637	633	378	436	1329	445	562
Fluoride	mg/L	2.5	0.26	0.42	< 0.02	2.4	0.03	0.03	0.04	< 0.02	0.44	0.4	0.13
Sulphate	mg SO ₄ /L	1200	1456	1537	1670	1604	1557	1235	1316	1473	1650	1651	1998
Cyanide													
Total cyanide	mg/L	16.3	14.7	13.1	0.76	22.9	6.13	0.64	0.047	0.078	0.31	1.45	3.58
Cyanide WAD	mg/L										0.16	0.56	0.22
Total Metals													
Aluminum	mg/L			0.014	0.16			0.09			< 0.006	0.089	0.060
Arsenic	mg/L			0.048	0.013			< 0.0005			0.019	0.059	0.01
Barium	mg/L			0.12	0.13			0.0801			0.059	0.058	0.09
Beryllium	mg/L		< 0.0005	< 0.0005				< 0.0005					
Cadmium	mg/L		0.0008	0.0008				< 0.00002			0.0007	0.001	0.0010
Chromium	mg/L		0.0035	< 0.0006				< 0.0006			< 0.0006	0.0041	0.0016
Copper	mg/L		3.3	4.2		4.283		0.71	0.20	0.11	0.73	2.6	0.82
Iron	mg/L		0.97	1.8		1.4		0.15	0.23	0.47	0.7	0.6	0.78
Mercury	mg/L		0.00083	0.00054				0.00025			0.00008	0.00004	0.0003
Lead	mg/L		< 0.0003	< 0.0003		< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Lithium	mg/L		< 0.005	0.13				< 0.005					
Manganese	mg/L		0.038	0.03				0.21			1.2	1.01	0.21
Molybdenum	mg/L		0.34	0.39				0.30			0.30	0.33	0.32
Nickel	mg/L		0.39	0.46				0.09			0.090	0.15	0.082
Antimony	mg/L		0.082	0.051				0.009					
Selenium	mg/L		0.086	0.094				0.046			0.042	0.058	0.082
Tin	mg/L		< 0.001	< 0.001				< 0.001					
Silver	mg/L										0.001	0.003	0.0003
Strontium	mg/L		2.23	3.54				1.45					
Thallium	mg/L		< 0.005	< 0.005				< 0.005			< 0.005	< 0.005	< 0.005
Titanium	mg/L		0.49	0.51				0.44					
Uranium	mg/L		0.032	0.028				0.025					
Vanadium	mg/L		< 0.005	< 0.0005				< 0.0005					
Zinc	mg/L		0.004	0.004				< 0.001			0.001	0.003	< 0.0010
Dissolved Metals													
Aluminum	mg/L	0.037	0.036	0.024	0.026	0.23	0.022	< 0.006	< 0.006	< 0.006	< 0.006	0.01	0.014
Arsenic	mg/L	0.0203	0.022	0.0379	0.0126	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0015	0.0025	0.0088	< 0.005
Barium	mg/L	0.08	0.12	0.12	0.13	0.11	0.11	0.077	0.058	0.049	0.059	0.054	0.076
Cadmium	mg/L	0.00026	0.00068	0.00079	0.00094	0.00066	0.00086	< 0.00002	0.00078	0.00061	0.00043	0.00081	0.0008
Copper	mg/L	2.56	0.699	2.05	2.17	5.54	1.86	0.66	0.19	0.06	0.65	2.40	0.016
Iron	mg/L	0.05	0.2	0.03	0.9	2.4	0.05	0.05	0.02	0.01	0.02	0.03	0.36
Mercury	mg/L	0.00038	0.00061	0.00077	0.00058	0.00057	0.00037	0.00031	0.00015	0.00009	0.00007	0.00024	0.00028
Manganese	mg/L	0.02	0.003	0.025	0.014	0.0084	0.057	0.18	0.68	1.02	1.25	0.98	0.17
Molybdenum	mg/L	0.18	0.28	0.33	0.39	0.41	0.39	0.30	0.25	0.02	0.30	0.31	0.32
Nickel	mg/L	0.115	0.057	0.183	0.026	0.030	0.029	0.085	0.083	0.058	0.096	0.141	0.018
Lead	mg/L	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0.0005	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Selenium	mg/L	0.049	0.084	0.104	0.102	0.079	0.075	0.046	0.049	0.039	0.045	0.048	0.072
Silver	mg/L	0.0194	< 0.0001	< 0.0001	0.0043	0.0043	0.008	0.001	0.0034	0.0001	< 0.0005	< 0.0001	0.0003
Thallium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Zinc	mg/L	0.001	< 0.001	0.002	0.004	< 0.001	0.003	< 0.001	0.005	< 0.001	< 0.001	0.001	0.007

Footnotes:

The dotted line illustrates the point in time where the list of parameters to be analysed was updated to reflect changes in the renewed water licence 2AM-MEA1525.

Table 8.15: 2015 North Portage Pit Sump Water Quality Monitoring (ST-17)

Date	Units	28-May-2015	1-Jun-2015	23-Jul-2015	4-Aug-2015	8-Sep-2015	5-Oct-2015	2-Nov-2015
Field Parameters								
pH		8.52	8.47	6.99	6.51	8.44	8.26	7.90
Turbidity	NTU	9.9	14.2	1.4	0.5	2.1	1.0	1.1
Conventional Parameters								
Alkalinity	mg CaCO ₃ /L	60	55	76	75	86	86	100
Hardness	mg CaCO ₃ /L	82		227			306	340
TDS	mg/L	171	192	464	426	461	532	548
TSS	mg/L						4	3
Nutrients and Biological Indicators								
Ammonia (NH ₃)	mg N/L	0.01	0.02	0.06	0.05	0.07	0.08	0.10
Ammonia nitrogen	mg N/L	1.2	1.2	4.3	2.3	3.4	3.8	4.2
Nitrate	mg N/L	3.19		11.9			16.8	15.7
Nitrite	mg N/L	0.12		0.35			0.15	0.05
Major Ions								
Chloride	mg/L	5.1		14.6			23.6	25.6
Fluoride	mg/L	0.06		0.37			0.37	0.42
Sulphate	mg SO ₄ /L	45		165			250	258
Cyanide								
Total cyanide	mg/L	0.005					0.006	0.01
Free cyanide	mg/L	< 0.01						
Total Metals								
Aluminum	mg/L						0.034	0.050
Arsenic	mg/L	0.522	0.051	0.39	0.048	0.024	0.035	0.055
Barium	mg/L						0.017	0.016
Cadmium	mg/L						< 0.00002	0.0005
Chromium	mg/L						< 0.0006	0.0029
Copper	mg/L	0.0014	0.0022	0.0012	< 0.0005	0.0006	0.0006	< 0.0005
Iron	mg/L						0.05	0.04
Lead	mg/L	< 0.0003	0.0057	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Manganese	mg/L						0.11	0.12
Mercury	mg/L						< 0.00001	0.00019
Molybdenum	mg/L						0.20	0.16
Nickel	mg/L	0.02	0.02	0.03	0.02	0.03	0.04	0.05
Selenium	mg/L						0.0010	0.0020
Silver	mg/L						< 0.0001	< 0.0001
Thallium	mg/L						< 0.005	< 0.005
Zinc	mg/L	0.006	0.004	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002

Date	Units	28-May-2015	1-Jun-2015	23-Jul-2015	4-Aug-2015	8-Sep-2015	5-Oct-2015	2-Nov-2015
Dissolved Metals								
Aluminum	mg/L	< 0.006		< 0.006				
Arsenic	mg/L	0.0318		0.009				
Barium	mg/L	0.0047		0.014				
Cadmium	mg/L	< 0.00002		< 0.00002				
Copper	mg/L	< 0.0005		0.0011				
Iron	mg/L	< 0.01		0.01				
Manganese	mg/L	0.043		0.098				
Mercury	mg/L	< 0.00001		< 0.000				
Molybdenum	mg/L	0.036		0.094				
Nickel	mg/L	0.014		0.032				
Lead	mg/L	< 0.0003		0.0003				
Selenium	mg/L	0.001		0.001				
Silver	mg/L	< 0.0001		< 0.0001				
Thallium	mg/L	< 0.005		0.005				
Zinc	mg/L	< 0.001		0.001				

Footnotes:

The dotted line illustrates the point in time where the list of parameters to be analysed was updated to reflect changes in the renewed water licence 2AM-MEA1525.

Table 8.16: 2015 South Portage Pit Sump Water Quality Monitoring (ST-19)

Date	Units	13-Jul-2015	11-Aug-2015	14-Sep-2015
Field Parameters				
pH		6.81	5.90	7.28
Turbidity	NTU	2.3	8.7	2.8
Conventional Parameters				
Alkalinity	mg CaCO ₃ /L	72	70	49
Hardness	mg CaCO ₃ /L	198	193	
TDS	mg/L	401	324	768
Nutrients and Biological Indicators				
Ammonia (NH ₃)	mg N/L	0.09	0.04	0.01
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L	3.85	2.24	2.17
Nitrate	mg N/L	11.8	9.13	
Nitrite	mg N/L	0.30	0.09	
Major Ions				
Chloride	mg/L	17	14	
Fluoride	mg/L	0.24	0.29	
Sulphate	mg SO ₄ /L	154	117	
Total Metals				
Arsenic	mg/L	0.017	0.014	< 0.0005
Copper	mg/L	< 0.0005	< 0.0005	< 0.0005
Lead	mg/L	< 0.0003	< 0.0003	< 0.0003
Nickel	mg/L	0.03	0.04	0.2
Zinc	mg/L	< 0.001	< 0.001	0.2
Dissolved Metals				
Aluminum	mg/L	< 0.006	< 0.006	
Arsenic	mg/L	0.018	0.014	
Barium	mg/L	0.012	0.01	
Cadmium	mg/L	< 0.00002	< 0.00002	
Copper	mg/L	< 0.0005	< 0.0005	
Iron	mg/L	< 0.01	< 0.01	
Manganese	mg/L	0.079	0.11	
Mercury	mg/L	0.00002	< 0.00001	
Molybdenum	mg/L	0.11	0.018	
Nickel	mg/L	0.024	0.04	
Lead	mg/L	< 0.0003	< 0.0003	
Selenium	mg/L	0.002	0.001	
Silver	mg/L	< 0.0001	< 0.0001	
Thallium	mg/L	< 0.005	< 0.005	
Zinc	mg/L	< 0.001	< 0.001	

Table 8.17: 2015 Goose Island Pit Lake Water Quality Monitoring (ST-20)

Date	Units	9-Aug-15
Conventional Parameters		
Alkalinity	mg CaCO ₃ /L	75
Bicarbonate alkalinity	mg CaCO ₃ /L	75
Carbonate alkalinity	mg CaCO ₃ /L	< 2
Hardness	mg CaCO ₃ /L	104
TDS	mg/L	217
TSS	mg/L	< 1
TOC	mg/L	2
DOC	mg/L	0
Nutrients and Biological Indicators		
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L	0.57
Total Kjeldahl Nitrogen	mg N/L	0.49
Nitrate	mg N/L	4.11
Nitrite	mg N/L	0.08
Total Phosphorus	mg P/L	0.01
Ortho-phosphate	mg P/L	< 0.01
Major Ions		
Calcium	mg/L	23.6
Potassium	mg/L	5.81
Magnesium	mg/L	11.1
Sodium	mg/L	18.5
Chloride	mg/L	13.7
Fluoride	mg/L	0.55
Sulphate	mg SO ₄ /L	45.8
Reactive Silica	mg/L	2.8
Cyanide		
Total cyanide	mg/L	< 0.005
Total Metals		
Aluminum	mg/L	0.011
Antimony	mg/L	0.002
Arsenic	mg/L	0.006
Barium	mg/L	0.017
Boron	mg/L	0.11
Beryllium	mg/L	< 0.001
Cadmium	mg/L	< 0.000

Date	Units	9-Aug-15
Chromium	mg/L	0.003
Copper	mg/L	0.0007
Iron	mg/L	0.07
Lead	mg/L	< 0.0003
Lithium	mg/L	< 0.005
Manganese	mg/L	0.018
Mercury	mg/L	0.00005
Molybdenum	mg/L	0.015
Nickel	mg/L	0.0097
Selenium	mg/L	< 0.001
Strontium	mg/L	0.18
Tin	mg/L	< 0.001
Titanium	mg/L	0.01
Thallium	mg/L	< 0.005
Uranium	mg/L	0.003
Vanadium	mg/L	< 0.001
Zinc	mg/L	0.002
Dissolved Metals		
Aluminum	mg/L	< 0.006
Arsenic	mg/L	< 0.0005
Antimony	mg/L	0.002
Barium	mg/L	0.02
Boron	mg/L	0.12
Beryllium	mg/L	< 0.0005
Cadmium	mg/L	< 0.00002
Chromium	mg/L	< 0.0006
Copper	mg/L	< 0.0005
Iron	mg/L	0.01
Lead	mg/L	< 0.0003
Lithium	mg/L	< 0.01
Manganese	mg/L	0.0058
Mercury	mg/L	0.00006
Molybdenum	mg/L	0.015
Nickel	mg/L	0.01
Lead	mg/L	< 0.0003
Selenium	mg/L	0.001
Strontium	mg/L	0.19

Date	Units	9-Aug-15
Thallium	mg/L	< 0.005
Tin	mg/L	< 0.001
Titanium	mg/L	0.01
Uranium	mg/L	0.003
Vanadium	mg/L	< 0.0005
Zinc	mg/L	< 0.001
Hydrocarbons		
Hydrocarbons	mg/L	< 0.1

Table 8.18: 2015 Goose Island Pit Sump Water Quality Monitoring (ST-20)

Date	Units	7-Jul-15	4-Aug-15	9-Sep-15	5-Oct-15
Field Parameters					
pH		7.23	6.88	*	7.99
Turbidity	NTU	106.5	4.8	*	12.1
Conventional Parameters					
Alkalinity	mg CaCO ₃ /L	71	50	52	53
Hardness	mg CaCO ₃ /L	72		171	159
TDS	mg/L	144	25	270	282
TSS	mg/L				7
Nutrients and Biological Indicators					
Ammonia	mg N/L	< 0.01	0.01	0.02	0.02
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L	0.41	0.99	1.72	1.40
Nitrate	mg N/L	1.67		3.3	3.9
Nitrite	mg N/L	0.04		0.28	0.25
Major Ions					
Chloride	mg/L	13.8		34.8	17.9
Fluoride	mg/L	0.29		0.48	0.42
Sulphate	mg SO ₄ /L	21.3		98.6	117
Cyanide					
Total cyanide	mg/L				0.008
Total Metals					
Aluminum	mg/L				0.31
Arsenic	mg/L	< 0.001	< 0.001	< 0.001	0.004
Barium	mg/L				0.028
Cadmium	mg/L				< 0.00002
Chromium	mg/L				< 0.0006
Copper	mg/L	0.0037	< 0.0005	0.0023	0.0026
Iron	mg/L				0.69
Lead	mg/L	< 0.0003	0.0010	< 0.0003	< 0.0003
Manganese	mg/L				0.27
Mercury	mg/L				< 0.00001
Molybdenum	mg/L				0.014
Nickel	mg/L	0.03	0.02	0.04	0.06
Selenium	mg/L				0.001
Silver	mg/L				< 0.0001
Thallium	mg/L				< 0.005
Zinc	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Date	Units	7-Jul-15	4-Aug-15	9-Sep-15	5-Oct-15
Dissolved Metals					
Aluminum	mg/L	< 0.006		< 0.006	< 0.006
Arsenic	mg/L	< 0.0005		< 0.0005	< 0.0005
Barium	mg/L	0.01		0.02	0.022
Cadmium	mg/L	< 0.00002		0.00002	< 0.00002
Copper	mg/L	< 0.0005		0.001	0.003
Iron	mg/L	< 0.01		< 0.01	< 0.01
Manganese	mg/L	0.13		0.20	0.20
Mercury	mg/L	0.00002		< 0.00001	< 0.00001
Molybdenum	mg/L	0.006		0.012	0.012
Nickel	mg/L	0.015		0.032	0.052
Lead	mg/L	< 0.0003		< 0.0003	0.0003
Selenium	mg/L	< 0.001		0.002	0.002
Silver	mg/L	< 0.0001		< 0.0001	< 0.0001
Thallium	mg/L	< 0.005		< 0.005	< 0.005
Zinc	mg/L	< 0.001		< 0.001	< 0.001

Footnotes

The dotted line illustrates the point in time where the list of parameters to be analysed was updated to reflect changes in the renewed water licence 2AM-MEA1525.

* No data

Table 8.19: 2015 Vault Pit Sump Water Quality Monitoring (ST-23)

Date	Units	2-Jun-2015	23-Jul-2015
Field Parameters			
pH		6.93	7.28
Turbidity	NTU	523	44
Conventional Parameters			
Alkalinity	mg CaCO ₃ /L	85	167
Hardness	mg CaCO ₃ /L		340
TDS	mg/L	337	799
Nutrients and Biological Indicators			
Ammonia (NH ₃)	mg N/L	0.14	0.5
Ammonia-nitrogen (NH ₃ -NH ₄)	mg N/L	9.73	35.5
Nitrate	mg N/L		45.9
Nitrite	mg N/L		2.05
Major Ions			
Chloride	mg/L		33.2
Fluoride	mg/L		0.25
Sulphate	mg SO ₄ /L		124
Total Metals			
Arsenic	mg/L	< 0.0005	< 0.0005
Copper	mg/L	0.01	0.0054
Lead	mg/L	0.046	< 0.0003
Nickel	mg/L	0.021	0.024
Zinc	mg/L	0.028	< 0.001
Dissolved Metals			
Aluminum	mg/L		< 0.006
Arsenic	mg/L		< 0.0005
Barium	mg/L		0.07
Cadmium	mg/L		< 0.00002
Copper	mg/L		0.001
Iron	mg/L		0.59
Lead	mg/L		< 0.0003
Manganese	mg/L		0.086
Mercury	mg/L		< 0.00001
Molybdenum	mg/L		0.11
Nickel	mg/L		0.02
Selenium	mg/L		0.004
Silver	mg/L		< 0.001
Thallium	mg/L		< 0.005
Zinc	mg/L		< 0.001

Table 8.20: 2015 ST-16 Water Quality Monitoring

Date	Units	01-Jun-15	25-Jul-15	18-Aug-15	15-Sep-15
Field Parameters					
pH		7.39	6.93	7.37	7.85
Conductivity	µmhos/cm	172	426	631	663
Turbidity	NTU	428	3.65	7.15	8.21
Dissolved oxygen	mg/L	10.6	7.78		8.8
Temperature	°C		10.5		10.7
Conventional Parameters					
TDS	mg/L	115	328	413	415
TSS	mg/L	*	*	*	10
Alkalinity	mg CaCO ₃ /L	30	63	85	68
Hardness	mg CaCO ₃ /L	58	148	160	207
Colour	colour	86	46	<1	22
D.O.C	mg/L	9.2	13.1	9.3	8
T.O.C	mg/L	12.5	13.6	9.1	9.3
Nutrient and Biological Indicators					
Ammonia (NH ₃)	mg N/L	<0.01	<0.01	0.01	0.02
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L	0.24	1.01	1.46	1.74
Nitrate	mg N/L	2.61	6.15	9.89	12.7
Nitrite	mg N/L	0.02	0.08	0.09	0.07
Kjeldahl nitrogen	mg N/L	2.51	1.91	1.93	2.76
Ortho-phosphate (O-PO ₄)	mg P/L	0.02	0.03	0.03	0.01
Chlorophyll A	µg / L				0.86
Major Ions					
Bromides	mg/L	0.02	0.09	0.13	0.16
Chloride	mg/L	2.8	9.5	13	15.9
Fluoride	mg/L	0.03	0.14	0.22	0.38
Sulphate	mg/L	35.3	165	156	164
Thiosulfates (S ₂ O ₃)	mg/L	<0.02	<0.02	5.3	<0.02
Thiocyanates (SNC)	mg/L	<0.17	<0.05	<0.05	0.63
Cyanide					
CN total	mg/L	0.005	0.008	0.014	0.059
CN Free (SGS)	mg/L		<0.005	**	<0.005
CN WAD	mg/L	0.012	<0.005	<0.005	0.012
Dissolved Metals					
Aluminium	mg/L	<0.006	<0.006	<0.006	0.006
Antimony	mg/L	<0.0001	0.0001	<0.0001	0.0002
Arsenic	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Boron	mg/L	0.01	0.02	0.12	<0.01
Barium	mg/L	0.0096	0.0185	0.0237	0.0169
Beryllium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium	mg/L	<0.00002	<0.00002	0.00007	<0.00002
Chromium	mg/L	<0.0006	<0.0006	<0.0006	<0.0006
Cobalt	mg/L	0.0009	0.003	0.0081	0.0066
Copper	mg/L	0.0037	0.0563	0.0398	0.0194
Iron	mg/L	0.04	0.23	0.46	0.29

Date	Units	01-Jun-15	25-Jul-15	18-Aug-15	15-Sep-15
Lead	mg/L	<0.0003	<0.0003	<0.0003	<0.0003
Lithium	mg/L	<0.005	<0.005	<0.005	<0.005
Manganese	mg/L	0.1093	0.4005	1.171	1.152
Magnesium	mg/L	3.44	9.92	13	19.6
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.00001
Molybdenum	mg/L	0.0025	0.0157	0.0267	0.0158
Nickel	mg/L	0.0049	0.0538	0.0683	0.0448
Selenium	mg/L	<0.001	0.001	<0.001	0.001
Strontium	mg/L	0.062	0.132	0.215	0.214
Silver	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Tin	mg/L	<0.001	<0.001	<0.001	<0.001
Thallium	mg/L	<0.005	<0.005	<0.005	<0.005
Titanium	mg/L	0.01	0.02	0.04	0.04
Uranium	mg/L	<0.001	0.003	0.008	0.006
Vanadium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	<0.001	<0.001	<0.001	<0.001
Total Metals					
Aluminium	mg/L	1.19	0.087	0.465	0.155
Antimony	mg/L	0.0002	0.0002	0.0004	0.0002
Arsenic	mg/L	<0.0005	<0.0005	0.0094	<0.0005
Boron	mg/L	0.07	0.02	0.12	<0.01
Barium	mg/L	0.0317	0.0185	0.0301	0.0163
Beryllium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium	mg/L	0.00033	<0.00002	0.0001	0.00006
Copper	mg/L	0.0249	0.0749	0.0592	0.0283
Chromium	mg/L	0.0082	0.001	0.0029	0.0012
Cobalt	mg/L	0.0048	0.0052	0.0081	0.0068
Iron	mg/L	3.16	0.83	0.99	0.82
Lithium	mg/L	<0.005	<0.005	<0.005	<0.005
Manganese	mg/L	0.219	0.4552	1.067	1.165
Magnesium	mg/L	4.21	12.6	14.3	20.2
Mercury	mg/L	<0.00001	0.00002	<0.00001	<0.00001
Molybdenum	mg/L	0.0027	0.0158	0.025	0.0149
Nickel	mg/L	0.0192	0.0605	0.0755	0.0476
Lead	mg/L	0.0066	<0.0003	<0.0003	<0.0003
Phosphorus	mg P/L	0.133	0.0041	0.0272	0.0222
Potassium	mg/L	2.49	8.74	11.4	10.7
Selenium	mg/L	<0.001	0.002	<0.001	<0.001
Silver	mg/L				<0.0001
Tin	mg/L	<0.001	<0.001	<0.001	<0.001
Strontium	mg/L	0.07	0.14	0.226	0.215
Titanium	mg/L	0.03	0.02	0.05	0.05
Thallium	mg/L	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.005	0.005	0.009	0.007
Vanadium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	0.014	<0.001	0.001	0.001

Footnotes

* Parameter not analysed due to logistical error.

** Cn Free sample collected on August 18, 2015 was damaged during transportation. Therefore, it was not analysed. When AEM noticed the situation, it was too late to collect another sample for the month.

Table 8.21: 2015 NP2 Water Quality Monitoring

Date	Units	NP2 South			NP2 East			NP2 West			NP2 Winter	
		28-Jul-15	18-Aug-15	10-Sep-15	13-Jul-15	18-Aug-15	08-Sep-15	28-Jul-15	18-Aug-15	10-Sep-15	11-Nov-15	13-Dec-15
Field Parameters												
pH		6.77	7.49		7.7	7.57	7.63	7.08	7.47		6	7.45
Conductivity	µmhos/cm	266	303		267	307	277	256.00	302.00		346	365
Turbidity	NTU	3.12	3.28		2.89	4.48		1.92	3.51		0.05	0.38
Dissolved oxygen	%											
Dissolved oxygen	mg/L	9	9.7	10.1	10.1	10.2	10.7	9.10	9.70		10.4	
Temperature	°c	19.08						20.94				
Conventionnal Parameters												
TDS	mg/L	181	182	185	178	183	184	181	182	184	209	226
TSS	mg/L	<1	*	*	6	*	204	4	*	*	2	3
Alkalinity	mg CaCo3/L	35	48	44	34	38	42	34	41	44	49	55
Hardness	mg CaCo3/L	78	64	83	86	68	89	81	71	84	92	90
Colour	colour	7	4	10	6	5	5	7	5	8	4	6
D.O.C	mg/L	4.3	4.1	4.7	3.9	4.2	4.6	4.5	4.1	4.6	6.8	6.5
T.O.C	mg/L	4.4	4.6	3.7	3.9	4.7	4	4.2	4	4.3	7.5	6.8
Nutrient and Biological Indicators												
Ammonia (NH3)	mg N/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia nitrogen (NH3-NH4)	mg N/L	<0.01	<0.01	<0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.09
Nitrate	mg N/L	1.42	1.31	1.05	1.48	1.31	1.1	1.4	1.37	1.1	1.06	1.19
Nitrite	mg N/L	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Kjeldahl nitrogen	mg N/L	<0.05	0.25	0.79	0.28	0.18	0.57	1.02	0.11	0.78	0.68	0.15
Ortho-phosphate (O-PO4)	mg P/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlorophyll A	µg / L	3.2	2.6	1.08	1.04	2	0.84	2.4000	2.2	0.54	0.67	0.35
Major Ions												
Bromides	mg/L	0.06	<0.01	0.07	0.09	0.01	0.07	0.06	0.02	0.06	0.08	0.1
Chloride	mg/L	6.2	6.5	7.6	6.1	6.1	7.6	6.20	6.40	7.5	5.5	7.3
Fluoride	mg/L	0.11	0.09	0.13	0.07	0.1	0.08	0.11	0.09	0.13	0.13	0.14
Sulphate	mg/L	79.1	80.1	80.3	70.6	75.5	80.1	81.4	71.5	78.9	85.3	87.8
Thiosulfates (S2O3)	mg/L	<0.02	2.73	<0.02	<0.02	6.84	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Thiocyanates (SNC)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide												
CN total	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
CN Free (SGS)	mg/L	<0.005	**	<0.005		**	<0.005	<0.005	**	<0.005	<0.005	<0.005
CN WAD	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dissolved Metals												
Aluminium	mg/L	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Antimony	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	mg/L	<0.0005	0.0043	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0084	<0.0005	<0.0005	<0.0005
Boron	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Barium	mg/L	0.0064	0.0123	0.0071	0.0135	0.0095	0.008	0.0066	0.013	0.0074	0.0123	0.0127
Beryllium	mg/L	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	<0.0005
Cadmium	mg/L	<0.00002	0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00007	<0.00002	<0.00002	<0.00002
Chromium	mg/L	<0.0006	0.0034	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0041	<0.0006	<0.0006	<0.0006
Cobalt	mg/L	0.0008	0.0012	0.0009	0.001	0.0011	0.0008	0.0008	0.0011	0.0008	0.0008	0.0009
Copper	mg/L	0.0036	0.0046	0.0039	0.0052	0.0036	0.0041	0.0037	0.0046	0.0041	0.0048	0.0038
Iron	mg/L	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Date	Units	28-Jul-15	18-Aug-15	10-Sep-15	13-Jul-15	18-Aug-15	08-Sep-15	28-Jul-15	18-Aug-15	10-Sep-15	11-Nov-15	13-Dec-15
Lithium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Manganese	mg/L	<0.0005	0.0005	<0.0005	0.0117	0.0013	0.0049	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Magnesium	mg/L	4.78	6.06	6.34	5.28	5.22	7.23	4.79	6.43	6.43	7.03	8.91
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.0001	<0.0001	<0.00001	<0.00001	<0.00001
Molybdenum	mg/L	0.0006	0.0006	0.0005	0.0009	0.0006	0.0006	0.0006	0.0007	<0.0005	<0.0005	0.0007
Nickel	mg/L	0.0048	0.0051	0.0038	0.008	0.0112	0.004	0.0044	0.006	0.0037	0.0059	0.0074
Selenium	mg/L	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Strontium	mg/L	0.08	0.1	0.087	0.082	0.088	0.096	0.08	0.102	0.09	0.099	0.12
Silver	mg/L	<0.0001	<0.0001	<0.0001			<0.0001		<0.0001	<0.0001	<0.0001	<0.0001
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Titanium	mg/L	<0.01	0.01	*	0.01	0.01	*	<0.01	<0.01	*	*	*
Uranium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Metals												
Aluminium	mg/L	<0.006	<0.006	<0.006	0.02	<0.006	0.01	0.006	<0.006	<0.006	0.012	<0.006
Antimony	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002
Arsenic	mg/L	<0.0005	<0.0005	0.0093	<0.0005	0.0096	<0.0005	<0.0005	<0.0005	0.0102	0.0149	0.0081
Boron	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Barium	mg/L	0.0111	0.0113	0.0076	0.0138	0.0115	0.0084	0.0111	0.012	0.008	0.0115	0.0136
Beryllium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0039
Cadmium	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00005
Copper	mg/L	0.0052	0.0057	0.0052	0.0067	0.0054	0.0054	0.0054	0.0058	0.0048	0.0056	0.006
Chromium	mg/L	<0.0006	<0.0006	<0.0006	0.0063	0.0024	<0.0006	<0.0006	<0.0006	<0.0006	0.0022	<0.0006
Cobalt	mg/L	0.0009	0.0012	0.0009	0.0013	0.0013	0.001	0.0009	0.0013	0.0009	0.0008	0.0008
Iron	mg/L	0.08	0.06	0.03	0.12	0.05	0.07	0.07	0.05	0.03	0.02	0.04
Lithium	mg/L	0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Manganese	mg/L	0.0139	0.0105	0.0069	0.0201	0.0095	0.0172	0.0145	0.0115	0.0086	0.0065	0.01
Magnesium	mg/L	7.52	5.1	6.84	7.65	5.49	7.6	7.78	5.7	7.07	8.07	7.01
Mercury	mg/L	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	<0.0001	<0.0001	<0.00001	<0.00001	<0.00001
Molybdenum	mg/L	<0.0005	0.0006	0.0005	<0.0005	0.0005	0.0006	<0.0005	0.0006	<0.0005	<0.0005	<0.0005
Nickel	mg/L	0.0058	0.0057	0.0041	0.0091	0.015	0.0043	0.0058	0.0059	0.0039	0.0056	0.0069
Lead	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0284	<0.0003	<0.0003
Phosphorus	mg P/L	0.013	0.011	<0.01	0.01	0.0081	0.008	0.011	0.0066	0.0086	<0.01	<0.01
Potassium	mg/L	3.09	2.53	2.83	3.22	2.66	2.92	3.07	2.73	2.83	3.58	4.54
Selenium	mg/L	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.003
Silver	mg/L			<0.0001		<0.0001	<0.0001			<0.0001	<0.0001	<0.0001
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Strontium	mg/L	0.084	0.096	0.09	0.085	0.089	0.096	0.084	0.098	0.089	0.105	0.115
Titanium	mg/L	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.02	0.01
Thallium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

* Parameter not analysed due to logistical error.

** Cn Free sample collected on August 18, 2015 was damaged during transportation. Therefore, it was not analysed. When AEM noticed the situation, it was too late to collect another sample for the month.

Table 8.22: 2015 Downstream Lakes Water Quality Monitoring

Date	Units	NP1 West			Dogleg			SPL-RSF	
		28-Jul-15	18-Aug-15	15-Sep-15	28-Jul-15	18-Aug-15	15-Sep-15	18-Aug-15	08-Sep-15
Field Parameters									
pH		7.81	7.48	7.32	7.27	7.77	8.24	7.81	7.09
Conductivity	µmhos/cm	262	285	274	109	122.6	107.4	55.9	33
Turbidity	NTU	1.72	0.62	1.26	3.33	0.76	0.96	0.28	
Dissolved oxygen	%								
Dissolved oxygen	mg/L	9.4	9.6	9.6	8.8	10.3	9.5	10	10.8
Temperature	°c	18.56		11.6	20.2		11		
Conventional Parameters									
TDS	mg/L	140	171	179	73	66	67	27	22
TSS	mg/L	2	*	2	<1	*	<1	*	18
Alkalinity	mg CaCo3/L	37	51	50	25	25	29	16	17
Hardness	mg CaCo3/L	70	73	97	36	28	37	11	11
Colour	colour	5	3	3	5	<1	2	29	<1
D.O.C	mg/L	3.5	4	3.9	3.4	3.9	3.5	1.8	1.5
T.O.C	mg/L	3.6	4.3	4.6	3.4	3.9	3.8	2.1	1.7
Nutrient and Biological Indicators									
Ammonia (NH3)	mg N/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia nitrogen (NH3-NH4)	mg N/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate	mg N/L	0.94	1.31	1.33	0.24	0.16	0.05	0.02	<0.01
Nitrite	mg N/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Kjeldahl nitrogen	mg N/L	0.42	<0.05	1.8	1.37	0.08	3.34	<0.05	0.11
Ortho-phosphate (O-PO4)	mg P/L	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	0.01
Chlorophyll A	µg / L	0.24	0.68	0.2	0.96	1.19	0.78	0.63	0.24
Major Ions									
Bromides	mg/L	0.07	0.06	0.12	0.03	<0.01	0.03	<0.01	0.01
Chloride	mg/L	8.5	11.3	13.1	3.6	2.8	4.3	1	1
Fluoride	mg/L	0.13	0.13	0.16	0.11	0.11	0.13	0.07	0.08
Sulphate	mg/L	47.7	54.5	42.8	24.9	29	21.7	18.2	3.9
Thiosulfates (S2O3)	mg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Thiocyanates (SNC)	mg/L	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05
Cyanide									
CN total	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
CN Free (SGS)	mg/L	<0.005	**	<0.005	<0.005	**	<0.005	**	<0.005
CN WAD	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dissolved Metals									
Aluminium	mg/L	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Antimony	mg/L	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	mg/L	<0.0005	0.0119	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Boron	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Barium	mg/L	0.0049	0.0129	0.0063	0.0008	0.0028	0.0024	0.0015	0.0007
Beryllium	mg/L	<0.0005	0.0008	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium	mg/L	<0.00002	0.00009	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Chromium	mg/L	<0.0006	0.0048	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Cobalt	mg/L	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper	mg/L	0.0013	0.0012	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Iron	mg/L	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003

Date	Units	28-Jul-15	18-Aug-15	15-Sep-15	28-Jul-15	18-Aug-15	15-Sep-15	18-Aug-15	08-Sep-15
Lithium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Manganese	mg/L	<0.0005	0.0016	0.0028	0.0019	<0.0005	<0.0005	<0.0005	<0.0005
Magnesium	mg/L	4.19	6.62	6.36	2.45	2.29	3.25	0.94	1.08
Mercury	mg/L	<0.0001	<0.0001	<0.00001	<0.0001	<0.0001	<0.00001	<0.0001	<0.0001
Molybdenum	mg/L	0.0017	0.0023	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nickel	mg/L	0.0021	0.0028	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Selenium	mg/L	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Strontium	mg/L	0.074	0.155	0.088	0.035	0.036	0.036	0.016	0.0016
Silver	mg/L		<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Titanium	mg/L	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	*
Uranium	mg/L	0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Metals									
Aluminium	mg/L	0.014	<0.006	0.039	0.017	<0.006	0.014	0.007	0.001
Antimony	mg/L	0.0002	0.0002	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	mg/L	<0.0005	0.0016	<0.0005	<0.0005	0.0072	<0.0005	<0.0005	<0.0005
Boron	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Barium	mg/L	0.0087	0.0108	0.0079	0.004	0.0039	0.0024	0.0027	0.0008
Beryllium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium	mg/L	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Copper	mg/L	0.0017	0.002	0.0012	0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Chromium	mg/L	<0.0006	0.0024	<0.0006	<0.0006	0.0024	0.0007	0.0013	<0.0006
Cobalt	mg/L	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Iron	mg/L	0.07	0.06	0.09	0.08	0.21	0.04	0.02	0.01
Lithium	mg/L	0.032	<0.005	<0.005	0.055	<0.005	<0.005	<0.005	<0.005
Manganese	mg/L	0.0057	0.0042	0.0048	0.0066	0.0044	0.0052	0.001	0.001
Magnesium	mg/L	6.57	5.94	8.58	3.66	2.46	3.5	1	1.15
Mercury	mg/L	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	0.00004	<0.00001	<0.00001
Molybdenum	mg/L	0.0015	0.0024	0.0019	0.0006	<0.0005	<0.0005	<0.0005	<0.0005
Nickel	mg/L	0.0025	0.0024	<0.0005	0.001	<0.0005	<0.0005	<0.0005	<0.0005
Lead	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Phosphorus	mg P/L	0.011	0.01	0.0076	0.014	0.0068	0.0074	0.0058	0.0062
Potassium	mg/L	2.23	2.56	2.74	1.12	0.97	1.04	0.32	0.25
Selenium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Silver	mg/L			<0.0001			<0.0001		<0.001
Tin	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Strontium	mg/L	0.077	0.111	0.105	0.039	0.039	0.037	0.019	0.016
Titanium	mg/L	0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Uranium	mg/L	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001

* Parameter not analysed due to logistical error.

** Cn Free sample collected on August 18, 2015 was damaged during transportation. Therefore, it was not analysed. When AEM noticed the situation, it was too late to collect another sample for t

Table 8.26: 2015 Non Contact Water East Diversion Ditch Water Quality Monitoring (ST-5)

Parameters	Units	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration	9-Jun-2015	6-Jul-2015	3-Aug-2015	15-Sep-2015	5-Oct-2015
pH*				7.17	7.15	6.80	7.04	7.22
Turbidity*	NTU			13.97	7.44	1.96	1.47	1.99
TSS	mg/l	15	30	7	3	1	8	1
Sulphate	mg/L			11	29	100	63	74
Aluminum	mg/l			0.37	0.093	0.059	0.093	0.027
Arsenic	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Copper	mg/L			0.0040	0.0058	0.0059	0.0077	0.0046
Lead	mg/L			< 0.0003	0.0031	< 0.0003	< 0.0003	< 0.0003
Nickel	mg/L			0.0057	0.0044	0.0019	0.0007	0.0061
Zinc	mg/L			0.003	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide	mg/L			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Radium	Bq/l			< 0.002	0.002	< 0.002	0.007	< 0.002

Footnotes:

* Parameters measured in the field by Environmental Technicians.

Table 8.27: 2015 Vault Rock Storage Facility Seepage Water Quality Monitoring (ST-24)

Date	Units	2-Jun-2015	8-Jul-2015
Field Parameters			
pH		7.03	7.05
Turbidity	NTU	32.4	3.09
Conventional Parameters			
Alkalinity	mg CaCO ₃ /L	24	50
Hardness	mg CaCO ₃ /L		42
TDS	mg/L	46	71
Nutrients and Biological Indicators			
Ammonia (NH ₃)	mg N/L	< 0.01	< 0.01
Ammonia-nitrogen	mg N/L	0.1	0.12
Nitrate	mg N/L		0.11
Nitrite	mg N/L		0.01
Major Ions			
Chloride	mg/L		1.6
Fluoride	mg/L		0.04
Total Metals			
Aluminum	mg/L		0.11
Antimony	mg/L		< 0.0001
Arsenic	mg/L	< 0.0005	< 0.0005
Barium	mg/L		0.0077
Beryllium	mg/L		< 0.0005
Boron	mg/L		< 0.01
Cadmium	mg/L		< 0.00002
Chromium	mg/L		< 0.0006
Copper	mg/L	0.0009	0.0035
Iron	mg/L		1.1
Lead	mg/L	0.0032	< 0.0003
Lithium	mg/L		< 0.005
Manganese	mg/L		0.086
Mercury	mg/L		< 0.00001
Molybdenum	mg/L		0.001
Nickel	mg/L	0.0023	0.0028
Selenium	mg/L		< 0.001
Strontium	mg/L		0.066
Thallium	mg/L		< 0.005

Date	Units	2-Jun-2015	8-Jul-2015
Titanium	mg/L		0.01
Tin	mg/L		< 0.001
Uranium	mg/L		< 0.001
Vanadium	mg/L		< 0.0005
Zinc	mg/L	0.001	< 0.001
Dissolved Metals			
Arsenic	mg/L		< 0.0005
Barium	mg/L		0.0082
Cadmium	mg/L		< 0.00002
Copper	mg/L		0.0028
Iron	mg/L		0.69
Lead	mg/L		< 0.0003
Manganese	mg/L		0.078
Mercury	mg/L		< 0.00001
Molybdenum	mg/L		0.0011
Nickel	mg/L		0.0023
Selenium	mg/L		< 0.001
Thallium	mg/L		< 0.005
Zinc	mg/L		< 0.001

Table 8.28: 2015 Saddle Dam 1 Water Quality Monitoring (ST-S-2)

Date	Units	16-Jun-2015	6-Jul-2015	3-Aug-2015	14-Sep-2015
Field Parameters					
pH		6.19	6.72	6.66	6.97
Turbidity	NTU	67.1	83.1	14.9	18.0
Conventional Parameters					
Alkalinity	mg CaCO ₃ /L	21	55	65	63
Hardness	mg CaCO ₃ /L	77	186	221	216
Major Ions					
Chloride	mg/L	3.2	11.8	11.7	2.2
Fluoride	mg/L	0.06	0.13	0.32	0.33
Sulphate	mg SO ₄ /L	31.2	119	176	150
Nutrients and Biological Indicators					
Ammonia (NH ₃)	mg N/L	< 0.01	< 0.01	0.03	< 0.01
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L	0.46	0.92	3.37	1.30
Nitrate	mg N/L	1.5	9.0	10.5	9.0
Total Metals					
Aluminium	mg/L	0.69	0.43	0.29	0.25
Arsenic	mg/L	0.0019	< 0.0005	< 0.0005	0.026
Barium	mg/L	0.013	0.019	0.023	0.016
Cadmium	mg/L	< 0.00002	< 0.00002	< 0.00002	0.00008
Chromium	mg/L	0.0025	0.0020	0.0013	0.0009
Copper	mg/L	0.018	0.026	0.0058	0.0059
Iron	mg/L	2.54	1.24	0.47	0.35
Lead	mg/L	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Manganese	mg/L	0.26	0.28	0.40	0.39
Mercury	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L	0.002	0.12	0.022	0.018
Nickel	mg/L	0.017	0.021	0.031	0.035
Selenium	mg/L	< 0.001	0.002	0.004	0.003
Silver	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Thallium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Zinc	mg/L	0.041	0.03	< 0.001	0.03

Table 8.29: 2015 Central Dike Seepage Water Quality Monitoring (ST-S-5)

Date	Units	9-Feb-15	10-Mar-15	13-Apr-15	5-May-15	1-Jun-15	6-Jul-15	4-Aug-15	8-Sep-15	5-Oct-15	2-Nov-15	1-Dec-15
Field Parameters												
pH		7.04	7.08	7.21	6.21	7.71	6.83	6.53	7.78	7.76	7.56	7.72
Turbidity	NTU	35.1	2.28	10.7	0.46	7.6	15.4	32	7.35	3.95	1.89	4.89
Conventional Parameters												
Alkalinity	mg CaCO ₃ /L	202	365	255	170	132	130	164	157	146	151	160
Hardness	mg CaCO ₃ /L	1019	1396	1509	1077	972	787	1062	1116	1163	1264	1538
TDS	mg/L									1949	2212	2558
TSS	mg/L									14	3	2
Major Ions												
Chloride	mg/L	499	770	832	629	462	235	501	506	527	540	539
Fluoride	mg/L	0.34	3.2	0.43	1.7	0.03	0.05	0.41	0.69	0.42	0.43	0.45
Sulphate	mg SO ₄ /L	1300	2042	1754	1306	1178	842	1235	1407	1479	1652	1786
Nutrients and Biological Indicators												
Ammonia (NH ₃)	mg N/L	0.17	0.24	0.22	0.36	0.26	0.20	0.05	0.16	0.30	0.29	0.79
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L	12	21.7	20.5	19.3	23	8.94	4.17	20.6	23.3	27.5	25.3
Nitrate	mg N/L	4.1	14.4	10.4	3.8	4.3	6.9	3.2	0.3	1.6	0.4	0.02
Nitrite	mg N/L									0.08	0.09	0.02
Cyanide												
Total cyanide	mg/L	0.50	1.23	0.51	1.12		0.19		0.24	0.19	0.22	0.29
Cyanide WAD	mg/L										0.15	0.21
Total Metals												
Aluminium	mg/L	2.62	0.025	0.14	0.018	0.093	0.14	0.83	0.087	0.056	0.037	0.033
Arsenic	mg/L	0.109	0.023	0.020	0.0009	0.0054	< 0.0005	0.013	< 0.0005	0.034	0.051	0.03
Barium	mg/L	0.41	0.043	0.037	0.023	0.027	0.031	0.04	0.035	0.04	0.032	0.029
Cadmium	mg/L	0.00018	0.00029	0.00036	0.00006	0.00039	< 0.00002	< 0.00002	0.00032	0.00009	0.00068	0.00064
Chromium	mg/L	0.016	0.0011	0.0031	< 0.0006	< 0.0006	< 0.0006	0.0067	< 0.0006	< 0.0006	0.0034	0.0096
Copper	mg/L	0.055	0.088	0.03	0.38	0.94	0.11	< 0.0005	0.0064	0.0076	0.012	0.0086
Iron	mg/L	10.3	0.28	0.54	0.79	0.98	0.46	6.13	0.86	0.63	1.18	1.31
Lead	mg/L	0.0041	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0.0033
Manganese	mg/L	4.78	4.76	3.87	3.99	3.31	1.44	2.23	2.87	2.58	2.59	3.13
Mercury	mg/L	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00013	0.00005
Molybdenum	mg/L	0.067	0.15	0.14	0.11	0.12	0.097	0.18	0.19	0.19	0.21	0.23
Nickel	mg/L	0.19	0.41	0.24	0.25	0.34	0.093	0.059	0.031	0.063	0.052	0.065
Selenium	mg/L	0.007	0.026	0.021	0.021	0.029	0.012	0.034	0.026	0.013	0.018	0.038
Silver	mg/L	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Thallium	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Zinc	mg/L	0.011	0.005	0.003	< 0.001	0.002	< 0.001	< 0.001	< 0.001	0.001	0.003	< 0.001
Dissolved Metals												
Aluminum	mg/L									< 0.006	< 0.006	
Silver	mg/L									< 0.0001	< 0.000	
Arsenic	mg/L									0.015	0.030	
Cadmium	mg/L									0.0004	0.0006	
Chromium	mg/L									0.0013	0.0015	
Copper	mg/L									0.0058	0.0054	
Iron	mg/L									0.04	0.07	
Manganese	mg/L									2.38	2.72	
Mercury	mg/L									0.00001	0.0001	
Molybdenum	mg/L									0.2	0.22	
Nickel	mg/L									0.048	0.05	
Lead	mg/L									< 0.003	0.0009	
Selenium	mg/L									0.023	0.032	
Thallium	mg/L									< 0.005	< 0.005	
Zinc	mg/L									0.001	< 0.001	

Footnotes

The dotted line illustrates the point in time where the list of parameters to be analysed was updated to reflect changes in the renewed water licence 2AM-MEA1525.

Table 8.30: 2015 Landfarm Water Quality (ST-14)

Parameters	Units	Maximum Concentration Grab	7-Jul-2015
pH*	units		6.97
Conductivity*	us/cm		570
Benzene	ug/L	370	< 0.3
Ethylbenzene	ug/L	90	< 0.3
Toluene	ug/L	2	< 0.3
Total oil and grease	mg/L	5	< 1
Lead	mg/L	0.001	< 0.0003

Footnotes:

*Measured in the field by Environmental Technicians

Table 8.31: 2015 Sewage Treatment Plant Water Quality Monitoring

Sample Location: STP-SEP

Parameter	Units	6-Jan-2015	2-Feb-2015	2-Mar-2015	6-Apr-2015	4-May-2015	1-Jun-2015	6-Jul-2015	3-Aug-2015	7-Sep-2015	5-Oct-2015	2-Nov-2015	7-Dec-2015
Ammonia (NH ₃)	mg N/L	0.01	<0.01	0.16	0.11	0.04	0.01	0.27	0.17	0.38	0.22	0.34	2.74
Ammonia-Nitrogen (NH ₃ -NH ₄)	mg N/L	9.8	3.87	24.4	19.4	12	5.85	32.2	29.2	48.2	29.7	34.3	206
Total Kjeldahl Nitrogen	mg N/L	13.7	8.5	31.4	27	15.7	8.72	28.3	32.7	51.3	35.5	42.8	78.8
BOD-5	mg/L	9	12	14	17	23	16	10	12	10	7	12	32
COD	mg/L	96	39	33	76	85	63	54	74	64	57	91	71
Total Suspended Solids	mg/L	16	26	28	34	25	45	11	14	16	23	19	<1
Nitrate (NO ₃)	mg N/L	18.7	14.6	13.9	8.34	19.2	14	9.48	8.86	6.41	8.89	5.31	7.2
Nitrite (NO ₂)	mg N/L	0.24	0.86	0.56	0.3	0.79	0.61	0.82	0.8	1.74	0.98	1.05	1.28
Total Phosphorus**	mg P/L												
pH *	units	5.8	4.6	6.5	5.8	6.2	6.2	7.1	7	7.1	6.9	7	5.6
Fecal Coliform	JFC/100 ml	19	9	19	450	580	111	840	330	56	420	36	330
Total Coliform	JFC/100 ml	200	600	1,300	12,000	3,000	700	8,000	29,000	2,700	4,300	800	9,000

Sample Location: LJ-Mix

Parameter	Units	6-Jan-2015	2-Feb-2015	2-Mar-2015	6-Apr-2015	4-May-2015	1-Jun-2015	6-Jul-2015	3-Aug-2015	7-Sep-2015	5-Oct-2015	2-Nov-2015	7-Dec-2015
Ammonia (NH ₃)	mg N/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ammonia-nitrogen (NH ₃ -NH ₄)	mg N/L	9	2.25	11.6	5.6	1.3	6.2	2.7	5.2	4.7	4.7	0.7	2.5
Total Kjeldahl Nitrogen	mg N/L	8.8	3.74	13.2	9	2.65	8.76	3.7	7.91	7.23	4.72	4.52	6.56
BOD-5	mg/L	2	2	4	10	24	10	8	11	8	5	14	50
COD	mg/L	117	27	21	43	49	62	56	71	58	43	77	64
Total Suspended Solids	mg/L	<1	14	31	13	12	19	9	19	16	17	23	12
Nitrate (NO ₃)	mg N/L	23	19.8	24.6	22.6	24.6	19	21	23.4	24.1	26.1	17.5	19.6
Nitrite (NO ₂)	mg N/L	0.01	0.13	0.15	0.15	0.05	0.28	0.25	0.08	0.05	0.12	0.06	0.11
Total Phosphorus**	mg P/L												
pH *	units	4.3	6.1	5	6.9	5.7	5.7	6	5.1	5.6	4.5	5.9	6.2
Fecal Coliform	JFC/100 ml	22	2	10	190	2	108	43	650	***	<10	26	4
Total Coliform	JFC/100 ml	1,000	<1000	10,000	9,000	800	2,200	400	7,000	***	1,000	200	1,100

Sample Location: STP-IN

Parameter	Units	6-Jan-2015	2-Feb-2015	2-Mar-2015	6-Apr-2015	4-May-2015	1-Jun-2015	6-Jul-2015	3-Aug-2015	7-Sep-2015	5-Oct-2015	2-Nov-2015	7-Dec-2015
Ammonia (NH ₃)	mg N/L	2.5	1.7	2.93	2.54	0.94	1.4	0.97	0.87	1.12	0.47	1.45	0.51
Ammonia-nitrogen (NH ₃ -NH ₄)	mg N/L	84.6	93.3	85.7	79.5	84.9	78.6	96.7	99.6	111	86.2	95.4	77.8
Total Kjeldahl Nitrogen	mg N/L	100	138	86.5	110	106	84.5	109	116	126	108	104	94.7
BOD-5	mg/L	180	238	218	212	244	122	263	255	235	276	2	254
COD	mg/L	121	700	384	416	401	141	301	503	523	472	116	420
Total Suspended Solids	mg/L	127	117	81	13	125	47	193	95	146	82	62	567
Nitrate (NO ₃)	mg N/L	<0.01	<0.01	0.06	<0.01	0.01	<0.01	<0.01	0.04	0.01	<0.01	<0.01	0.02
Nitrite (NO ₂)	mg N/L	0.01	0.05	0.07	0.01	0.02	0.01	0.02	0.03	<0.01	<0.01	<0.01	<0.01
Total Phosphorus	mg P/L	8.9	14.9	5.8	9.9	11.1	9.8	11.2	0.07	12.1	13.9	6.16	7.31
pH *	units	7.8	8.4	8.5	8.4	7.5	7.5	7.9	7.8	7.9	7.1	7.7	7.2
Fecal Coliform	JFC/100 ml	3,500,000	3,300,000	1,100,000	4,300,000	3,800,000	3,800,000	700,000	4,100,000	4,300,000	6,700,000	4,900,000	3,600,000
Total Coliform	JFC/100 ml	32,000,000	17,000,000	#####	56,000,000	30,000,000	32,000,000	5,000,000	52,000,000	30,000,000	79,000,000	14,000,000	79,000,000

Footnotes:

* Parameter measured in the field by STP operators.

**Sample monitoring for total phosphorus in the treated effluent has been discontinued because the units do not have phosphorus removal capability. AEM will continue to monitor phosphorus in the influent sewage.

***Analysis not conducted because samples were lost during shipping or at the lab.

Table 8.32: 2015 Sewage Treatment Plant Waste Volume

Month	Liquid Sewage Volume (m ³)	Sewage Sludge Volume (m ³)
	Readings from Equalization Tank at STP	STP
January	2504	22.44
February	2196	0
March	2463	50.80
April	2588	13.60
May	2509	10.20
June	2152	59.50
July	2289	20.40
August	2455	24.48
September	2252	34.00
October	2455	11.90
November	2386	15.64
December	2682	0
Total	28,931	263.0

Table 8.33: 2015 Secondary Containment Water Quality at ST-37 (Meadowbank Tankfarm)

Parameters	Units	Maximum Average Concentration 2AM-MEA0815	Maximum Concentration of any Grab sample 2AM-MEA0815	4-Jun-15	Maximum Average Concentration 2AM-MEA1525	Maximum Concentration of any Grab sample 2AM-MEA1525	10-Sep-15
pH*	units			**	6.0-9.5	6.0-9.5	8.15
TSS	mg/L				15	30	1.00
Ammonia	mg/L				6	6	< 0.01
Benzene	µg/L	370	370	< 0.3	370	370	< 0.3
Toluene	µg/L	2	2	0.8	2	2	< 0.3
Ethylbenzene	µg/L	90	90	< 0.3	90	90	< 0.3
Total Xylenes	µg/L			< 0.3			< 0.3
Total oil and grease	mg/L	15	15	< 1	5	5	1
Arsenic	mg/L				0.5	1	0.0079
Copper	mg/L				0.3	0.6	0.007
Lead	mg/L	0.001	0.001	< 0.0003	0.1	0.1	< 0.0003
Nickel	mg/L				0.5	1	0.005
Zinc	mg/L				0.5	1	0.002

Footnotes:

The dotted line illustrates the point in time where the list of parameters to be analysed was updated to reflect changes in the renewed water licence 2AM-MEA1525.

*Parameter was measured in the field by Environmental Technicians.

** Parameter not analysed due to logistical error.

Table 8.34: 2015 Non Contact Water West Diversion Ditch Water Quality Monitoring (ST-6)

Parameters	Units	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration	9-Jun-2015	6-Jul-2015	3-Aug-2015	15-Sep-2015	5-Oct-2015
pH*				7.10	7.36	7.47	**	6.30
Turbidity*	NTU			7.35	4.87	1.52	**	1.33
TSS	mg/l	15	30	5	3	< 1	7	16
Sulphate	mg/L			7.7	5.1	4.1	4.8	5.4
Aluminum	mg/l			0.28	0.13	0.06	0.04	0.06
Arsenic	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0088
Copper	mg/L			0.0058	0.0022	0.0007	< 0.0005	0.0006
Lead	mg/L			< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Nickel	mg/L			0.0055	0.0014	< 0.0005	< 0.0005	0.0006
Zinc	mg/L			0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cyanide	mg/L			0.007	< 0.005	< 0.005	< 0.005	< 0.005
Radium	Bq/l			< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

Footnotes:

*Measured in the field by Environmental Technicians

** Parameter not analysed due to logistical error.

Table 8.35: 2015 Secondary Containment Water Quality at the Baker Lake Bulk Fuel Storage Facility (ST-40)

Parameters	Units	Maximum Allowable Concentration 2AM-MEA0815	ST-40.1	ST-40.2
			11-Jun-2015	11-Jun-2015
Field Parameters				
pH	units	6.0-9.5	6.18	6.21
Conductivity	us/cm		120.8	13.3
Temperature	°C		18.9	18.1
Conventional Parameters				
TSS	mg/L	30	15	26
Nutrients and Biological Indicators				
Ammonia nitrogen	mg N/L	6	0.08	0.11
Hydrocarbons				
Benzene	µg/L	370	< 0.3	< 0.3
Ethylbenzene	µg/L	90	< 0.3	< 0.3
Toluene	µg/L	2	< 0.3	< 0.3
Total Xylenes	µg/L		< 0.3	< 0.3
Hydrocarbons C10-C50	mg/L		< 0.1	0.01
Total oil and grease	mg/L	5	< 1	< 1
Cyanide				
Total Cyanide	mg/L	0.2	< 0.005	< 0.005
Total Metals				
Aluminium	mg/L		0.471	0.475
Antimony	mg/L		< 0.0001	< 0.0001
Arsenic	mg/L	1	< 0.0005	< 0.0005
Barium	mg/L		0.0184	0.0351
Beryllium	mg/L		< 0.0005	< 0.0005
Cadmium	mg/L		< 0.00002	< 0.00002
Chrome	mg/L		0.0011	0.0013
Cobalt	mg/L		< 0.0005	< 0.0005
Copper	mg/L	0.6	0.0059	0.0041
Lead	mg/L	0.1	< 0.0003	< 0.0003
Iron	mg/L		0.58	0.57
Lithium	mg/L		< 0.005	< 0.005
Manganese	mg/L		0.0187	0.0245
Molybdenum	mg/L		0.0007	0.0006
Nickel	mg/L	1	< 0.0005	0.0013
Selenium	mg/L		< 0.001	< 0.001
Strontium	mg/L		0.032	0.048
Thallium	mg/L		< 0.005	< 0.005
Tin	mg/L		< 0.001	< 0.001
Titanium	mg/L		0.01	0.02
Uranium	mg/L		< 0.001	0.001
Vanadium	mg/L		< 0.0005	< 0.0005
Zinc	mg/L	1	0.001	0.004

Footnotes:

* NWB Type A water license 2AM-MEA0815, Part F, Item 23

Table 8.36: 2015 Secondary Containment Water Quality at the Baker Lake Jet A Storage Facility (ST-38)

Parameters	Units	Maximum Allowable Concentration 2AM-MEA0815	ST-38
			5-Jul-2015
Conventional Parameters			
TSS	mg/L	30	123
Nutrients and Biological Indicators			
Ammonia nitrogen	mg N/L	6	< 0.01
Hydrocarbons			
Benzene	µg/L	370	< 0.3
Ethylbenzene	µg/L	90	< 0.3
Toluene	µg/L	2	< 0.3
Total Xylenes	µg/L		< 0.3
Hydrocarbons C10-C50	mg/L		< 0.1
Total oil and grease	mg/L	5	2
Cyanide			
Total Cyanide	mg/L	0.2	< 0.005
Total Metals			
Aluminium	mg/L		4.66
Antimony	mg/L		< 0.0001
Arsenic	mg/L	1	< 0.0005
Barium	mg/L		0.1154
Beryllium	mg/L		0.0005
Cadmium	mg/L		< 0.00002
Chrome	mg/L		0.0012
Cobalt	mg/L		0.0038
Copper	mg/L	0.6	0.0295
Lead	mg/L	0.1	< 0.0003
Iron	mg/L		5.21
Lithium	mg/L		0.009
Manganese	mg/L		0.1334
Molybdenum	mg/L		< 0.0005
Nickel	mg/L	1	0.0032
Selenium	mg/L		< 0.001
Strontium	mg/L		0.029
Thallium	mg/L		< 0.005
Tin	mg/L		< 0.001
Titanium	mg/L		0.02
Uranium	mg/L		0.001
Vanadium	mg/L		0.0044
Zinc	mg/L	1	< 0.001

Footnotes:

Bold values are not complying with water licence limits

Table 8.37: 2015 MMER QAQC

Station name	Units	DL	ST-MMER-2				ST-MMER-3				ST-MMER-3			
Date			24-Aug-2015				4-Feb-2015				22-Sep-2015			
Parameter / QAQC			Original	Duplicate	RPD	Field Blank	Original	Duplicate	RPD	Field Blank	Original	Duplicate	RPD	Field Blank
TSS	mg/L	1	1	1	0	1	8	13	48	6	6	3	67	1
Total cyanide	mg/L	0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005
Arsenic	mg/L	0.0005	0.0088	0.0036	84	0.0027	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Copper	mg/L	0.0005	0.0028	0.0028	0	< 0.0005	0.0011	0.0008	32	< 0.0005	0.0007	0.0008	13	< 0.0005
Lead	mg/L	0.0003	0.0031	< 0.0003	165	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003
Nickel	mg/L	0.0005	0.0032	0.0031	3	< 0.0005	0.0008	0.0006	29	< 0.0005	0.0016	0.0009	56	< 0.0005
Zinc	mg/L	0.001	< 0.0101	< 0.001	164	< 0.001	0.026	0.015	54	0.004	0.001	0.001	0	< 0.001
Radium	Bq/L	0.002	0.008	< 0.006	29	< 0.002	< 0.002	< 0.002	0	< 0.002	0.003	0.002	40	< 0.002
% Exceedances*					0%				13%				0%	

Station name	Units	DL	ST-MMER-3				ST-MMER-3				ST-MMER-3			
Date			6-Oct-2015				2-Nov-2015				1-Dec-2015			
Parameter / QAQC			Original	Duplicate	RPD	Field Blank	Original	Duplicate	RPD	Field Blank	Original	Duplicate	RPD	Field Blank
TSS	mg/L	1	1	3	100	1	2	3	40	4	1	1	0	1
Total cyanide	mg/L	0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005
Arsenic	mg/L	0.0005	0.0065	0.0184	96	0.0178	0.0207	0.0399	63	0.016	< 0.0005	< 0.0005	0	< 0.0005
Copper	mg/L	0.0005	0.0007	0.0007	0	< 0.0005	0.002	< 0.005	86	< 0.005	0.0065	0.0067	3	0.0033
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003
Nickel	mg/L	0.0005	< 0.0005	0.0006	18	< 0.0005	< 0.005	< 0.005	0	< 0.005	< 0.0005	< 0.0005	0	< 0.0005
Zinc	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0.002	67	< 0.001	< 0.001	< 0.001	0	< 0.001
Radium	Bq/L	0.002	0.002	< 0.002	0	< 0.002	< 0.002	< 0.002	0	< 0.002	< 0.002	< 0.002	0	< 0.002
% Exceedances*					13%				13%				0%	

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.38: 2015 EEM QAQC Data

Effluent characterization Vault Discharge						
Date Parameter / QAQC	Units	MDL	ST-EEM-2a			
			24 August 2015			
			Original	Duplicate	RPD	Field Blank
Alkalinity	mg CaCO ₃ /L	1.0	34	35	3	8
Aluminium	mg/L	0.006	0.008	0.024	100	< 0.006
Ammonia nitrogen	mg N/L	0	1.19	1.25	5	< 0.01
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002
Hardness	mg CaCO ₃ /L	1	72	70	3	< 1
Iron	mg/L	0.01	0.13	0.12	8	< 0.01
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	0.0005	0.0086	0.0086	0	< 0.0005
Nitrate	mg N/L	0.01	3.97	3.91	2	0.02
Selenium	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
% Exceedances*					0%	

Effluent characterization East Dike Discharge						
Duplicate / Field Blank Analytical Certificate ID	Units	MDL	ST-EEM-3a			
			7 April 2015			
			Original	Duplicate	RPD	Field Blank
Alkalinity	mg CaCO ₃ /L	1.0	29	29	0	4
Aluminium	mg/L	0.006	0.064	0.048	29	< 0.06
Ammonia nitrogen	mg N/L	0.01	< 0.01	< 0.01	0	0.04
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002
Hardness	mg CaCO ₃ /L	1	28	28	0	< 1
Iron	mg/L	0.01	0.08	0.06	29	< 0.01
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nitrate	mg N/L	0.01	0.08	0.08	0	0.01
Selenium	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
% Exceedances*					0%	

Water Quality Monitoring Exposure Area Wally Lake						
Parameters	Units	MDL	ST-EEM-3a			
			27 July 2015			
			Original	Duplicate	RPD	Field Blank
Alkalinity	mg CaCO ₃ /L	1.0	15	15	0	4
Aluminum	mg/L	0.006	< 0.006	< 0.006	0	< 0.006
Ammonia nitrogen	mg N/L	0.01	< 0.01	< 0.01	0	< 0.01
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002
Copper	mg/L	0.0005	0.0009	0.0010	11	0.0012
Cyanide	mg/L	0.005	< 0.005	< 0.005	0	< 0.005
Hardness	mg CaCO ₃ /L	1	17	18	6	< 1
Iron	mg/L	0.01	< 0.01	0.02	67	< 0.01
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	< 0.0003
Mercury	mg/L	0.00001	0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nickel	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nitrate	mg N/L	0.01	0.14	0.15	7	0.01
Radium 226	Bq/L	0.002	< 0.002	< 0.002	0	< 0.002
Selenium	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
Total suspended solids	mg/L	1	2	1	67	1
Zinc	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
% Exceedances*					0%	

Water Quality Monitoring Exposure Area Second Portage Lake						
Parameters	Units	MDL	ST-EEM-2-SPLE			
			2 September 2015			
			Original	Duplicate	RPD	Field Blank
Alkalinity	mg CaCO ₃ /L	1.0	16	17	6	8
Aluminum	mg/L	0.006	< 0.006	< 0.006	0	< 0.006
Ammonia nitrogen	mg N/L	0.01	< 0.01	< 0.01	0	< 0.01
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002
Copper	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Cyanide	mg/L	0.005	< 0.005	< 0.005	0	0.010
Hardness	mg CaCO ₃ /L	1	11	11	0	1
Iron	mg/L	0.01	0.01	0.01	0	< 0.01
Lead	mg/L	0.0003	0.0122	0.0051	82	0.0014
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nickel	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nitrate	mg N/L	0.01	< 0.01	< 0.01	0	< 0.01
Radium 226	Bq/L	0.002	< 0.002	< 0.002	0	< 0.002
Selenium	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
Total suspended solids	mg/L	1	4	4	0	2
Zinc	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
% Exceedances*					6%	

Water Quality Monitoring Reference Area Third Portage Lake						
Parameters	Units	MDL	ST-EEM-2-TPS			
			27 July 2015			
			Original	Duplicate	RPD	Field Blank
Alkalinity	mg CaCO ₃ /L	1.0	9	9	0	4
Aluminum	mg/L	0.006	< 0.006	< 0.006	0	< 0.006
Ammonia nitrogen	mg N/L	0.01	< 0.01	< 0.01	0	< 0.01
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002
Copper	mg/L	0.0005	< 0.0005	< 0.0005	0	0.0012
Cyanide	mg/L	0.005	< 0.005	< 0.005	0	0.005
Hardness	mg CaCO ₃ /L	1	8	8	0	1
Iron	mg/L	0.01	< 0.01	< 0.01	0	< 0.01
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	< 0.0003
Mercury	mg/L	0.00001	0.00001	0.00003	100	< 0.00001
Molybdenum	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nickel	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nitrate	mg N/L	0.01	0.07	0.08	13	0.01
Radium 226	Bq/L	0.002	< 0.002	< 0.002	0	< 0.002
Selenium	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
Total suspended solids	mg/L	1	1	1	0	1
Zinc	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
% Exceedances*					0%	

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.39: 2015 STP QAQC

Station name	Units	DL	STP-SEP			LJ-MIX		
Date			2-Feb-2015		RPD	2-Feb-2015		RPD
Parameter / QAQC			Original	Duplicate		Original	Duplicate	
TSS	mg/L	1	26	29	11	14	8	55
BOD-5	mg/L	1	12	12	0	2	2	0
COD	mg/L	2	39	57	38	27	26	4
Ammonia nitrogen	mg N/L	0.01	3.87	3.87	0	2.25	2.31	3
Ammonia (NH3)	mg N/L	0.01	< 0.01	< 0.01	0	< 0.01	< 0.01	0
Nitrate	mg N/L	0.01	14.6	14.3	2	19.8	19.7	1
Nitrite	mg N/L	0.01	0.86	0.86	0	0.13	0.11	17
TKN	mg N/L	0.05	8.5	8.59	1	3.74	4.22	12
% Exceedances*					13%			0%

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.40: 2015 Non-Contact Diversion Ditches QAQC

Station name	Units	DL	ST-5			ST-6		
Date			6-Jul-2015		RPD	6-Jul-2015		RPD
Parameter / QAQC			Original	Duplicate		Original	Duplicate	
TSS	mg/l	1	3	5	50	3	3	0
Sulphate	mg/L	1	28.9	29	1	5.1	7	31
Aluminum	mg/l	0.006	0.093	0.068	31	0.13	0.11	14
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0
Copper	mg/L	0.0005	0.0058	0.0059	2	0.0022	0.0028	24
Lead	mg/L	0.0003	0.0031	< 0.0003	165	< 0.0003	< 0.0003	0
Nickel	mg/L	0.0005	0.0044	0.0056	24	0.0014	0.0016	13
Zinc	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0
Cyanide	mg/L	0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	0
Radium	Bq/l	0.002	0.002	< 0.002	0	< 0.002	< 0.002	0
% Exceedances*					0%			

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.41: 2015 Seeps QAQC

Station name	Units	DL	ST-S-1			ST-S-2			ST-S-5		
Date			7-Jul-2015		RPD	6-Jul-2015		RPD	6-Jul-2015		RPD
Parameter / Duplicate			Original	Duplicate		Original	Duplicate		Original	Duplicate	
Conventiønnal Parameters											
Hardness	mg CaCO3/L	1	40	41	2	186	190	2	787	772	2
Major Ions											
Chloride	mg/L	0.5	0.9	0.9	0	11.8	11.6	2	235	217	8
Fluoride	mg/L	0.02	0.07	0.07	0	0.13	0.15	14	0.05	0.07	33
Sulphate	mg SO4/L	0.6	18.3	17	7	119	121	2	842	786	7
Nutrients and Biological Indicators											
Ammonia (NH3)	mg N/L	0.01	< 0.01	< 0.01	0	< 0.01	< 0.01	0	0.2	0.18	11
Ammonia nitrogen	mg N/L	0.01	< 0.01	0.01	0	0.92	0.87	6	8.94	8.42	6
Nitrate	mg N/L	0.01	0.33	0.34	3	9.01	8.7	4	6.91	7.07	2
Nitrite		0.01	< 0.01	< 0.01	0	na	na	na	na	na	na
Total Metals											
Aluminium	mg/L	0.006	0.008	< 0.006	29	0.428	0.446	4	0.137	0.221	47
Arsenic	mg/L	0.0005	< 0.001	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0
Barium	mg/L	0.0005	0.007	0.0072	3	0.0194	0.0196	1	0.0305	0.0297	3
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0
Chromium	mg/L	0.0006	< 0.0006	< 0.0006	0	0.002	0.0022	10	< 0.0006	< 0.0006	0
Copper	mg/L	0.0005	0.0008	0.001	22	0.026	0.026	1	0.108	0.106	2
Iron	mg/L	0.01	0.11	0.11	0	1.24	1.19	4	0.46	0.42	9
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0
Manganese	mg/L	0.0005	0.0084	0.0086	2	0.2798	0.2795	0	1.444	1.455	1
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0
Molybdenum	mg/L	0.0005	0.0006	0.0006	0	0.0116	0.0115	1	0.0972	0.0956	2
Nickel	mg/L	0.0005	0.0023	0.0027	16	0.021	0.0208	1	0.0928	0.0935	1
Selenium	mg/L	0.001	< 0.001	< 0.001	0	0.002	0.003	40	0.016	0.016	0
Silver	mg/L	0.0001	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	0.0001	< 0.0001	0
Thallium	NTU	0.002	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0
Zinc	mg/L	0.001	< 0.001	< 0.001	0	0.03	0.027	11	< 0.001	< 0.001	0
% Exceedances*					0%	0%			4%		

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.42: 2015 Pit sumps QAQC

Station name	Units	DL	ST-17			ST-19			ST-20			ST-23		
Date			23-Jul-2015		RPD	13-Jul-2015		RPD	7-Jul-2015		RPD	23-Jul-2015		RPD
Parameter / Duplicate			Original	Duplicate		Original	Duplicate		Original	Duplicate		Original	Duplicate	
Conventional Parameters														
Alkalinity	mg CaCO3/L	1	76	76	0	72	72	0	71	41	54	167	167	0
Hardness	mg CaCO3/L	1	227	239	5	198	202	2	72	73	1	340	334	2
TDS	mg/L	1	464	466	0	401	402	0	144	127	13	799	812	2
Nutrients and Biological Indicators														
Ammonia (NH3)	mg N/L	0.01	0.06	0.06	0	0.09	0.09	0	< 0.01	< 0.01	0	0.5	0.51	2
Ammonia nitrogen	mg N/L	0.01	4.27	4.26	0	3.85	3.82	1	0.41	0.4	2	35.5	38.7	9
Nitrate	mg N/L	0.01	11.9	12.1	2	11.8	11.6	2	1.67	1.5	11	45.9	48.6	6
Nitrite	mg N/L	0.01	0.35	0.35	0	0.3	0.3	0	0.04	0.04	0	2.05	2.04	0
Major Ions														
Chloride	mg/L	0.5	14.6	15.9	9	16.7	16.8	1	13.8	15.4	11	33.2	33.5	1
Fluoride	mg/L	0.02	0.37	0.36	3	0.24	0.28	15	0.29	0.35	19	0.25	0.25	0
Sulphate	mg SO4/L	0.6	165	168	2	154	153	1	21.3	21.9	3	124	125	1
Total Metals														
Arsenic	mg/L	0.0005	0.0039	0.0031	23	0.0172	0.0159	8	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0
Copper	mg/L	0.0005	0.0012	0.0011	9	< 0.0005	< 0.0005	0	0.0037	0.0041	10	0.0054	0.0056	4
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0
Nickel	mg/L	0.0005	0.0328	0.0333	2	0.025	0.025	0	0.0263	0.0273	4	0.0244	0.0243	0
Zinc	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0
Dissolved Metals														
Aluminum	mg/L	0.006	< 0.006	< 0.006	0	< 0.006	< 0.006	0	< 0.006	< 0.006	0	< 0.006	< 0.006	0
Arsenic	mg/L	0.0005	0.0091	0.0091	0	0.0182	0.0163	11	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0
Barium	mg/L	0.0005	0.0136	0.0147	8	0.0124	0.0125	1	0.0104	0.0105	1	0.0703	0.0703	0
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0
Copper	mg/L	0.0005	0.0011	0.0009	20	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	0.001	0.0009	11
Iron	mg/L	0.01	0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	0.03	100	0.59	0.59	0
Manganese	mg/L	0.0005	0.0979	0.1007	3	0.0788	0.0797	1	0.1258	0.1235	2	0.086	0.086	0
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0	0.00002	0.00003	40	0.00002	0.00001	67	< 0.00001	< 0.00001	0
Molybdenum	mg/L	0.0005	0.0935	0.0946	1	0.1074	0.1066	1	0.0062	0.0059	5	0.011	0.011	0
Nickel	mg/L	0.0005	0.0319	0.0307	4	0.0243	0.0243	0	0.0145	0.014	4	0.0218	0.0218	0
Lead	mg/L	0.0003	0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0
Selenium	mg/L	0.001	0.001	0.001	0	0.002	0.003	40	< 0.001	< 0.001	0	0.004	0.004	0
Silver	mg/L	0.0001	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0
Thallium	mg/L	0.002	0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0
Zinc	mg/L	0.001	0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0
% Exceedances*					0%			0%			3%			0%

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.43: 2015 ST-8 QAQC

Station name		Units	DL	ST-8																				
Date	Parameter/Duplicate			16-Sep-2015				6-Oct-2015				2-Nov-2015				1-Dec-2015								
				Original	Duplicate	RPD	Field Blank	Original	Duplicate	RPD	Field Blank	Original	Duplicate	RPD	Field Blank	Original	Duplicate	RPD	Field Blank					
TSS	mg/L	1	4	1	120	<	1	<	1	3	100	1	2	3	40	<	1	<	1					
Sulphate	mg SO ₄ /L	0.6	17.9	17.9	0	<	3.7	<	9.8	11.5	16	3.1	3.9	5.7	38	<	0.6	<	9.1					
Total cyanide	mg/L	0.005	<	0.005	0.005	0	<	0.005	<	0.005	0	<	0.005	<	0.005	0	<	0.005	<	0.005				
Aluminum	mg/L	0.006	0.062	0.061	2	<	0.944	0.029	0.023	23	<	0.006	0.047	0.046	2	0.015	0.047	0.031	41	<	0.006			
Arsenic	mg/L	0.0005	<	0.0005	<	0.0005	0	<	0.0005	0.0065	0.0184	96	0.0178	0.0207	0.0399	63	0.016	<	0.0005	0	<	0.0005		
Copper	mg/L	0.0005	0.0005	0.0005	18	<	0.0005	0.0007	0.0007	0	<	0.0005	0.002	<	0.0005	120	<	0.0005	0.0065	0.0067	3	0.0033		
Lead	mg/L	0.0003	<	0.0003	<	0.0003	0	<	0.0003	<	0.0003	0	<	0.0003	<	0.0003	<	0.0003	<	0.0003	0	<	0.0003	
Nickel	mg/L	0.0005	<	0.0005	<	0.0005	0	<	0.0005	0.0006	18	<	0.0005	<	0.0005	0	<	0.0005	<	0.0005	<	0.0005		
Zinc	mg/L	0.001	0.006	0.002	100	<	0.001	<	0.001	<	0.001	0	<	0.001	<	0.001	0.001	<	0.001	0	<	0.001		
Radium	Bq/L	0.002	<	0.002	<	0.002	0	0.002	<	0.002	0	0.002	<	0.002	<	0.002	0	<	0.002	<	0.002	0	<	0.002
% Exceedances*					0%					0%				10%				0%						

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.44: 2015 ST-21 QAQC

Station name	Units	DL	ST-21 South Cell				ST-21 North Cell			
Date			6-Jul-2015				6-Jul-2015			
Parameter / QAQC			Original	Duplicate	RPD	Field Blank	Original	Duplicate	RPD	Field Blank
Conventioonnal Parameters										
Alkalinity	mg CaCO3/L	1	107	97	10	35	62	63	2	4
Hardness	mg CaCO3/L	1	1315	1300	1	< 1	559	557	0	< 1
TDS	mg/L	1	2270	2284	1	1	1720	2046	17	1
Nutrients and Biological Indicators										
Ammonia (NH3)	mg N/L	0.01	1.95	1.87	4	< 0.01	0.33	0.33	0	< 0.01
Ammonia nitrogen	mg N/L	0.01	45.8	43.9	4	< 0.01	17.6	17.7	1	< 0.01
Nitrate	mg N/L	0.01	10.5	10.6	1	< 0.01	12.1	11.7	3	0.18
Nitrite	mg N/L	0.01	0.35	0.34	3	< 0.01	0.13	0.13	0	< 0.01
Major Ions										
Chloride	mg/L	0.5	633	652	3	< 0.5	432	423	2	< 0.5
Fluoride	mg/L	0.02	0.03	0.04	29	< 0.02	2.37	2.2	7	< 0.02
Sulphate	mg SO4/L	0.6	1235	1299	5	< 0.6	843	867	3	< 0.6
Cyanide										
Total cyanide	mg/L	0.005	0.638	0.769	19	< 0.005	0.009	0.045	133	< 0.005
Total Metals										
Aluminum	mg/L	0.006	0.09	0.054	50	< 0.006	0.025	0.023	8	< 0.006
Antimony	mg/L	0.0001	0.0093	0.009	3	< 0.0001	0.0034	0.0033	3	< 0.0001
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Barium	mg/L	0.0005	0.0801	0.0791	1	< 0.0005	0.0296	0.0301	2	< 0.0005
Beryllium	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	< 0.00002	0	< 0.00002
Chromium	mg/L	0.0006	< 0.0006	< 0.0006	0	0.0014	0.0034	< 0.0006	140	< 0.0006
Copper	mg/L	0.0005	0.713	0.6839	4	< 0.0005	2.732	2.788	2	< 0.0005
Iron	mg/L	0.01	0.15	0.24	46	< 0.01	0.4	0.45	12	< 0.01
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003
Lithium	mg/L	0.0050	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005
Manganese	mg/L	0.0005	0.2147	0.2127	1	< 0.0005	0.0569	0.0575	1	< 0.005
Mercury	mg/L	0.00001	0.00025	0.00023	8	< 0.00001	0.00005	0.00005	0	< 0.00001
Molybdenum	mg/L	0.0005	0.3003	0.2971	1	< 0.0005	0.1758	0.1769	1	< 0.0005
Nickel	mg/L	0.0005	0.0897	0.0872	3	< 0.0005	0.3455	0.3472	0	< 0.0005
Selenium	mg/L	0.001	0.046	0.044	4	< 0.001	0.053	0.054	2	0.001
Strontium	mg/L	0.005	1.45	1.46	1	< 0.005	0.678	0.676	0	< 0.0005
Tin	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001
Titanium	mg/L	0.01	0.44	0.43	2	< 0.01	0.24	0.23	4	< 0.01
Thallium	mg/L	0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005
Uranium	mg/L	0.001	0.025	0.024	4	< 0.001	0.007	0.007	0	< 0.001
Vanadium	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Zinc	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001
Dissolved Metals										
Aluminum	mg/L	0.006	< 0.006	< 0.006	0	< 0.006	< 0.006	< 0.006	0	< 0.006
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Barium	mg/L	0.0005	0.0772	0.0765	1	< 0.0005	0.0289	0.0291	1	< 0.0005
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	< 0.00002	0	< 0.00002
Copper	mg/L	0.0005	0.713	0.6839	4	< 0.0005	1.06	1.183	11	< 0.0005
Iron	mg/L	0.01	0.05	0.04	22	< 0.01	< 0.01	< 0.01	0	< 0.01
Manganese	mg/L	0.0005	0.1811	0.1784	2	< 0.0005	0.0529	0.0575	8	< 0.0005
Mercury	mg/L	0.00001	0.00031	0.0003	3	< 0.00001	0.00011	0.00011	0	< 0.00001
Molybdenum	mg/L	0.0005	0.3019	0.3015	0	< 0.0005	0.1765	0.1784	1	< 0.0005
Nickel	mg/L	0.0005	0.0853	0.0855	0	< 0.0005	0.3169	0.3233	2	< 0.0005
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003
Selenium	mg/L	0.001	0.046	0.047	2	< 0.001	0.054	0.054	0	0.001
Silver	mg/L	0.0001	0.001	0.0005	67	< 0.0001	0.005	0.0047	6	< 0.0001
Thallium	mg/L	0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005
Zinc	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001
% Exceedances*					2%				0%	

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.45: 2015 ST-14 QAQC

Station name	Units	DL	ST-14			
Date			4-Jun-2015			
Parameter/QAQC			Original	Duplicate	RPD	
Benzene	µg/L	< 0.3	< 0.3	< 0.3	0	
Toluene	µg/L	< 0.3	< 0.3	< 0.3	0	
Ethylbenzene	µg/L	< 0.3	< 0.3	< 0.3	0	
Total Xylenes	µg/L	< 0.3	< 0.3	< 0.3	0	
Total oil and grease	mg/L	< 1	< 1	< 1	0	
Lead	mg/L	< 0.0003	< 0.0003	< 0.0003	0	
% Exceedances*						0%

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.46: 2015 ST-10 QAQC

Station name	Units	DL	ST-10				
Date			24-Aug-2015				
Parameter / QAQC			Original	Duplicate	RPD	Field Blank	
Conventionnal Parameters							
Alkalinity	mg CaCO3/L	1		34	35	3	7
Bicarbonate alkalinity	mg CaCO3/L	1		34	35	3	7
Carbonate alkalinity	mg CaCO3/L	1	<	2	< 2	0	< 2
Hardness	mg CaCO3/L	1		84	84	0	< 1
TDS	mg/L	1		126	126	0	< 1
TSS	mg/L	1			< 1	0	< 1
DOC	mg/L	0.2		3.3	3.3	0	0.3
TOC	mg/L	0.2		4	3.9	3	0.7
Nutrients and Biological Indicators							
Ammonia nitrogen	mg N/L	0.01		1.17	1.24	6	0.02
Nitrate	mg N/L	0.01		3.85	3.98	3	< 0.01
Nitrite	mg N/L	0.01		0.06	0.06	0	< 0.01
TKN	mg N/L	0.05		1.2	1.2	0	0.52
Orthophosphate	mg P/L	0.01	<	0.01	< 0.01	0	< 0.01
Total Phosphorus	mg P/L	0.01	<	0.01	< 0.01	0	< 0.01
Major Ions							
Calcium	mg/L	0.03		22.6	22.6	0	< 0.03
Chloride	mg/L	0.5		5.9	7	17	0.7
Fluoride	mg/L	0.02		0.1	0.09	11	< 0.02
Magnesium	mg/L	0.02		6.92	6.78	2	< 0.02
Potassium	mg/L	0.05		2.67	2.59	3	< 0.05
Reactive silica	mg/L	0.01		3.17	1.59	66	0.46
Sodium	mg/L	0.05		1.99	2.09	5	< 0.05
Sulphate	mg SO4/L	0.6		36	37	3	2.2
Cyanide							
Total cyanide	mg/L	0.005	<	0.005	< 0.005	0	< 0.005
Total Metals							
Aluminum	mg/L	0.006		0.023	0.04	54	< 0.006
Antimony		0.0001		0.0009	0.0008	12	< 0.0001
Arsenic	mg/L	0.0005		0.0088	0.0036	84	0.0027
Barium	mg/L	0.0005		0.0177	0.018	2	< 0.0005
Beryllium	mg/L	0.0005	<	0.0005	< 0.0005	0	< 0.0005
Boron		0.01	<	0.01	< 0.01	0	< 0.01
Cadmium	mg/L	0.00002		0.00004	0.00004	0	< 0.00002
Chromium	mg/L	0.0006		0.0627	0.02	103	0.0127
Copper	mg/L	0.0005		0.0028	0.0028	0	< 0.0005
Iron	mg/L	0.01		0.13	0.14	7	< 0.01
Lead	mg/L	0.0003		0.0031	< 0.0003	165	< 0.0003
Lithium	mg/L	0.0050	<	0.005	< 0.005	0	< 0.005
Manganese	mg/L	0.0005		0.0257	0.0244	5	< 0.0005
Mercury	mg/L	0.00001	<	0.00001	< 0.00001	0	0.00002
Molybdenum	mg/L	0.0005		0.0085	0.0085	0	< 0.0005
Nickel	mg/L	0.0005		0.0032	0.0031	3	< 0.0005
Selenium	mg/L	0.001	<	0.001	< 0.001	0	< 0.001
Strontium	mg/L	0.005		0.1	0.102	2	< 0.005
Tin	mg/L	0.001	<	0.001	< 0.001	0	< 0.001
Titanium	mg/L	0.01		0.02	0.02	0	< 0.01
Thallium	mg/L	0.005		0.005	< 0.005	0	< 0.005
Uranium	mg/L	0.001		0.002	0.002	0	< 0.001
Vanadium	mg/L	0.0005		0.0211	0.0066	105	0.0047
Zinc	mg/L	0.001	<	0.001	< 0.001	0	< 0.001

Station name	Units	DL	ST-10			
Date			24-Aug-2015			
Parameter / QAQC			Original	Duplicate	RPD	Field Blank
Dissolved Metals						
Aluminum	mg/L	0.006	< 0.006	< 0.006	0	< 0.006
Antimony	mg/L	0.0001	0.001	0.001	0	< 0.0001
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	0.0006
Barium	mg/L	0.0005	0.019	0.0183	4	< 0.0005
Boron	mg/L	0.01	< 0.01	< 0.01	0	< 0.01
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.00002
Copper	mg/L	0.0005	0.0019	0.0019	0	< 0.0005
Iron	mg/L	0.01	0.01	0.01	0	< 0.01
Manganese	mg/L	0.0005	0.0204	0.02	2	< 0.0005
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	0.0005	0.0085	0.0084	1	< 0.0005
Nickel	mg/L	0.0005	0.0027	0.0029	7	< 0.0005
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	< 0.0003
Selenium	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
Strontium	mg/L	0.005	0.103	0.104	1	< 0.005
Thallium	mg/L	0.005	< 0.005	< 0.005	0	< 0.005
Tin	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
Titanium	mg/L	0.01	0.01	0.01	0	< 0.01
Uranium	mg/L	0.005	0.001	0.001	0	< 0.001
Vanadium	mg/L	0.001	< 0.0005	< 0.0005	0	< 0.0005
Zinc	mg/L	0.0005	< 0.001	< 0.001	0	< 0.001
Hydrocarbons						
Total petroleum hydrocarbons	mg/L	0.1	0.1	0.1	0	< 0.1
% Exceedances*					4%	

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.47: 2015 ST-24 QAQC

Station name	Units	DL	ST-24		
Date			8-Jul-2015		RPD
Parameter / QAQC			Original	Duplicate	
Conventional Parameters					
Alkalinity	mg CaCO3/L	1	50	51	2
Hardness	mg CaCO3/L	1	42	43	2
TDS	mg/L	1	71	71	0
Nutrients and Biological Indicators					
Ammonia (NH3)	mg N/L	0.01	< 0.01	< 0.01	0
Ammonia nitrogen	mg N/L	0.01	0.12	0.08	40
Nitrate	mg N/L	0.01	0.01	0.01	0
Nitrite	mg N/L	0.01	0.11	0.09	20
Major Ions					
Chloride	mg/L	0.5	1.6	1.9	17
Fluoride	mg/L	0.02	0.04	0.04	0
Total Metals					
Aluminum	mg/L	0.006	0.105	0.092	13
Antimony	mg/L	0.0001	< 0.0001	< 0.0001	0
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0
Barium	mg/L	0.0005	0.0077	0.0073	5
Beryllium	mg/L	0.0005	< 0.0005	< 0.0005	0
Boron	mg/L	0.01	< 0.01	< 0.01	0
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0
Chromium	mg/L	0.0006	< 0.0006	< 0.0006	0
Copper	mg/L	0.0005	0.0009	0.0035	118
Iron	mg/L	0.01	1.1	1.06	4
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0
Lithium	mg/L	0.0050	< 0.005	< 0.005	0
Manganese	mg/L	0.0005	0.0857	0.0866	1
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0
Molybdenum	mg/L	0.0005	0.001	0.0009	11
Nickel	mg/L	0.0005	0.0028	0.0028	0
Selenium	mg/L	0.001	< 0.001	< 0.001	0
Strontium	mg/L	0.005	0.066	0.067	2
Tin	mg/L	0.001	< 0.001	< 0.001	0
Titanium	mg/L	0.01	0.01	0.01	0
Thallium	mg/L	0.005	< 0.005	< 0.005	0
Uranium	mg/L	0.001	< 0.001	< 0.001	0
Vanadium	mg/L	0.0005	< 0.0005	< 0.0005	0
Zinc	mg/L	0.001	< 0.001	< 0.001	0
Dissolved Metals					
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0
Barium	mg/L	0.0005	0.0082	0.008	2
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0
Copper	mg/L	0.0005	0.0028	0.0029	4
Iron	mg/L	0.01	0.69	0.76	10
Manganese	mg/L	0.0005	0.0783	0.0801	2
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0
Molybdenum	mg/L	0.0005	0.0011	0.0011	0
Nickel	mg/L	0.0005	0.0023	0.0026	12
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0
Selenium	mg/L	0.001	< 0.001	< 0.001	0
Thallium	mg/L	0.005	< 0.005	< 0.005	0
Zinc	mg/L	0.0005	< 0.001	< 0.001	0
% Exceedances*					0%

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.48: 2015 ST-25 QAQC

Station name	Units	DL	ST-25			
Date			4-Aug-2015			
Parameter / QAQC			Original	Duplicate	RPD	Field Blank
Conventionnal Parameters						
Alkalinity	mg CaCO3/L	1	47	46	2	5
Hardness	mg CaCO3/L	1	82	83	1	< 1
TDS	mg/L	1	168	167	1	1
Nutrients and Biological Indicators						
Ammonia (NH3)	mg N/L	0.01	0.06	0.06	0	< 0.01
Ammonia nitrogen	mg N/L	0.01	4.11	4.14	1	0.02
Nitrate	mg N/L	0.01	6.51	6.37	2	0.02
Nitrite	mg N/L	0.01	0.19	0.19	0	< 0.01
Major Ions						
Chloride	mg/L	0.5	7.8	7.5	4	< 0.05
Fluoride	mg/L	0.02	0.09	0.08	12	< 0.02
Cyanide						
Total cyanide	mg/L	0.05	0.014	0.013	7	< 0.005
Total Metals						
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Copper	mg/L	0.0005	0.0034	0.0034	0	0.0017
Lead	mg/L	0.0003	0.0018	0.0104	141	0.0587
Nickel	mg/L	0.0005	0.004	0.0041	2	< 0.0005
Zinc	mg/L	0.001	< 0.001	< 0.001	0	< 0.001
Dissolved Metals						
Aluminum	mg/L	0.006	0.006	< 0.006	0	< 0.006
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005
Barium	mg/L	0.0005	0.0215	0.0214	0	< 0.0005
Cadmium	mg/L	0.00002	0.00008	0.00005	46	< 0.00002
Copper	mg/L	0.0005	0.0028	0.0025	11	0.0014
Iron	mg/L	0.01	0.01	0.01	0	< 0.01
Manganese	mg/L	0.0005	0.0306	0.0303	1	< 0.0005
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	0.0005	0.0199	0.0204	2	< 0.0005
Nickel	mg/L	0.0005	0.0041	0.0038	8	< 0.0005
Lead	mg/L	0.0003	0.0018	0.0017	6	0.0025
Selenium	mg/L	0.001	< 0.001	0.001	0	< 0.001
Thallium	mg/L	0.005	< 0.005	< 0.005	0	< 0.005
Zinc	mg/L	0.0005	< 0.001	< 0.001	0	< 0.001
% Exceedances*					0%	

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.49: 2015 RSF Seepage QAQC

Station name	Date Parameter / QA/QC	Units	DL	ST-16			NP2 West			NP2 East			NP2 South			NP1		
				15-Sep-2015		RPD	10-Sep-2015		RPD	8-Sep-2015		RPD	10-Sep-2015		RPD	15-Sep-2015		RPD
				Original	Duplicate		Original	Duplicate		Original	Duplicate		Original	Duplicate		Original	Duplicate	
Conventional Parameters																		
Alkalinity	mg CaCO3/L	2	68	62	9	44	42	5	42	48	13	44	45	2	50	52	4	
Hardness	mg CaCO3/L	1	207	218	5	84	82	2	89	87	2	83	82	1	97	97	0	
TDS	mg/L	1	415	409	1	184	184	0	184	185	1	185	182	2	179	179	0	
TSS	mg/L	1	10	11	10	n/a	n/a	n/a	204	192	6	n/a	n/a	n/a	2	2	0	
Colour	colour	1	22	20	10	8	4	67	5	5	0	10	13	26	3	3	0	
D.O.C	mg/L	0.2	8	7.8	3	4.6	4.9	6	4.6	4.5	2	4.7	4.3	9	3.9	3.9	0	
T.O.C	mg/L	0.2	9.3	9.2	1	4.3	4.7	9	4	4.1	2	3.7	3.9	5	4.6	4.6	0	
Nutrients and Biological Indicators																		
Ammonia (NH3)	mg N/L	0.014	0.02	0.02	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	n/a	n/a	n/a	< 0.01	< 0.01	0	
Ammonia nitrogen (NH3-NH4)	mg N/L	0.01	1.74	1.76	1	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	
Nitrate	mg/L	0.01	12.7	12.6	1	1.1	1.05	5	1.1	1.1	0	1.05	1.04	1	1.33	1.34	1	
Nitrite	mg/L	0.01	0.07	0.07	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	
Kjeldahl nitrogen	mg N/L	0.05	2.76	2.85	3	0.78	0.97	22	0.57	0.92	47	0.79	0.48	49	1.8	2.11	16	
Ortho-phosphate (O-PO4)	mg P/L	0.01	0.01	0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	
Major Ions																		
Bromides	mg/L	0.01	0.16	0.16	0	0.06	0.07	15	0.07	0.08	13	n/a	n/a	n/a	0.12	0.12	0	
Chloride	mg/L	0.5	15.9	15.9	0	7.5	7.5	0	7.6	7.5	1	7.6	7.6	0	13.1	17.1	26	
Fluoride	mg/L	0.02	0.38	0.4	5	0.13	0.13	0	0.08	0.13	48	0.13	0.12	8	0.16	0.17	6	
Sulphate	mg/L	0.6	164	174	6	78.9	79.1	0	80.1	80.1	0	80.3	78.8	2	42.8	51.8	19	
Thiosulfates (S2O3)	mg/L	0.02	< 0.02	< 0.02	0	< 0.02	< 0.02	0	< 0.02	< 0.02	0	< 0.02	< 0.02	0	< 0.02	< 0.02	0	
Thiocyanates (SCN)	mg/L	0.05	0.63	0.66	5	< 0.05	< 0.05	0	< 0.05	< 0.05	0	< 0.05	< 0.05	0	< 0.05	< 0.05	0	
Cyanide																		
CN total	mg/L	0.005	0.059	0.05	17	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	
CN Free (SGS)	mg/L	0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	
CN WAD	mg/L	0.005	0.012	0.011	9	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	
Total Metals																		
Aluminium	mg/L	0.006	0.155	0.163	5	< 0.006	< 0.006	0	0.01	0.009	11	< 0.006	< 0.006	0	0.039	0.044	12	
Antimony	mg/L	0.0001	0.0002	0.0002	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	0.0001	0.0001	0	
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	0.0102	0.0082	22	< 0.0005	< 0.0005	0	0.0093	0.0094	1	< 0.0005	< 0.0005	0	
Boron	mg/L	0.01	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	n/a	n/a	n/a	< 0.01	< 0.01	0	
Barium	mg/L	0.0005	0.0163	0.0169	4	0.008	0.0078	3	0.0084	0.0083	1	0.0076	0.0075	1	0.0079	0.0079	0	
Beryllium	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	
Cadmium	mg/L	0.00002	0.00006	< 0.00002	100	< 0.00002	< 0.00004	67	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	
Copper	mg/L	0.0005	0.0283	0.0296	4	0.0048	0.005	4	0.0054	0.0052	4	0.0052	0.0051	2	0.0012	0.0011	9	
Chromium	mg/L	0.0006	0.0012	0.001	18	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	
Cobalt	mg/L	0.0005	0.0068	0.0071	4	0.0009	0.001	11	0.001	0.001	0	0.0009	0.0009	0	0.0005	< 0.0005	0	
Iron	mg/L	0.001	0.82	0.85	4	0.03	0.03	0	0.07	0.06	15	0.03	0.03	0	0.09	0.1	11	
Lithium	mg/L	0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	
Manganese	mg/L	0.0005	1.165	1.198	3	0.0086	0.0086	0	0.0172	0.0166	4	0.0069	0.0069	0	0.0048	0.0049	2	
Magnesium	mg/L	0.02	20.2	21.3	5	7.07	7.06	0	7.6	7.52	1	6.84	6.93	1	8.58	8.4	2	
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0	0.00001	0.00002	67	
Molybdenum	mg/L	0.0005	0.0149	0.0151	1	< 0.0005	< 0.0005	0	0.0006	0.0005	18	0.0005	0.0005	0	0.0019	0.002	5	
Nickel	mg/L	0.0005	0.0476	0.0493	4	0.0039	0.0042	7	0.0043	0.0041	5	0.0041	0.0042	2	< 0.0005	< 0.0005	0	
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	0.0284	0.0315	10	< 0.0003	< 0.0003	0	< 0.0003	0.0003	192	< 0.0003	< 0.0003	0	
Phosphorus	mg P/L	0.01	0.0222	0.0233	5	0.0086	0.0089	3	0.008	0.0087	8	< 0.01	< 0.01	0	0.0076	0.0072	5	
Potassium	mg/L	0.05	10.7	11.5	7	2.83	2.75	3	2.92	2.86	2	2.83	2.77	2	2.74	2.78	1	
Selenium	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0	0.001	0.001	0	0.001	< 0.001	0	< 0.001	< 0.001	0	
Silver	mg/L	0.0001	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	
Tin	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	
Strontium	mg/L	0.005	0.215	0.216	0	0.089	0.09	1	0.096	0.097	1	0.09	0.09	0	0.105	0.107	2	
Titanium	mg/L	0.01	0.05	0.05	0	0.01	0.01	0	0.02	0.02	0	0.01	0.01	0	0.02	0.02	0	
Thallium	mg/L	0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	
Uranium	mg/L	0.001	0.007	0.007	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	0.001	0.001	0	
Vanadium	mg/L	0.0005	< 0.0005	0.0017	109	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	
Zinc	mg/L	0.001	0.001	0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	0.001	< 0.001	0	
Dissolved Metals																		
Aluminium	mg/L	0.006	0.006	0.006	0	< 0.006	< 0.006	0	< 0.006	< 0.006	0	< 0.006	< 0.006	0	< 0.006	< 0.006	0	
Antimony	mg/L	0.0001	0.0002	0.0002	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	
Arsenic	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	
Boron	mg/L	0.01	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	
Barium	mg/L	0.0005	0.0169	0.0168	1	0.0074	0.007	6	0.008	0.0083	4	0.0071	0.007	1	0.0063	0.0078	21	
Beryllium	mg/L	0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	
Cadmium	mg/L	0.00002	< 0.00002	< 0.00002	0	< 0.000002	< 0.000002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	
Chromium	mg/L	0.0006	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	
Cobalt	mg/L	0.0005	0.0066	0.0066	0	0.0008	0.0008	12	0.0008	0.0008	12	0.0009	0.0005	12	< 0.0005	< 0.0005	0	
Copper	mg/L	0.0005	0.0194	0.0191	2	0.0041	0.004	2	0.0041	0.0041	0	0.0039	0.0039	0	0.0006	0.0008	29	
Iron	mg/L	0.001	0.29	0.29	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	
Lead	mg/L	0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	
Lithium	mg/L	0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	
Manganese	mg/L	0.0005	1.152	1.123	3	0.0005	< 0.0005	0	0.0049	0.005	2	< 0.0005	< 0.0005	0	0.0028	0.003	7	
Magnesium	mg/L	0.02	19.6	18.7	5	6.43	6.17	4	7.23	7.3	1	6.34	6.33	0	6.36	7.87	21	
Mercury	mg/L	0.00001	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0	
Molybdenum	mg/L	0.0005	0.0158	0.0159	1	<												

Station name	Dogleg				SPL RSF				DW Row				NP2 Winter			
Date	15-Sep-2015		RPD	8-Sep-2015		RPD	6-Jul-2015		RPD	Field Blank	11-Nov-2015		RPD			
Parameter / QAQC	Original	Duplicate		Original	Duplicate		Original	Duplicate			Original	Duplicate				
Conventional Parameters																
Alkalinity	29	35	19	17	23	30	40	49	20	35	49	49	0			
Hardness	37	37	0	11	28	87	35	35	0	< 1	92	95	3			
TDS	67	67	0	22	42	63	59	59	0	< 1	209	250	18			
TSS	< 1	< 1	0	18	41	78	4	3	29	< 1	2	1	67			
Colour	2	2	0	< 1	1	0	1	< 1	0	< 1	4	4	0			
D.O.C	3.5	3.6	3	1.5	2	29	3.9	4.6	16	0.2	6.8	6.5	5			
T.O.C	3.8	3.9	3	1.7	1.7	0	4.4	3.7	17	0.3	7.5	7.3	3			
Nutrients and Biological Indicators																
Ammonia (NH3)	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	< 0.01	0			
Ammonia nitrogen (NH3-NH4)	< 0.01	0.02	67	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	< 0.01	0			
Nitrate	0.05	0.05	0	< 0.01	0.03	100	0.05	0.06	18	< 0.01	1.06	1.08	2			
Nitrite	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	< 0.01	0			
Kjeldahl nitrogen	3.34	3.69	10	0.11	0.11	0	0.37	< 0.05	152	0.09	0.68	0.33	69			
Ortho-phosphate (O-PO4)	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	< 0.01	0			
Major Ions																
Bromides	0.03	0.03	0	0.01	0.02	67	0.04	0.03	29	< 0.01	0.08	0.08	0			
Chloride	4.3	4.3	0	1	1.8	57	3.5	3.5	0	< 0.5	5.5	5.6	2			
Fluoride	0.13	0.13	0	0.08	0.1	22	0.07	0.06	15	< 0.02	0.13	0.13	0			
Sulphate	21.7	25.4	16	3.9	15.3	119	10.5	13.6	26	< 0.6	85.3	86.6	2			
Thiosulfates (S2O3)	< 0.02	< 0.02	0	< 0.02	< 0.02	0	< 0.02	< 0.02	0	< 0.02	< 0.02	< 0.02	0			
Thiocyanates (SNC)	< 0.05	< 0.05	0	< 0.05	< 0.05	0	< 0.05	< 0.05	0	< 0.05	< 0.05	< 0.05	0			
Cyanide																
CN total	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	n/a	< 0.005	< 0.005	0			
CN Free (SGS)	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	0.006	< 0.005	< 0.005	0			
CN WAD	< 0.005	0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0			
Total Metals																
Aluminium	0.014	0.013	7	0.01	< 0.006	50	< 0.006	< 0.006	0	< 0.006	0.012	0.017	34			
Antimony	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	< 0.0001	0			
Arsenic	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	0.0149	< 0.0005	187			
Boron	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	< 0.01	0			
Barium	0.0024	0.0026	8	0.0008	0.0026	106	0.0043	0.0042	2	< 0.0005	0.0115	0.0117	2			
Beryllium	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0			
Cadmium	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	< 0.00002	0			
Copper	< 0.0005	< 0.0005	0	< 0.0005	0.0006	18	0.0009	0.0008	12	< 0.0005	0.0056	0.0054	4			
Chromium	0.0007	0.0009	25	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	0.0007	< 0.0006	< 0.0006	114			
Cobalt	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	0.0008	0.0008	0			
Iron	0.04	0.05	22	0.01	0.02	67	0.15	0.08	61	< 0.01	0.02	0.02	0			
Lithium	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0			
Manganese	0.0052	0.0051	2	0.001	0.0011	10	0.0159	0.0143	11	< 0.0005	0.0065	0.0067	3			
Magnesium	3.5	3.57	2	1.15	2.64	79	2.83	2.84	0	< 0.02	8.07	8.29	3			
Mercury	0.00004	0.00002	67	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	< 0.00001	0			
Molybdenum	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0			
Nickel	< 0.0005	< 0.0005	0	< 0.0005	0.0005	0	0.0056	< 0.0005	167	< 0.0005	0.0056	0.0056	0			
Lead	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0			
Phosphorus	0.0074	0.0085	14	0.0062	0.0069	11	0.008	0.0066	19	0.0041	< 0.01	< 0.01	0			
Potassium	1.04	1.03	1	0.25	0.61	84	1.1	1.08	2	< 0.05	3.58	3.59	0			
Selenium	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0			
Silver	< 0.0001	< 0.0001	0	< 0.001	< 0.001	0	n/a	n/a	n/a	n/a	< 0.0001	< 0.0001	0			
Tin	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0			
Strontium	0.037	0.036	3	0.016	0.026	48	0.043	0.043	0	< 0.005	0.105	0.105	0			
Titanium	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	0.02	0.02	0			
Thallium	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0			
Uranium	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0			
Vanadium	< 0.0005	0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0			
Zinc	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0			
Dissolved Metals																
Aluminium	< 0.006	< 0.006	0	< 0.006	0.014	80	< 0.006	< 0.006	0	< 0.006	< 0.006	< 0.006	0			
Antimony	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	< 0.0001	0			
Arsenic	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0			
Boron	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	0	< 0.01	< 0.01	< 0.01	0			
Barium	0.0024	0.0024	0	0.0007	0.0016	78	< 0.004	0.0041	2	< 0.0005	0.0123	0.0112	9			
Beryllium	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0			
Cadmium	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	< 0.00002	0			
Chromium	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	0	< 0.0006	< 0.0006	< 0.0006	0			
Cobalt	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	0.0008	0.0008	0			
Copper	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	0.0006	0.0005	18	< 0.0005	0.0048	0.005	4			
Iron	< 0.01	< 0.01	0	< 0.01	0.02	67	< 0.01	< 0.01	0	< 0.01	< 0.01	< 0.01	0			
Lead	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0			
Lithium	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0			
Manganese	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	0.0091	0.0092	1	< 0.0005	< 0.0005	< 0.0005	0			
Magnesium	3.25	3.34	3	1.08	1.84	52	2.4	2.44	2	< 0.02	7.03	7.4	5			
Mercury	< 0.00001	< 0.00001	0	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	< 0.00001	< 0.00001	< 0.00001	0			
Molybdenum	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0			
Nickel	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	0.0059	0.0061	3			
Selenium	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0			
Strontium	0.036	0.037	3	0.0016	0.0025	44	0.042	0.042	0	< 0.005	0.099	0.097	2			
Silver	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0	n/a	n/a	n/a	n/a	< 0.0001	< 0.0001	0			
Tin	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0			
Thallium	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0			
Titanium	< 0.01	< 0.01	0	n/a	n/a	n/a	< 0.01	< 0.01	0	< 0.01	n/a	n/a	n/a			
Uranium	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0			
Vanadium	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0			
Zinc	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0			
% Exceedances*																
			1%			6%			4%				0%			

Table 8.50: 2015 Bulk Fuel Storage Facility QAQC

Station name	Units	DL	ST-37				ST-40.2			
Date			4-Jun-2015				11-Jun-2015			
Parameter/QAQC			Original	Duplicate	RPD	Field Blank	Original	Duplicate	RPD	Field Blank
Benzene	µg/L	< 0.3	< 0.3	< 0.3	0	< 0.3	< 0.3	< 0.3	0	< 0.3
Toluene	µg/L	< 0.3	0.8	< 0.3	91	< 0.3	< 0.3	< 0.3	0	0.4
Ethylbenzene	µg/L	< 0.3	< 0.3	< 0.3	0	< 0.3	< 0.3	< 0.3	0	< 0.3
Total Xylenes	µg/L	< 0.3	< 0.3	< 0.3	0	< 0.3	< 0.3	< 0.3	0	< 0.3
Total oil and grease	mg/L	< 1	< 1	< 1	0	1	< 1	< 1	0	< 1
Lead	mg/L	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003
% Exceedances*					0%				0%	

Footnotes:

RPD = Relative Percent Difference; MDL: Mean Detection Limit

* Percentage of parameters exceeding the QAQC objectives for one sampling event which corresponds to grey shaded cells.

Bold values correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are within 10x the MDL.

Grey shaded cells correspond to a RPD higher than 20% and for which concentrations of parent and duplicate samples are above 10x the MDL.

Italic values correspond to a RPD higher than 20% and for which one of the result is within 10X the MDL and the other one exceeds 10x the MDL.

Table 8.51: 2015 Analite NEP #2 calibration datasheets

Date	Turbidity meter		
	Standard	Initial reading NTU	Final reading NTU
2015-01-01	0.00	0.05	0.03
	10.00	10.08	10.02
	100.00	106.30	100.10
2015-01-02	0.00	0.08	0.01
	10.00	10.06	10.00
	100.00	100.30	100.10
2015-01-03	0.00	0.02	0.01
	10.00	10.08	10.01
	100.00	100.40	100.00
2015-01-04	0.00	0.03	0.00
	10.00	10.10	10.02
	100.00	100.70	100.10
2015-01-05	0.00	0.07	0.02
	10.00	9.92	9.97
	100.00	102.20	100.10
2015-01-06	0.00	0.01	0.01
	10.00	9.92	9.97
	100.00	100.40	100.10
2015-01-11	0.00	-0.01	0.01
	10.00	9.87	10.18
	100.00	99.80	100.20
2015-01-12	0.00	0.61	0.06
	10.00	11.10	9.99
	100.00	101.20	99.90
2015-01-13	0.00	0.66	0.01
	10.00	11.26	10.02
	100.00	101.60	100.00
2015-01-14	0.00	-0.15	0.01
	10.00	9.98	9.99
	100.00	100.30	100.50
2015-01-15	0.00	-0.03	0.01
	10.00	9.81	10.02
	100.00	100.60	100.00
2015-01-16	0.00	0.02	0.00
	10.00	10.08	9.96
	100.00	101.90	100.10
2015-01-17	0.00	0.01	0.01
	10.00	10.08	10.01
	100.00	100.90	100.00
2015-01-19	0.00	0.01	0.00
	10.00	9.97	9.99
	100.00	100.50	100.00
2015-01-20	0.00	-0.01	0.00
	10.00	9.86	10.00
	100.00	99.40	100.20
2015-01-21	0.00	-0.03	0.01
	10.00	10.06	10.01
	100.00	100.10	100.20

Date	Turbidity meter		
	Standard	Initial reading NTU	Final reading NTU
2015-01-22	0.00	-0.09	0.05
	10.00	10.04	10.05
	100.00	101.10	99.90
2015-01-23	0.00	0.04	0.00
	10.00	10.06	10.01
	100.00	100.20	99.90
2015-01-24	0.00	0.04	-0.01
	10.00	10.01	10.04
	100.00	100.20	100.30
2015-01-25	0.00	-0.03	0.00
	10.00	9.98	10.00
	100.00	104.10	99.70
2015-01-26	0.00	0.01	0.00
	10.00	10.06	9.99
	100.00	100.10	100.00
2015-01-27	0.00	0.01	0.00
	10.00	10.03	9.98
	100.00	100.30	100.00
2015-01-28	0.00	0.03	0.01
	10.00	10.20	9.99
	100.00	99.40	99.70
2015-01-29	0.00	0.03	0.03
	10.00	10.08	10.03
	100.00	100.80	100.00
2015-01-30	0.00	0.04	0.01
	10.00	9.96	9.98
	100.00	102.10	99.90
2015-01-31	0.00	0.02	0.00
	10.00	9.94	9.99
	100.00	100.80	100.10
2015-02-04	0.00	0.00	0.00
	10.00	9.99	9.99
	100.00	100.10	100.00
2015-02-06	0.00	0.04	0.01
	10.00	9.87	10.01
	100.00	100.40	100.10
2015-02-09	0.00	-0.02	0.00
	10.00	9.96	10.00
	100.00	104.80	100.00
2015-02-10	0.00	-0.04	0.00
	10.00	9.94	10.02
	100.00	99.50	100.10
2015-02-12	0.00	-0.01	0.00
	10.00	9.98	10.01
	100.00	99.90	100.30
2015-02-13	0.00	-0.01	0.00
	10.00	8.03	10.01
	100.00	99.50	100.10

Date	Turbidity meter		
	Standard	Initial reading NTU	Final reading NTU
2015-02-15	0.00	-0.03	0.03
	10.00	10.01	9.95
	100.00	100.10	100.00
2015-02-16	0.00	-0.01	0.00
	10.00	9.86	10.00
	100.00	99.70	100.10
2015-02-17	0.00	0.02	0.00
	10.00	10.12	10.00
	100.00	100.10	100.00
2015-02-20	0.00	-0.03	0.02
	10.00	9.74	9.94
	100.00	102.50	100.10
2015-02-23	0.00	-0.01	0.01
	10.00	10.06	10.01
	100.00	100.20	100.10
2015-02-24	0.00	-0.09	-0.03
	10.00	10.03	10.00
	100.00	102.10	99.70
2015-02-26	0.00	0.19	-0.06
	10.00	10.82	9.92
	100.00	102.40	100.10
2015-02-27	0.00	0.22	-0.02
	10.00	10.82	9.99
	100.00	102.20	100.20
2015-03-03	0.00	0.26	-0.01
	10.00	10.61	9.96
	100.00	100.80	99.90
2015-03-04	0.00	-0.03	0.01
	10.00	9.78	10.01
	100.00	102.80	100.00
2015-03-07	0.00	0.05	-0.01
	10.00	10.07	10.00
	100.00	100.90	99.90
2015-03-10	0.00	0.11	0.01
	10.00	10.12	10.00
	100.00	100.50	100.10
2015-03-16	0.00	-0.03	0.00
	10.00	9.94	10.00
	100.00	99.80	100.00
2015-03-18	0.00	0.00	0.01
	10.00	10.01	10.00
	100.00	99.60	99.90
2015-03-20	0.00	-0.37	-0.01
	10.00	10.06	9.98
	100.00	99.50	100.10
2015-03-21	0.00	-0.17	0.01
	10.00	10.08	10.00
	100.00	101.20	100.00
	0.00	0.04	0.03

Date	Turbidity meter		
	Standard	Initial reading NTU	Final reading NTU
2015-03-22	10.00	10.03	9.99
	100.00	100.00	100.10
2015-03-23	0.00	0.11	0.03
	10.00	10.01	9.95
2015-03-24	100.00	101.10	99.90
	0.00	0.02	-0.01
2015-03-25	10.00	9.98	10.00
	100.00	100.90	100.00
2015-03-27	0.00	0.03	-0.02
	10.00	9.99	10.01
2015-04-03	100.00	100.90	100.10
	0.00	0.02	0.00
2015-04-07	10.00	9.96	10.00
	100.00	100.60	100.00
2015-04-10	0.00	0.00	0.01
	10.00	10.31	10.26
2015-04-13	100.00	105.00	100.10
	0.00	0.48	0.00
2015-04-14	10.00	10.08	10.00
	100.00	100.20	100.00
2015-04-18	0.00	0.05	0.02
	10.00	10.06	10.01
2015-04-20	100.00	99.10	100.00
	0.00	0.01	0.01
2015-04-21	10.00	10.07	9.99
	100.00	98.90	100.00
2015-04-24	0.00	0.01	0.00
	10.00	9.80	10.01
2015-04-28	100.00	97.60	100.10
	0.00	0.07	0.02
2015-05-01	10.00	10.08	10.01
	100.00	100.10	100.00
2015-05-05	0.00	0.22	0.02
	10.00	10.02	9.98
2015-05-05	100.00	99.80	100.10
	0.00	0.47	0.03
2015-05-05	10.00	10.21	99.90
	100.00	102.20	100.00
2015-05-05	0.00	0.48	0.04
	10.00	10.98	10.13
2015-05-05	100.00	101.90	100.10
	0.00	0.26	0.01
2015-05-05	10.00	10.94	10.00
	100.00	101.90	100.00
2015-05-05	0.00	-0.09	0.02
	10.00	9.93	9.96
2015-05-05	100.00	99.80	100.10
	0.00	0.69	-0.01
2015-05-05	10.00	10.89	10.07
	100.00	101.70	100.10

Date	Turbidity meter		
	Standard	Initial reading NTU	Final reading NTU
2015-05-09	0.00	0.09	-0.02
	10.00	10.09	9.96
	100.00	100.10	99.90
2015-05-10	0.00	0.20	-0.03
	10.00	9.84	10.04
	100.00	99.80	100.10
2015-05-11	0.00	0.05	-0.02
	10.00	9.96	9.97
	100.00	99.70	100.20
2015-05-12	0.00	-0.02	-0.02
	10.00	9.91	10.05
	100.00	99.70	100.00
2015-05-13	0.00	-0.01	-0.01
	10.00	10.01	9.99
	100.00	99.50	99.90
2015-05-19	0.00	0.03	0.02
	10.00	9.90	10.01
	100.00	100.10	100.00
2015-05-20	0.00	0.04	-0.01
	10.00	10.03	9.96
	100.00	99.90	100.00
2015-05-22	0.00	0.03	0.01
	10.00	10.04	9.99
	100.00	99.80	100.00
2015-07-13	0.00	0.24	0.04
	10.00	10.13	10.01
	100.00	100.20	100.10
2015-07-16	0.00	1.28	0.01
	10.00	11.67	10.07
	100.00	105.05	100.02
2015-07-18	0.00	1.18	0.03
	10.00	11.67	10.05
	100.00	105.03	100.04
2015-07-19	0.00	1.20	0.03
	10.00	11.58	10.01
	100.00	105.00	100.05
2015-07-20	0.00	1.18	0.02
	10.00	11.64	9.99
	100.00	105.40	99.80
2015-07-22	0.00	1.16	0.02
	10.00	11.71	10.01
	100.00	106.50	100.00
2015-07-23	0.00	0.01	-0.03
	10.00	10.00	10.00
	100.00	100.30	100.00
2015-07-24	0.00	0.29	0.08
	10.00	10.01	9.99
	100.00	80.00	99.90
2015-07-25	0.00	0.36	0.01
	10.00	10.05	10.02
	100.00	80.02	100.02

Date	Turbidity meter		
	Standard	Initial reading NTU	Final reading NTU
2015-07-26	0.00	0.29	0.02
	10.00	10.05	9.99
	100.00	78.10	103.00
2015-07-27	0.00	0.28	0.01
	10.00	10.05	9.99
	100.00	80.01	100.03
2015-07-28	0.00	0.30	0.04
	10.00	10.09	10.02
	100.00	80.00	100.02
2015-07-29	0.00	0.35	-0.02
	10.00	10.33	9.99
	100.00	79.30	97.60
2015-07-31	0.00	-1.19	0.03
	10.00	10.30	10.02
	100.00	105.10	99.50
2015-08-02	0.00	-0.01	0.03
	10.00	10.03	10.02
	100.00	99.50	100.00
2015-08-21	0.00	-0.06	0.00
	10.00	9.83	9.98
	100.00	98.60	100.20
2015-08-24	0.00	0.05	0.00
	10.00	10.07	9.94
	100.00	101.00	100.10
2015-08-25	0.00	0.25	0.00
	10.00	10.16	10.00
	100.00	101.10	100.00
2015-08-28	-0.01	0.03	0.00
	9.39	10.01	10.00
	101.80	100.00	100.00
2015-08-30	-0.04	0.00	0.00
	9.98	9.94	10.00
	101.40	99.80	100.00
2015-08-31	-0.08	-0.03	0.00
	9.83	10.21	10.00
	101.10	99.80	100.00
2015-09-02	0.54	0.02	0.00
	10.00	10.12	10.00
	79.20	100.30	100.00
2015-09-04	0.28	0.00	0.00
	10.07	10.02	10.00
	79.00	100.20	100.00
2015-09-09	0.49	0.03	0.00
	10.21	10.04	10.00
	87.30	99.70	100.00
2015-09-12	-0.10	0.00	0.00
	10.17	10.02	10.00
	100.70	100.10	100.00
2015-09-14	-0.05	0.00	0.00
	10.24	10.00	10.00
	101.10	99.90	100.00

Date	Turbidity meter		
	Standard	Initial reading NTU	Final reading NTU
2015-09-15	-0.06	0.00	0.00
	9.87	10.02	10.00
	99.60	100.10	100.00
2015-09-16	0.00	-0.05	-0.08
	10.00	9.97	10.00
	100.00	99.90	99.80
2015-09-22	0.00	-0.13	0.00
	10.00	10.00	10.00
	100.00	99.60	100.00
2015-09-24	0.00	0.32	0.02
	10.00	9.64	9.98
	100.00	92.30	100.00
2015-09-26	0.00	-0.14	0.01
	10.00	9.88	10.00
	100.00	79.90	100.00
2015-09-28	0.00	-0.01	0.00
	10.00	9.87	9.99
	100.00	106.30	100.20
2015-10-01	0.00	-0.11	0.01
	10.00	10.29	10.01
	100.00	98.20	99.90
2015-10-04	0.00	0.06	0.01
	10.00	10.09	10.03
	100.00	102.10	100.10
2015-10-06	0.00	0.16	-0.02
	10.00	10.06	9.98
	100.00	100.10	99.80
2015-10-10	0.00	-0.07	-0.04
	10.00	9.96	9.98
	100.00	99.60	100.20
2015-10-13	0.00	4.11	0.00
	10.00	10.30	10.00
	100.00	78.10	100.00
2015-10-16	0.00	-6.19	0.00
	10.00	9.26	10.00
	100.00	100.50	99.60
2015-10-20	0.00	1.59	0.00
	10.00	10.63	10.00
	100.00	78.50	100.00
2015-10-22	0.00	0.75	0.00
	10.00	10.13	9.97
	100.00	77.90	99.60
2015-10-26	0.00	0.58	0.06
	10.00	9.94	9.97
	100.00	89.20	96.50
2015-10-29	0.00	0.60	0.02
	10.00	9.98	10.01
	100.00	79.90	100.20
2015-10-30	0.00	0.60	-0.01
	10.00	9.93	10.00
	100.00	77.90	100.50

Date	Turbidity meter		
	Standard	Initial reading NTU	Final reading NTU
2015-10-31	0.00	0.55	-0.02
	10.00	9.90	10.03
	100.00	69.70	102.00
2015-11-01	0.00	1.12	0.04
	10.00	9.92	10.02
	100.00	77.20	100.70
2015-11-02	0.00	0.76	-0.03
	10.00	10.00	10.02
	100.00	78.00	99.80
2015-11-03	0.00	0.92	-0.01
	10.00	10.03	10.00
	100.00	75.80	96.40
2015-11-04	0.00	0.51	0.00
	10.00	10.04	9.98
	100.00	79.10	100.20
2015-11-05	0.00	0.09	0.01
	10.00	10.01	10.00
	100.00	81.10	100.40
2015-11-10	0.00	-0.15	-0.01
	10.00	9.96	10.04
	100.00	79.20	100.10
2015-11-11	0.00	0.05	0.03
	10.00	10.03	10.00
	100.00	100.60	100.10
2015-11-13	0.00	0.05	0.03
	10.00	10.10	10.05
	100.00	99.60	99.90
2015-11-15	0.00	1.40	0.01
	10.00	13.01	9.99
	100.00	77.50	100.00
2015-11-19	0.00	0.08	0.07
	10.00	10.05	10.00
	100.00	84.90	100.40
2015-11-20	0.00	0.20	0.06
	10.00	10.02	9.99
	100.00	84.70	100.10

Table 8.52: 2015 Analite NEP #4 calibration datasheets

Date	Turbidity meter		
	Standard	Initial reading NTU	Final reading NTU
2015-03-21	0.00	-0.17	0.01
	10.00	10.08	10.00
	100.00	101.20	100.00
2015-03-22	0.00	0.04	0.03
	10.00	10.03	9.99
	100.00	100.00	100.10
2015-03-24	0.00	0.02	-0.01
	10.00	9.98	10.00
	100.00	100.90	100.00
2015-04-13	0.00	0.01	0.01
	10.00	10.07	9.99
	100.00	98.90	100.00
2015-04-20	0.00	0.22	0.02
	10.00	10.02	9.98
	100.00	99.80	100.10
2015-04-21	0.00	0.47	0.03
	10.00	10.21	99.90
	100.00	102.20	100.00
2015-04-24	0.00	0.48	0.04
	10.00	10.98	10.13
	100.00	101.90	100.10
2015-05-14	0.00	0.45	0.00
	10.00	10.11	10.02
	100.00	99.60	100.00
2015-05-15	0.00	0.04	-0.03
	10.00	10.10	10.03
	100.00	100.10	99.90
2015-05-16	0.00	-0.01	-0.01
	10.00	10.02	9.99
	100.00	100.10	100.00
2015-05-17	1.00	0.04	0.02
	10.00	10.03	9.98
	100.00	99.80	100.00
2015-05-28	0.00	-0.02	0.00
	10.00	10.05	10.04
	100.00	100.90	100.00
2015-05-29	0.00	-0.04	0.00
	10.00	9.94	10.02
	100.00	99.70	100.00
2015-06-01	0.00	0.23	0.01
	10.00	9.94	9.98
	100.00	99.80	100.00
2015-06-02	0.00	0.01	0.00
	10.00	9.92	10.00
	100.00	99.30	100.60
2015-06-05	0.00	0.03	0.00
	10.00	9.94	9.99
	100.00	99.60	100.10

2015-06-07	0.00 10.00 100.00	0.00 9.96 100.30	0.00 9.99 100.10
2015-06-09	0.00 10.00 100.00	0.06 9.96 99.30	0.00 10.00 99.90
2015-06-11	0.00 10.00 100.00	-0.01 9.90 100.70	0.01 9.98 100.00
2015-06-12	0.00 10.00 100.00	0.81 11.62 105.90	0.66 99.90 100.10
2015-06-13	0.00 10.00 100.00	0.76 10.29 103.20	0.48 10.01 99.90
2015-06-15	0.00 10.00 100.00	-0.02 9.81 99.80	0.01 10.03 100.10
2015-06-16	0.00 10.00 100.00	-0.01 10.09 100.30	0.03 10.01 100.00
2015-06-17	0.00 10.00 100.00	-0.03 10.04 100.30	0.01 9.87 99.90
2015-06-18	0.00 10.00 100.00	0.01 9.80 99.80	0.01 9.99 100.00
2015-06-19	0.00 10.00 100.00	0.76 11.37 105.80	0.06 10.01 99.90
2015-06-20	0.00 10.00 100.00	0.83 11.38 105.70	0.06 10.13 100.00
2015-06-21	0.00 10.00 100.00	0.84 11.42 104.10	0.13 9.99 100.00
2015-06-22	0.00 10.00 100.00	0.82 11.40 106.00	0.54 9.94 99.60
2015-06-27	0.00 10.00 100.00	0.92 11.42 105.60	0.01 9.99 99.90
2015-07-02	0.00 10.00 100.00	0.99 11.50 105.50	0.01 9.98 100.02
2015-07-04	0.00 10.00 100.00	-0.01 11.86 99.80	0.00 10.05 100.10
2015-07-05	0.00 10.00 100.00	0.00 10.10 99.80	0.02 9.98 99.90
2015-07-06	0.00 10.00 100.00	0.02 10.15 100.20	0.02 10.03 99.90

2015-07-07	0.00 10.00 100.00	0.06 10.08 100.20	0.04 10.04 100.10
2015-07-08	0.00 10.00 100.00	0.05 10.06 100.10	0.02 10.03 100.00
2015-07-09	0.00 10.00 100.00	0.05 10.08 100.20	0.01 10.03 100.00
2015-07-10	0.00 10.00 100.00	-0.01 10.03 100.10	0.03 10.00 100.00
2015-07-15	0.00 10.00 100.00	1.17 13.70 105.60	0.03 10.07 99.80
2015-08-03	0.00 10.00 100.00	-0.01 9.96 99.60	0.01 9.99 100.10
2015-08-04	0.00 10.00 100.00	0.05 9.98 99.70	0.00 10.01 100.10
2015-08-05	0.00 10.00 100.00	0.01 10.03 99.60	0.01 9.98 99.80
2015-08-06	0.00 10.00 100.00	0.01 9.94 99.70	0.01 9.96 99.90
2015-08-08	0.00 10.00 100.00	0.06 9.02 103.00	0.01 9.89 99.90
2015-08-10	0.00 10.00 100.00	0.17 10.75 99.30	-0.05 10.04 100.00
2015-08-11	0.00 10.00 100.00	-0.30 10.50 99.50	0.02 9.99 99.70
2015-11-20	0.00 10.00 100.00	0.02 10.03 99.80	0.01 10.00 100.10
2015-11-22	0.00 10.00 100.00	0.20 9.96 84.10	-0.01 9.99 100.20
2015-11-23	0.00 10.00 100.00	-0.01 9.92 99.50	-0.01 9.98 100.10
2015-11-24	0.00 10.00 100.00	0.24 9.81 82.80	-0.01 10.09 100.10
2015-11-25	0.00 10.00 100.00	0.21 9.83 82.90	-0.03 10.03 100.60
2015-11-26	0.00 10.00 100.00	0.24 9.86 83.40	-0.02 10.00 100.20

2015-12-01	0.00 10.00 100.00	0.27 9.82 83.60	-0.04 10.04 100.00
2015-12-02	0.00 10.00 100.00	0.02 10.05 99.90	0.00 10.00 100.00
2015-12-03	0.00 10.00 100.00	0.06 10.08 99.90	0.02 10.01 100.00
2015-12-04	0.00 10.00 100.00	-0.04 10.05 99.40	0.01 10.00 99.90
2015-12-07	0.00 10.00 100.00	-0.01 10.28 99.40	0.00 10.02 100.20
2015-12-08	0.00 10.00 100.00	0.08 10.07 99.80	0.04 10.02 100.00
2015-12-09	0.00 10.00 100.00	-0.26 9.93 100.40	0.00 10.02 100.00
2015-12-10	0.00 10.00 100.00	-0.01 10.05 99.90	0.00 9.99 100.00
2015-12-11	0.00 10.00 100.00	0.00 9.16 99.70	2.00 10.00 100.00
2015-12-12	0.00 10.00 100.00	-1.65 9.91 99.20	0.00 10.00 100.00
2015-12-13	0.00 10.00 100.00	0.07 9.96 100.10	0.04 10.01 100.00
2015-12-14	0.00 10.00 100.00	0.04 9.90 99.80	0.00 9.97 100.00
2015-12-15	0.00 10.00 100.00	0.05 10.03 100.20	0.00 10.01 100.00
2015-12-15	0.00 10.00 100.00	0.07 10.09 101.00	0.03 10.01 100.00
2015-12-15	0.00 10.00 100.00	0.04 10.12 101.00	0.01 10.00 100.00
2015-12-18	0 10 100	0.03 10.02 104.30	0.01 10.00 100.00
2015-12-20	0 10 100	0.64 10.23 82.50	0.01 9.98 100.20
2015-12-21	0 10 100	0.72 10.31 86.70	0.02 10.01 100.00

2015-12-22	0	0.83	0.03
	10	10.24	10.02
	100	86.90	100.00
2015-12-23	0	0.83	-0.01
	10	10.21	10.02
	100	89.63	100.00
2015-12-29	0	0.78	0.00
	10	10.16	10.04
	100	83.20	99.80
2015-12-30	0	0.91	-0.01
	10	10.34	9.98
	30	83.90	100.00

Table 8.53: 2015 Oakton PCS35 calibration datasheets

Date	pH			Conductivity		
	Standard	Initial reading	Final reading	Standard	Initial reading (µS/cm)	Final reading (µS/cm)
1-Jan-2015				1413.00	1396	1422
2-Jan-2015	4.00 7.00	4.34 7.21	7.02 7.04	1413.00	1397	1418
3-Jan-2015				1413.00	1403	1411
4-Jan-2015	4.00 7.00	4.26 7.19	4.01 7.02	1413.00	1408	1413
5-Jan-2015				1413.00	1407	1415
6-Jan-2015	4.00 7.00	4.19 7.21	4.02 7.03	1413.00	1412	1416
11-Jan-2015				1413.00	1410	1420
12-Jan-2015	4.00 7.00	4.13 7.16	4.03 7.04	1413.00	1417	1414
13-Jan-2015				1413.00	1372	1412
14-Jan-2015				1413.00	1417	1414
15-Jan-2015				1413.00	1389	1411
				1413.00	1388	1413
16-Jan-2015				1413.00	1391	1414
17-Jan-2015	4.00 7.00	3.99 6.88	3.99 7.01	1413.00	1436	1411
20-Jan-2015				1413.00	1363	1413
21-Jan-2015				1413.00	1388	1414
22-Jan-2015				1413.00	1481	1413
23-Jan-2015				1413.00	1430	1415
24-Jan-2015				1413.00	1413	1413
26-Jan-2015	4.00 7.00	4.28 7.23	3.98 6.95	1413.00	1298	1413
27-Jan-2015				1413.00	1387	1414
28-Jan-2015				1413.00	1433	1414
29-Jan-2015				1413.00	1399	1413
30-Jan-2015				1413.00	1386	1415
31-Jan-2015				1413.00	1391	1414
4-Feb-2015	4.00 7.00	4.17 7.09	4 6.97			
6-Feb-2015	4.00 7.00	4.08 7.04	4.03 7	1413.00	1553	1412
7-Feb-2015	4.00 7.00	4.16 7.17	4.04 7	1413.00	1415	1414
9-Feb-2015	4.00 7.00	3.96 6.85	3.98 7	1413.00	1397	1415
10-Feb-2015	4.00 7.00	4.04 7.36	3.98 7.14	1413.00	1194	1416
12-Feb-2015	4.00 7.00	4.04 7.36	3.98 7.01	1413.00	1194	1416
13-Feb-2015	4.00 7.00	4.07 7.34	3.97 7.01	1413.00	1627	1409
16-Feb-2015	4.00 700.00	4.04 7.19	3.98 7.01	1413.00	1383	1421
17-Feb-2015				1413.00	1123	1414
20-Feb-2015	4.00 7.00	4.02 7.08	3.99 7.02	1413.00	1386	1415
23-Feb-2015	4.00 7.00	4.12 6.74	3.98 6.95	1413.00	1378	1412
24-Feb-2015				1413.00	1385	1414
26-Feb-2015	4.00 7.00	5.02 6.73	4.01 7.02	1413.00	1421	1408
27-Feb-2015	4.00 7.00	4.99 6.77	3.98 7.02	1413.00	1363	1411

3-Mar-2015	4.00 7.00	4.99 6.74	3.97 6.98	1413.00	1389	1412
4-Mar-2015	4.00 7.00	4.43 7.23	4.02 6.99	1413.00	1374	1414
6-Mar-2015	4.00 7.00	4 6.9	3.98 7.01	1413.00	1428	1411
10-Mar-2015	4.00 7.00	4.12 7.11	3.95 7.01	1413.00	1386	1416
16-Mar-2015	4.00 7.00	4.06 7.03	3.98 7.00	1413.00	1375	1412
18-Mar-2015	4.00 7.00	4.09 7.04	3.98 7.01	1413.00	1426	1413
20-Mar-2015	4.00 7.00	4.21 7.21	3.97 6.95	1413.00	1335	1414
21-Mar-2015	4.00 7.00	4.11 7.23	4.01 7	1413.00	1398	1413
22-Mar-2015	4.00 7.00	4.21 7.15	4 7.05	1413.00	1432	1414
23-Mar-2015	4.00 7.00	4.09 6.97	3.98 6.95	1413.00	1410	1413
25-Mar-2015	4.00 7.00	4.08 6.98	4.03 7.01	1413.00	1406	1412
27-Mar-2015	4.00 7.00	4.16 7.09	4 7.01	1413.00	1429	1413
30-Mar-2015	4.00 7.00	4.05 7.04	3.97 7.01			
31-Mar-2015				1413.00	1420	1412
3-Apr-2015	4.00 7.00	4.05 6.89	3.99 7	1413.00	1289	1414
7-Apr-2015	4.00 7.00	4.08 7.02	3.98 7	1413.00	1423	1416
10-Apr-2015	4.00 7.00	3.79 6.78	4.01 7.01	1413.00	1386	1410
13-Apr-2015	4.00 7.00	4.33 6.87	3.99 6.95	1413.00	1488	1415
14-Apr-2015				1413.00	1425	1412
18-Apr-2015	4.00 7.00	4.11 7.10	3.96 6.95	1413.00	1363	1413
19-Apr-2015	4.00 7.00	4.06 7.00	3.99 6.97	1413.00	1424	1413
20-Apr-2015	4.00 7.00	4.12 7.12	3.99 7	1413.00	1397	1415
21-Apr-2015	4.00 7.00	4.91 6.72	7.09 7.03	1413.00	1313	1414
24-Apr-2015	4.00 7.00	4.41 6.77	4.09 7.04	1413.00	1351	1411
28-Apr-2015				1413.00	1387	1417
1-May-2015	4.00 7.00	4.36 7.14	4.05 7.04	1413.00	1188	1412
5-May-2015	4.00 7.00	4.45 7.02	4.05 6.99	1413.00	1113	1419
9-May-2015	4.00 7.00	4.06 6.80	3.99 6.99	1413.00	1518	1412
10-May-2015	4.00 7.00	3.97 6.94	3.99 7.01	1413.00	1410	1412
11-May-2015	4.00 7.00	3.99 7.02	4 7.01	1413.00	1408	1415
12-May-2015	4.00 7.00	3.99 6.98	4 6.98	1413.00	1403	1414
13-May-2015	4.00 7.00	4.04 6.98	4 6.99	1413.00	1383	1412

14-May-2015	4.00 7.00	4.04 7.01	4.01 6.99	1413.00	1204	1412
15-May-2015	4.00 7.00	4.05 7.03	3.99 7	1413.00	1389	1415
16-May-2015	4.00 7.00	4.01 7.08	4 7	1413.00	1410	1414
17-May-2015	4.00 7.00	4.05 7.10	3.99 7.01	1413.00	1447	1412
19-May-2015	4.00 7.00	3.88 6.95	3.99 7.02	1413.00	1365	1412
20-May-2015	4.00 7.00	3.90 7.15	4 6.99	1413.00	1419	1414
22-May-2015	4.00 7.00	3.91 6.89	4.01 6.99	1413.00	1421	1413
26-May-2015	4.00 7.00	4.07 7.05	4.02 7.04			
28-May-2015	4.00 7.00	4.07 7.05	4.02 7.04			
29-May-2015	4.00 7.00	4.09 6.97	4 7.01	1413.00	1364	1413
1-Jun-2015	4.00 7.00	4.10 7.18	3.95 7.01	1413.00	1386	1416
2-Jun-2015	4.00 7.00	4.01 7.20	3.99 7.01			
5-Jun-2015	4.00 7.00	4.11 7.03	3.99 6.98	1413.00	1378	1416
9-Jun-2015	4.00 7.00	4.08 7.18	4 7.01	1413.00	1360	1412
11-Jun-2015	4.00 7.00	4.05 7.10	4 6.97	1413.00	1397	1417
12-Jun-2015	4.00 7.00	4.52 6.97	4.08 7.01	1413.00	1389	1414
14-Jun-2015	4.00 7.00	4.12 7.24	3.99 6.95	1413.00	1420	1413
15-Jun-2015	4.00 7.00	4.31 7.29	3.97 6.98	1413.00	1403	1412
16-Jun-2015	4.00 7.00	4.29 7.07	4 7.05	1413.00	1390	1416
17-Jun-2015	4.00 7.00	4.40 7.03	4.06 6.89	1413.00	1392	1414
18-Jun-2015	4.00 7.00	4.30 7.16	4 6.97	1413.00	1420	1414
19-Jun-2015	4.00 7.00	4.41 7.38	3.97 6.99	1413.00	1413	1368
20-Jun-2015	4.00 7.00	4.48 7.08	4.02 7.03	1413.00	1391	1414
21-Jun-2015	4.00 7.00	4.98 7.00	4.02 7.56	1413.00	1283	1411
22-Jun-2015	4.00 7.00	4.34 7.95	4 6.99	1413.00	1388	1412
27-Jun-2015	4.00 7.00	4.30 8.53	4.03 7.02	1413.00	1131	1412
2-Jul-2015	4.00 7.00	4.69 7.11	4.01 7.01	1413.00	1360	1413
4-Jul-2015	4.00 7.00	4.10 7.07	4 6.95	1413.00	1417	1414
5-Jul-2015	4.00 7.00	3.90 3.99	7.1 7.01	1413.00	1408	1416
6-Jul-2015	4.00 7.00	4.01 7.16	3.99 6.97	1413.00	1403	1415
7-Jul-2015	4.00 7.00	3.90 7.13	3.99 6.95	1413.00	1390	1409

8-Jul-2015	4.00 7.00	3.96 7.10	3.99 6.96	1413.00	1410	1411
9-Jul-2015	4.00 7.00	4.03 6.96	4 6.97	1413.00	1420	1414
10-Jul-2015	4.00 7.00	4.05 6.97	3.99 6.98	1413.00	1408	1410
13-Jul-2015	4.00 7.00	3.97 6.95	3.99 6.99	1413.00	1480	1411
15-Jul-2015	4.00 7.00	4.36 8.14	3.94 7.04	1413.00	1018	1421
18-Jul-2015	4.00 7.00	4.75 7.80	4 7.03	1413.00	1245	1419
19-Jul-2015	4.00 7.00	4.51 8.06	4.01 6.9	1413.00	1046	1419
20-Jul-2015	4.00 7.00	4.59 8.14	4 6.99	1413.00	1019	1418
22-Jul-2015	4.00 7.00	4.67 8.01	4 7	1413.00	1056	1415
23-Jul-2015	4.00 7.00	3.96 6.94	4 6.96			
24-Jul-2015	4.00 7.00	4.19 6.98	4 7			
25-July:15	4.00 7.00	4.65 8.03	4 7.01	1413.00	1121	1414
26-Jul-2015	4.00 7.00	4.63 8.07	3.98 6.95	1413.00	1165	1413
27-Jul-2015	4.00 7.00	4.75 7.92	4 7	1413.00	1193	1417
28-Jul-2015	4.00 7.00	4.63 8.11	3.99 7	1413.00	1040	1415
29-Jul-2015	4.00 7.00	4.72 8.06	3.99 7	1413.00	1017	1415
31-Jul-2015	4.00 7.00	4.53 7.05	3.99 6.95	1413.00	1400	1413
2-Aug-2015	4.00 7.00	4.60 8.12	3.96 7.05	1413.00	1307	1407
3-Aug-2015	4.00 7.00	4.57 8.17	4 7	1413.00	1395	1414
4-Aug-2015	4.00 7.00	4.60 8.17	4 6.98	1413.00	1405	1413
5-Aug-2015	4.00 7.00	4.61 8.15	4 6.96	1413.00	1420	1418
6-Aug-2015	4.00 7.00	4.63 8.04	4.01 7.01	1413.00	1399	1417
8-Aug-2015	4.00 7.00	4.72 8.09	3.87 6.69	1413.00	1480	1415
10-Aug-2015	4.00 7.00	4.70 8.17	4 6.85	1413.00	1397	1413
11-Aug-2015	4.00 7.00	4.69 8.22	4 6.79	1413.00	1430	1417
20-Aug-2015	4.00 7.00	4.06 7.35	3.99 7	1413.00	1400	1416
24-Aug-2015	4.00 7.00	4.18 7.20	3.98 7	1413.00	1430	1413
25-Aug-2015	4.00 7.00	4.04 7.05	3.98 7.02	1413.00	1435	1417
26-Aug-2015	4.00 7.00	4.12 7.33	3.98 7.03	1413.00	1426	1411
28-Aug-2015	4.00 7.00	4.08 7.05	3.99 7.01	1413.00	1413	1429
30-Aug-2015	4.00 7.00	4.09 7.03	4.01 6.94	1413.00	1425	1413
31-Aug-2015	4.00 7.00	4.06 7.08	3.99 7.01	1413.00	1427	1411

1-Sep-2015	4.00 7.00	4.06 6.94	3.99 7.01	1413.00	1440	1413
2-Sep-2015	4.00 7.00	4.32 7.32	3.97 7.01	1413.00	1477	1413
4-Sep-2015	4.00 7.00	4.32 7.32	3.97 7.01	1413.00	1477	1413
6-Sep-2015	4.00 7.00	4.19 7.23	3.99 6.99	1413.00	1438	1412
8-Sep-2015	4.00 7.00	4.21 7.18	3.98 6.98	1413.00	1427	1411
14-Sep-2015	4.00 7.00	4.05 6.94	3.98 7.03	1413.00	1460	1415
15-Sep-2015	4.00 7.00	4.06 7.13	3.99 7.03	1413.00	1391	1413
16-Sep-2015	4.00 7.00	3.91 7.06	4 6.96	1413.00	1398	1415
20-Sep-2015	4.00 7.00	3.96 7.02	4.01 7.01	1413.00	1414	1413
22-Sep-2015	4.00 7.00	3.99 7.01	3.99 7.01	1413.00	1398	1410
24-Sep-2015	4.00 7.00	4.06 7.06	4.01 7.01	1413.00	1418	1419
26-Sep-2015	4.00 7.00	3.99 7.01	3.99 7.04	1413.00	1442	1415
27-Sep-2015	4.00 7.00	4.04 7.06	3.99 7.01	1413.00	1434	1414
28-Sep-2015	4.00 7.00	4.01 6.99	4 7.01	1413.00	1407	1420
1-Oct-2015	4.00 7.00	3.89 7.18	4.01 6.99	1413.00	1403	1416
4-Oct-2015	4.00 7.00	4.05 6.96	4.01 7.01	1413.00	1403	1414
6-Oct-2015	4.00 7.00	4.97 6.97	4 7	1413.00	1443	1413
10-Oct-2015				1413.00	1424	1419
13-Oct-2015	4.00	4.56	4	1413.00	1428	1413
16-Oct-2015				1413.00	1427	1413
20-Oct-2015	4.00 7.00	4.63 6.72	4 7	1413.00	1416	1413
22-Oct-2015	4.00 7.00	4.69 6.43	3.78 6.8	1413.00	1418	1415
26-Oct-2015	4.00 7.00	4.81 7.53	3.97 6.89	1413.00	1438	1412
2-Nov-2015	4.00 7.00	4.11 6.32	3.99 7.03	1413.00	1269	1412
10-Nov-2015	4.00 7.00	4.17 7.09	4.02 7.04	1413.00	1223	1414
11-Nov-2015	4.00 7.00	4.19 7.14	4.03 7.02	1413.00	1430	1407
16-Nov-2015	4.00 7.00	4.16 7.06	4.01 6.97	1413.00		
18-Nov-2015	4.00 7.00	4.12 7.56	4.01 7	1413.00		
19-Nov-2015	4.00 7.00	4.14 7.45	4.01 6.98	1413.00	1422	1412
20-Nov-2015	4.00 7.00	4.18 7.60	4.03 6.99	1413.00	1439	1409
21-Nov-2015	4.00 7.00	4.06 7.02	4.01 7	1413.00	1411	1415

22-Nov-2015	4.00 7.00	4.30 7.46	4.01 7.01			
4-Dec-2015	4.00 7.00	4.07 6.91	4 6.99	1413.00	1423	1416
9-Dec-2015	4.00 7.00	4.08 7.04	4 6.96	1413.00	1422	1413
10-Dec-2015	4.00 7.00	3.93 6.87	4 7.01			
11-Dec-2015				1413.00	1106	1414
13-Dec-2015	4.00 7.00	4.06 7.06	4.02 7	1413.00	1399	1414
14-Dec-2015	4.00 7.00	4.01 7.00	4 7.01	1413.00	1420	1410
15-Dec-2015	4.00 7.00	4.05 7.00	4.01 7	1413.00	1408	1415
16-Dec-2015	4.00 7.00	4.05 7.02	3.98 6.97	1413.00	1403	1413
21-Dec-2015	4.00 7.00	4.07 7.06	4.02 7.02	1413.00	1429	1414
29-Dec-2015	4.00 7.00	4.05 7.05	3.99 7	1413.00	1421	1415

Table 8.54: 2015 Hanna #1 calibration datasheets

Date	DO %			Conductivity		
	Standard	Initial reading	Final reading	Standard	Initial reading	Final reading
19-Jul-15	0/100	0/109.9%	0/100%	1413	1618	1461
20-Jul-15	0/100	0/104.7%	0/100%	1413	1502	1410
24-Jul-15	0/100	0/96.9%	0/100%	1413	1397	1413
26-Jul-15	0/100	0/99.6%	0/99.9%	1413	1603	1410
27-Jul-15	0/100	0/102.6%	0/100.2%	1413	1520	1418
28-Jul-15	0/100	0/102.5%	0/100%	1413	1489	1413
1-Sep-15	0/100	0/105%	0/100.8%	1413	1677	1412
26-Sep-15	0/100	0/105.3%	0/100%	1413	1677	1412
27-Sep-15	0/100	0/103.8%	0/100%	1413	1460	1416
1-Oct-15	0/100	0/118%	0/100%	1413	1403	1414
4-Oct-15	0/100%	0/97.4%	0/100%	1413	1387	1414
2-Nov-15				1413	1269	1412
16-Nov-15				1413	2053	1412
21-Nov-15				1413	1411	1415
22-Nov-15	0/100%	0/117%	0/100%	1413	1350	1417
14-Dec-15				1413	1258	1416
15-Dec-15				1413	1422	1417
16-Dec-15	0/100	0/110%	0/100%	1413	1414	1413

Table 8.55: 2015 YSI calibration datasheets

Date	DO %			Conductivity		
	Standard	Initial reading	Final reading	Standard	Initial reading	Final reading
3/24/2015	100	88.3%	100.5%	1413	1481	1414
3/25/2015	100	91.3%	99.8%			
4/13/2015	100	102.3%	99.7%	1413	1488	1415
4/19/2015	100	95.2%	100.9%	1413	1488	1415
4/20/2015	100	97.0%	101.0%	1413	1488	1415
5/14/2015	100	121.7%	100.6%	1413	1560	1411
5/15/2015	100	92.8%	99.5%	1413	1336	1413
5/16/2015	100	104.2%	100.6%	1413	1429	1413
5/17/2015	100	99.3%	101.8%	1413	1407	1414
7/15/2015	100	82.5%	97.5%	1413	1390	1412

Table 8.57: 2015 Mill Seepage Regulatory Guidelines

Regulatory Guidelines			
Parameters	Water License	MMER	CCME
CN t (mg/L)	1	1	NA
CN WAD (mg/L)	NA	NA	NA
Free CN (mg/L)	NA	NA	0.005
Cu (mg/L)	0.2	0.6	0.002
Fe (mg/L)	NA	NA	0.3

Table 8.58: 2015 Mill Seepage Water Quality Monitoring

Date	Mill Trench				MW-203			MW-05				MW-07				MW-08					
	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)		
2014																					
5/26/2014	0.087		0.01	1	Dry			Dry				Dry				Dry					
6/17/2014	0.44	0.061	0.057	1.6	Dry			Dry				Dry				0.024	<0.005	0.11	0.41		
7/21/2014	0.38	0.02	0.031	1.6	Dry			<	0.005	<0.01	0.031	2.2	0.046	<0.01	0.1	9.4	<	0.005	<0.01	0.014	0.43
8/19/2014	0.17	0.028	0.012	1.5	Dry			Dry				Dry				<	0.005	<0.01	0.055	6.4	
9/29/2014	0.03		0.008	0.77	Dry			Dry				Dry				Dry					
11/18/2014	Frozen				0.064			4.2	Dry				Dry				Dry				
2015																					
7/29/2015	0.024		0.005	0.72	Dry			<	0.005	0.13		1.49	Dry				<0.005		0.27	2.92	
8/4/2015	0.038	<0.005	0.008	0.6	<0.005	0.016	0.52	Dry				Dry				<0.005	<0.005	0.17	17.2		
9/17/2015	0.03		0.005	0.2	Dry			Dry				0.008	<0.005	0.047	4.53	<0.005	<0.005	0.016	8.1		

Table 8.59: Water Quality Monitoring at Third Portage Lake as per Freshet Action Plan (Mill Seepage Action Plan) and KIA's request.

Date		Units	28-Jul-15	18-Aug-15	15-Sep-15
Field Parameters					
pH (Env. Dept.)			7.44	7.5	8.03
Conductivity (Env. Dept.)	µmhos/cm		92	90	97.2
Turbidity (Env. Dept.)	NTU		1.37	*	0.81
Temperature	°C		*	*	11.2
Dissolved oxygen	mg/L		9.3	9.8	9.1
Conventional Parameters					
Hardness	mg CaCO ₃ /L		30	26	35
Alkalinity	mg CaCO ₃ /L		25	28	50
TDS	mg/L		61	60	61
TSS	mg/L		<1	*	1
Colour	colour		2	1	<1
D.O.C	mg/L		2.7	2.8	3
T.O.C	mg/L		2.6	2.4	3.5
Nutrients and Biological Indicators					
Ammonia (NH ₃)	mg N/L		<0.01	<0.01	<0.01
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L		<0.01	<0.01	<0.01
Kjeldahl nitrogen	mg N/L		0.07	<0.05	3.25
Nitrate	mg/L		0.04	0.03	0.04
Nitrite	mg/L		<0.01	<0.01	<0.01
Ortho-phosphate (O-PO ₄)	mg P/L		<0.01	<0.01	<0.01
Chlorophyll A	µg/L		0.66	1.32	1.19
Major Ions					
Bromides	mg/L		0.03	<0.01	0.04
Chloride	mg/L		3.3	3.3	4.7
Fluoride	mg/L		0.1	0.09	0.1
Sulphate	mg/L		20.4	14.5	14.2
Thiosulfates (S ₂ O ₃)	S ₂ O ₃ /L		<0.02	<0.02	<0.02
Cyanide					
Cyanide Total	mg/L		*	<0.005	<0.005
Cyanide Free (SGS)	mg/L		<0.005	*	<0.005
Cyanide WAD	mg/L		<0.005	<0.005	<0.005
Thiocyanates (SNC)	SCN/L		<0.05	<0.05	<0.05
Dissolved metals					
Aluminium	mg/L		<0.006	<0.006	<0.006
Antimony	mg/L		<0.0001	<0.0001	<0.0001
Arsenic	mg/L		<0.0005	0.0101	<0.0005
Boron	mg/L		<0.01	<0.01	<0.01
Barium	mg/L		<0.0005	0.0044	0.0029
Beryllium	mg/L		<0.0005	0.0007	<0.0005
Cadmium	mg/L		<0.00002	0.00005	<0.00002
Chromium	mg/L		<0.0006	0.0037	<0.0006
Cobalt	mg/L		<0.0005	<0.0005	<0.0005
Copper	mg/L		<0.0005	<0.0005	<0.0005
Iron	mg/L		<0.01	<0.01	<0.01
Lead	mg/L		<0.0003	<0.0003	<0.0003
Lithium	mg/L		<0.005	<0.005	<0.005
Manganese	mg/L		<0.0005	<0.0005	<0.0005
Magnesium	mg/L		1.86	2.26	2.69
Mercury	mg/L		<0.00001	<0.00001	<0.00001
Molybdenum	mg/L		<0.0005	<0.0005	<0.0005
Nickel	mg/L		0.0005	<0.0005	<0.0005
Phosphorus	mg P/L		*	*	<0.01
Selenium	mg/L		<0.001	<0.001	<0.001
Strontium	mg/L		0.035	0.054	0.043
Silver	mg/L		*	<0.0001	<0.0001
Tin	mg/L		<0.001	<0.001	<0.001
Thallium	mg/L		<0.005	<0.005	<0.005
Titanium	mg/L		<0.01	<0.01	<0.01
Uranium	mg/L		<0.001	<0.001	<0.001
Vanadium	mg/L		<0.0005	<0.0005	<0.0005
Zinc	mg/L		<0.001	<0.001	<0.001

Date	Units	28-Jul-15	18-Aug-15	15-Sep-15
Total metals				
Aluminium	mg/L	<0.006	<0.006	0.02
Antimony	mg/L	<0.0001	<0.0001	<0.0001
Arsenic	mg/L	<0.0005	<0.0005	<0.0005
Boron	mg/L	<0.01	<0.01	<0.01
Barium	mg/L	0.0039	0.0046	0.0029
Beryllium	mg/L	<0.0005	<0.0005	<0.0005
Cadmium	mg/L	<0.00002	<0.00002	<0.00002
Copper	mg/L	<0.0005	<0.0005	0.0006
Chromium	mg/L	<0.0006	<0.0006	0.0011
Cobalt	mg/L	<0.0005	<0.0005	<0.0005
Iron	mg/L	0.02	0.03	0.06
Lithium	mg/L	<0.005	<0.005	<0.005
Manganese	mg/L	0.0059	0.0043	0.0077
Magnesium	mg/L	2.87	2.01	2.87
Mercury	mg/L	<0.00001	<0.00001	0.00011
Molybdenum	mg/L	<0.0005	<0.0005	<0.0005
Nickel	mg/L	0.0007	<0.0005	<0.0005
Lead	mg/L	<0.0003	<0.0003	<0.0003
Phosphorus	mg P/L	0.014	0.0055	0.0095
Potassium	mg/L	0.98	0.96	1.10
Selenium	mg/L	<0.001	<0.001	<0.001
Silver	mg/L	*	*	<0.0001
Tin	mg/L	<0.001	<0.001	<0.001
Strontium	mg/L	0.041	0.047	0.044
Titanium	mg/L	<0.01	<0.01	<0.01
Thallium	mg/L	<0.005	<0.005	<0.005
Uranium	mg/L	<0.001	<0.001	<0.001
Vanadium	mg/L	<0.0005	<0.0005	<0.0005
Zinc	mg/L	<0.001	<0.001	0.005

* Not analysed