

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	8.1.9
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.	5.3.3
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	8.1.13
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
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	8.1.16
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	8.1.15
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.	8.4.2
NIRB Project Certificate No.004 Condition 55	Annual Wildlife Summary Monitoring Report	8.4.1

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.	8.4.3
NIRB Project Certificate No.004 Condition 57	Participate in a caribou collaring program as directed by the GN-DOE.	8.4.4
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	8.2
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 KivIA 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	8.5

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"	8.6
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.	8.3
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	8.1.11
NWB 2AM-MEA0815 Schedule B-1	Construction Details for dikes and dams.	3.1
NWB 2AM-MEA0815 Schedule B-2	Results of lake level monitoring conducted under the protocol developed as per Part D Item 11.	4.1
NWB 2AM-MEA0815 Schedule B-3	Summary of reporting results for the Water Balance Water Quality model and any calibrations as required in Part E Items 6 and 7.	4.2
NWB 2AM-MEA0815 Schedule B-4	The bathymetric survey(s) conducted prior to each year of shipping at the Baker Lake Marshalling Facility.	4.3
NWB 2AM-MEA0815 Schedule B-5	Geochemical monitoring results.	5.1
NWB 2AM-MEA0815 Schedule B-6	Volumes of waste rock used in construction and placed in the Rock Storage Facilities.	5.2
NWB 2AM-MEA0815 Schedule B-7	An update on the remaining capacity of the Tailings Storage Facility.	5.3.1
NWB 2AM-MEA0815 Schedule B-8	Summary of quantities and analysis of seepage and runoff monitoring from the landfills.	6.1
NWB 2AM-MEA0815 Schedule B-9	A summary report of solid waste disposal activities including monthly and annual quantities in cubic metres of waste generated and location of disposal.	6.2
NWB 2AM-MEA0815 Schedule B-10	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-MEA0815 Schedule B-11	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-MEA0815 Schedule B-12	A summary of modifications and/or major maintenance work carried out on all water and waste related structures and facilities.	11.1
NWB 2AM-MEA0815 Schedule B-13	The results and interpretation of the Monitoring Program in accordance with Part I and Schedule I.	8
NWB 2AM-MEA0815 Schedule B-14	The results of monitoring under the AEMP.	8.7
NWB 2AM-MEA0815 Schedule B-15	Results of monitoring pursuant to the Fault Testing and Monitoring Plan (August 2007).	5.3.2
NWB 2AM-MEA0815 Schedule B-16	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-MEA0815 Schedule B-17	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.	5.3.3
NWB 2AM-MEA0815 Schedule B-18	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-MEA0815 Schedule B-19	A summary of any studies requested by the Board that relate to Waste disposal, Water use or Reclamation, and a brief description of any future studies planned.	10.1
NWB 2AM-MEA0815 Schedule B-20	Where applicable, revisions as Addendums, with an indication of where changes have been made, for Plans, Reports, and Manuals.	10.2
NWB 2AM-MEA0815 Schedule B-21	An executive summary in English, Inuktitut and French of all plans, reports, or studies conducted under this Licence.	10.3
NWB 2AM-MEA0815 Schedule B-22	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-MEA0815 Schedule B-23	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-MEA0815 Schedule B-24	Any other details on Water use or Waste Disposal requested by the Board by November 1st of the year being reported.	4.5/6.4
NWB 2AM-MEA0815 Part E Item 8	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.	4.4
NWB 2AM-MEA0815 Part I Item 14	The Licensee shall submit to the Board as part of the Annual Report required under Part B Item 5, all reports and performance evaluations prepared by the Independent Geotechnical Expert Review Panel.	3.1.2
NWB 2AM-MEA0815 Part I Item 16	The Licensee shall submit the results and interpretation of the Seepage Monitoring program.	8.1.8
DFO S-08/09-1040 NU	The result of monitoring under the AEMP	8.7

DFO S-08/09-1040 NU	Result of fisheries monitoring along AWPAP	8.1.15
DFO-08/09-1042 NU	Results of the fish out program	8.1.16
DFO HADD NU-03-0190 AWPAP Condition 5.2.4	Creel survey results.	8.1.15
DFO HADD NU-03-0190 AWPAP Condition 5.3 / 6	Submit written report summarizing 2008 monitoring results and photographic record of works and undertakings.	8.1.7
DFO HADD NU-03-0191 Mine Site Condition 6.1	Submit Written Report and Photographic Record summarizing monitoring program results.	8.1.10/8.1.11/ 8.1.16
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.	9.1.3
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

Table 1.2: Summary of Sample Stations

NWB Station	Description	Phase	2014 Reporting Status
ST-DC-1 to TBD	Monitoring stations during DiKE Construction as defined in Part D Item 11	Construction	Not Applicable in 2014
ST-DD-1 to TBD	Monitoring stations during DiKE Dewatering as defined in Part D Item 11	Construction	8.1.2
ST-1	Water Intake for camp and mill	Construction, early operation, late operation, closure	Section 8.1.14
ST-2	Reclaim Water Intake	Construction, early operation, late operation, closure	Section 8.1.14
ST-3	Water Intake for Emulsion Plant	Construction, early operation, late operation, closure	Section 8.1.14
ST-4	Water reclaimed from Tailings Storage Facility	Early operation, late operation, closure	same as ST-2
ST-5	Portage Area (east) diversion ditch	Early operation, late operation, closure	Section 8.1.3
ST-6	Portage Area (west) diversion ditch	Early operation, late operation, closure	Section 8.1.3
ST-7	Vault Area diversion ditch	Early operation, late operation, closure	Not Applicable in 2014
ST-8	East DiKE Seepage Discharge through Second Portage Lake Outfall Diffuser	Late operation	Section 8.1.4.5
ST-9	Portage Attenuation Pond prior to discharge through Third Portage Lake Outfall Diffuser	Early operation	Section 8.1.4.3
ST-10	Vault Attenuation Pond prior to discharge through Wally Lake Outfall Diffuser	Late operation	Section 8.1.4.3
ST-11	Tailings Storage Facility	Post closure	Not Applicable in 2014
ST-12	Portage/ Goose Pit Lake	Post closure	Not Applicable in 2014
ST-13	Vault Pit Lake	Post closure	Not Applicable in 2014

NWB Station	Description	Phase	2014 Reporting Status
ST-14 (TEH-11)	Discharge to the land from Landfarm sump at mine site	Pre-development, Construction, early operation, late operation, closure	Section 8.1.5
ST-15	Vault non-contact diversion ditch	Early operation, late operation, closure	Not Applicable in 2014
ST-16	Portage Rock Storage Facility	Early operation, late operation, closure	Section 8.1.4.2
ST-17**	North Portage Pit Sump	Early operation	Section 8.1.3
	Portage Pit Lake	Late operation, closure	Not Applicable in 2014
ST-18	Portage Attenuation Pond	Early operation	Section 8.1.3
ST-19**	Third Portage Pit Sump	Early operations	Section 8.1.3
	Third Portage Pit Lake	Late operations	Not Applicable in 2014
ST-20	Goose Island Pit Sump	Early operations	Section 8.1.3
	Goose Island Pit Lake	Late operations, closure	Not Applicable in 2014
ST-21	Tailings Reclaim Pond	Early operation (south of central dike), late operation (north of central dike)	Section 8.1.4.1
ST-22	Tailings Storage Facility	Late operation, closure	Not Applicable in 2014
ST-23	Vault Pit Sump	Late operations	Section 8.1.4.1
ST-24***	Vault Rock Storage Facility	Late operation	Section 8.1.4.1
		Closure (east ditch)	Not Applicable in 2014
		ST-24-A	
		Closure (west ditch)	Not Applicable in 2014
		ST-24-B	
ST-25	Vault Attenuation Pond	Late operation	Section 8.1.4.1
ST-26	Vault Pit Lake	Closure	Not Applicable in 2014
ST-S-1 to TBD	Seeps (to be determined)	Construction, Early operations, late operations, closure	Section 8.1.8

NWB Station	Description	Phase	2014 Reporting Status
ST-GW-1 to TBD	Groundwater wells (to be determined)	Construction, Early operations, late operations, closure	Section 8.1.9 & Appendix G6
ST-AEMP-1 to TBD	Receiving AEMP	Construction, Early operations, late operations, closure	Section 8.1.10 & Appendix G4
ST-MMER-1 to TBD	Vault and Portage effluent outfall	Early and late operations	Section 8.1.12
ST-37 (MEA-1)	Water sample location at Baker Lake in close proximity to the construction facilities	Pre-development, construction, early operation, late operation, closure	Sections 8.1.6
ST-38 (MEA-2)	East Contact Water Pond located in the south-east corner of the lay-down area	Pre-development, construction, early operation, late operation, closure	Not Applicable in 2014 - Section 8.1.6
ST-39 (MEA-3)	West Contact Collection Pond located in the south-west corner of the lay-down area	Pre-development, construction, early operation, late operation, closure	Not Applicable in 2014 - Section 8.1.6
ST-40 (MEA-4)	Secondary containment sump at the Bulk Fuel Storage Facility	Pre-development, construction, early operation, late operation, closure	Section 8.1.6
ST-41 (MEA-5)	Water sample location at the ammonium nitrate storage area	Pre-development, construction, early operation, late operation, closure	Not Applicable in 2014 - Section 8.1.6
ST-42 (MEA-6)	Water sample location at the explosive storage area	Pre-development, construction, early operation, late operation, closure	Not Applicable in 2014 - Section 8.1.6

Table 3.1: 2014 Routine Geotechnical Monitoring Program

Instrumentation ¹	Dewatering Frequency	Operation Frequency
Piezometer	Daily	Weekly to Bi-Weekly
Slope Inclinator Casings	Monthly	Monthly
Thermistors	Daily	Weekly to Bi-Weekly
Surface Monuments and Surface Prisms ²	Monthly	Monthly
Seismographs	During blasting at the Portage Pit / Goose Pit adjacent to the dike	

Footnotes:

1. All the instrumentations are monitored by a qualified employee (technician or engineer). The data is treated, verified and reported to the Engineering Superintendent.
2. The monitoring system for the surface monuments and surface prisms at Bay Goose Dike and East Dike will be modified and reajusted to provide more precise monitoring on a regular basis

Table 4.1: 2014 Lake Level Monitoring

	Portage Attenuation Pond	Vault Attenuation Pond	Wally Lake (masl)	Third Portage Lake	Second Portage Lake
Identification Code	SPL-IN	VL-IN	WL-survey	TPL-survey	SPL-survey
05/01/2014	104.359				
11/01/2014	104.276				
18/01/2014	104.267				
25/01/2014	104.200				
06/02/2014	105.102				
09/02/2014	105.200				
14/02/2014	105.168				
18/02/2014	105.170				
08/03/2014	105.787				
13/03/2014	105.182				
24/03/2014	105.550				
05/04/2014	105.941				
14/04/2014	106.055				
20/04/2014	106.180				
13/05/2014	106.540				
18/05/2014	106.630				
24/05/2014	106.788				
27/05/2014	106.910				
28/05/2014	106.964				
29/05/2014	106.983				
30/05/2014	107.000				
31/05/2014	107.058				
01/06/2014		134.184	139.525		
02/06/2014	107.167				
03/06/2014	107.206				
04/06/2014	107.271	134.328	139.479	133.522	133.516
05/06/2014	107.287				
05/06/2014		134.429			
07/06/2014	107.320				
08/06/2014	107.267	134.443	139.509	133.522	133.518
10/06/2014		134.389			
11/06/2014	107.290	134.394			
12/06/2014	107.226	134.509			
13/06/2014	107.214	134.423			
14/06/2014	107.142	134.464			
15/06/2014	107.041	134.484			
16/06/2014	106.934	134.398			
17/06/2014	106.869	134.471			
20/06/2014	106.752	134.541	139.469	133.537	132.934
21/06/2014	106.766	134.441			
22/06/2014	106.749	134.341			
23/06/2014	106.633	134.096			
24/06/2014	106.551	133.937			
25/06/2014	106.424	133.686			
26/06/2014	106.292	133.387			
27/06/2014	106.280	133.088	139.44	133.535	132.948
28/06/2014	106.220	132.842			
29/06/2014	106.080	132.713			
30/06/2014	105.991	132.733			
01/07/2014	106.042	132.935			
02/07/2014	105.966	132.9			
03/07/2014	105.955	133.052			
04/07/2014	105.934				
06/07/2014	105.940	134.305			
07/07/2014	105.980	134.356	139.407	133.484	133.528
08/07/2014	105.958	134.349			
09/07/2014	106.005	134.343			
10/07/2014	106.013				
12/07/2014	106.040	134.389			
13/07/2014	106.063	134.402			
14/07/2014	106.059	134.302			

	Portage Attenuation Pond	Vault Attenuation Pond	Wally Lake (masl)	Third Portage Lake	Second Portage Lake
Identification Code	SPL-IN	VL-IN	WL-survey	TPL-survey	SPL-survey
15/07/2014	106.087	134.363	139.397	133.536	133.527
16/07/2014		134.41			
18/07/2014	106.121	134.424			
19/07/2014	106.173	134.432			
20/07/2014	106.205	134.435			
21/07/2014	106.181	134.356			
22/07/2014	106.235	134.396			
23/07/2014	106.250	134.637	139.38	133.58	132.884
24/07/2014	106.295	134.347			
25/07/2014	106.360	134.297			
26/07/2014	106.346	134.26			
27/07/2014	106.347	134.125			
28/07/2014	106.380	134.676			
29/07/2014	106.368	134.148			
30/07/2014	106.386	134.073			
31/07/2014	106.390	134.109			
01/08/2014	106.426	134.166	139.344	133.557	133.546
02/08/2014	106.470	134.129			
03/08/2014	106.393	134.033			
04/08/2014	106.444	134.109			
04/08/2014	106.525	134.131			
05/08/2014	106.523	134.111			
06/08/2014	106.487	134.077			
08/08/2014	106.558	134.102			
09/08/2014	106.515	134.023			
10/08/2014	106.492	133.994			
11/08/2014	106.534	133.831	139.227	133.471	133.522
12/08/2014	106.583	133.521			
13/08/2014	106.592	133.294			
14/08/2014	106.646	133.097			
15/08/2014	106.613	133.196			
16/08/2014	106.668	133.172			
17/08/2014	106.684	133.278			
18/08/2014	106.868	133.489			
19/08/2014	107.016	133.533	139.418	133.57	132.882
20/08/2014	107.001	133.49			
21/08/2014	107.046	133.542			
22/08/2014	107.144	133.593			
23/08/2014	107.220	133.382	139.432	133.575	132.906
24/08/2014	107.299	133.573			
25/08/2014	107.347	133.565			
26/08/2014	107.408	133.787			
27/08/2014	107.445	133.934			
28/08/2014	107.487	133.956			
30/08/2014	107.550	134.026	139.458	133.56	133.536
30/08/2014	107.553	133.98			
31/08/2014	107.587	134.045			
01/09/2014	107.579	133.877			
03/09/2014	107.619	133.974			
04/09/2014	107.680	134.089	139.476	133.542	133.549
05/09/2014	107.743	133.918			
07/09/2014	107.773	133.933			
08/09/2014	107.864	134.371			
10/09/2014	107.895	134.141			
12/09/2014	108.001	134.385			
13/09/2014	108.059	134.586	139.414	133.548	132.904
14/09/2014	108.046	134.679			
15/09/2014	108.064	134.683			
16/09/2014	108.118	134.657			
17/09/2014	108.125	134.641			
18/09/2014	108.154	134.667			
19/09/2014	108.129	134.606			
20/09/2014	108.198	134.694	139.329	133.512	132.862

	Portage Attenuation Pond	Vault Attenuation Pond	Wally Lake (masl)	Third Portage Lake	Second Portage Lake
Identification Code	SPL-IN	VL-IN	WL-survey	TPL-survey	SPL-survey
21/09/2014	108.218	134.766			
22/09/2014	108.215	134.663			
23/09/2014	108.250	134.571			
25/09/2018	108.280	134.777			
26/09/2014	108.375				
27/09/2014	108.307				
28/09/2014	108.367				
29/09/2014	108.354			133.508	133.521
30/09/2014	108.387				
04/10/2014	108.396				
07/10/2014	108.414				
08/10/2014	108.495				
09/10/2014	108.513				
10/10/2014	108.489				
11/10/2014	108.497				
12/10/2014	108.508				
13/10/2014	108.527				
14/10/2014	108.531				
15/10/2014	108.584				
16/10/2014	108.629				
17/10/2014	108.576				
18/10/2014	108.618				
19/10/2014	108.639				
20/10/2014	108.666				
21/10/2014	108.697				
22/10/2014	108.722				
26/10/2014	108.810				
04/11/2014	108.870				
09/11/2014	108.930				
20/11/2014	108.968				
24/11/2014	108.960				
25/11/2014	108.942				
26/11/2014	108.973				
28/11/2014	109.290				
29/11/2014	109.167				
30/11/2014	109.290				
02/12/2014	109.476				
05/12/2014	109.554				
06/12/2014	109.655				
07/12/2014	109.680				
09/12/2014	109.835				
10/12/2014	109.910				
13/12/2014	110.050				
14/12/2014	110.081				
15/12/2014	110.211				
16/12/2014	110.209				
17/12/2014	110.179				
18/12/2014	110.140				
19/12/2014	110.381				
20/12/2014	110.391				
21/12/2014	110.451				
22/12/2014	110.535				
23/12/2014	110.560				
25/12/2014	110.658				
26/12/2014	110.720				
27/12/2014	110.695				
28/12/2014	111.008				
30/12/2014	110.882				

Table 4.2: 2014 Comparison of predicted pit water quantity and quality to the measured water quantity and quality**Water Quantity[^]**

Pits**	Predicted (m ³)	Measured (m ³)	Relative % difference between predicted vs measured
Portage	715,200	64,803	-167
Bay Goose	1,235,100	297,375	-122
Vault Pit	46,100	101,617	75

[^]predicted volumes from Golder 2007 - Waste and Water Management Plan - Meadowbank Gold Project

**There is no year 4 in the predicted model so take year 5 for Portage and Vault and year 3 for Goose.

Vault Pit Sumps Water Quality*

Parameters	Units	Probable Scenario	Possible Poor end Scenario	Measured		% Difference between predicted vs measured-mean		% Difference between predicted vs measured-Lower 25th percentile	
				Mean	Lower 25th centile ⁺	Probable	Possible Poor	Probable	Possible Poor
pH		8.00	8.00	7.13	-	-11	-11	-	-
Alkalinity	mg CaCO ₃ /L	0.091	9.7	89	-	>100	>100	-	-
Ammonia	mg N/L	0.78	1.30	0.18	-	-77	-86	-	-
Ammonia nitrogen	mg N/L	64	110	14.35	-	-78	-87	-	-
Dissolved Arsenic	mg/L	0.000063	0.052	0.0127	-	>100	-76	-	-
Chloride	mg/L	0.0031	0.033	30.90	-	>100	>100	-	-
Dissolved Copper	mg/L	0.0000063	0.00075	0.0116	-	>100	>100	-	-
Fluoride	mg/L	0.0000063	0.013	0.26	-	>100	>100	-	-
Hardness	mg CaCO ₃ /L	0.11	19	378	-	>100	>100	-	-
Dissolved Lead	mg/L	0.00000081	0.000011	0.00015	-	>100	>100	-	-
Dissolved Nickel	mg/L	0.000012	0.00011	0.0254	-	>100	>100	-	-
Dissolved Barium	mg/L	0.000210	0.012	0.0588	-	>100	>100	-	-
Dissolved Cadmium	mg/L	0.000000081	0.000011	0.0003	-	>100	>100	-	-
Dissolved Iron	mg/L	0.000063	0.002	0.22	-	>100	>100	-	-
Dissolved Mercury	mg/L	0.000000081	0.000011	0.0001	-	>100	>100	-	-
Dissolved Manganese	mg/L	0.000018	0.00230	0.1328	-	>100	>100	-	-
Dissolved Molybdenum	mg/L	0.000160	0.03100	0.1089	-	>100	>100	-	-
Dissolved Selenium	mg/L	0.0000041	0.00055	0.0070	-	>100	>100	-	-
Dissolved Thallium	mg/L	0.0000021	0.000023	0.0025	-	>100	>100	-	-
Nitrate	mgN/L	71	120	46.4	-	-35	-61	-	-
Sulphate	mgN/L	0.01	10	148	-	>100	>100	-	-
Total dissolved solids	mg/L	150	300	455.5	-	>100	52	-	-
Zinc	mg/L	0.000041	0.00052	0.002	-	>100	>100	-	-

Goose Island Pit Sumps Water Quality*

Parameters	Units	Probable Scenario	Possible Poor end Scenario	Measured		% Difference between predicted vs measured-mean		% Difference between predicted vs measured-Lower 25th percentile ⁺	
				Mean	Lower 25th centile	Probable	Possible Poor	Probable	Possible Poor
pH		6.10	6.10	7.97	7.52	31	31	23	23
Alkalinity	mg CaCO ₃ /L	27	27	90	86	>100	>100	>100	>100
Ammonia	mg N/L	0.00056	0.00056	0.06	0.01	>100	>100	>100	>100
Ammonia nitrogen	mg N/L	5.4	5	1.81	0.21	-66	-66	-96	-96
Dissolved Asenic	mg/L	0.0016	0.0016	0.004	-	>100	>100	-	-
Chloride	mg/L	440	440	52.50	-	-88	-88	-	-
Dissolved Copper	mg/L	0.001	0.001	0.001	-	5	5	-	-
Fluoride	mg/L	0.13	0.13	0.94	-	>100	>100	-	-
Hardness	mg CaCO ₃ /L	210	210	131	-	-38	-38	-	-
Dissolved Lead	mg/L	0.0011	0.0011	0.00020	-	-82	-82	-	-
Dissolved Nickel	mg/L	0.002	0.002	0.0150	-	>100	>100	-	-
Dissolved Barium	mg/L	0.027	0.0270	0.028	-	4	4	-	-
Dissolved Cadmium	mg/L	0.000051	0.000051	0.00001	-	-80	-80	-	-
Dissolved Iron	mg/L	0.25	0.25	0.005	-	-98	-98	-	-
Dissolved Mercury	mg/L	0.0000039	0.0000039	0.0001	-	>100	>100	-	-
Dissolved Manganese	mg/L	0.13	0.13	0.0590	-	-55	-55	-	-
Dissolved Molybdenum	mg/L	0.0086	0.0086	0.0180	-	>100	>100	-	-
Dissolved Selenium	mg/L	0.0002	0.0002	0.0010	-	>100	>100	-	-
Dissolved Thallium	mg/L	0.00002	0.00002	0.0030	-	>100	>100	-	-
Nitrate	mgN/L	4.00	4.00	10.90	-	>100	>100	-	-
Sulphate	mgN/L	21	21	60.8	-	>100	>100	-	-
Total dissolved solids	mg/L	670	670	530	231.5	-21	-21	-65	-65
Dissolved Zinc	mg/L	0.0051	0.0051	0.001	-	-80	-80	-	-

Footnotes:

Highlighted values represent exceedences of greater than 20% relative percent difference between predicted vs measured values.

*used year 5 predictions for Vault and year 3 for Goose presented in Golder, 2007 - Water Quality Predictions Meadowbank Gold Project Doc No 516. Ver 0

+ Some have no lowew 25th centil as only 2 or 1 samples monitoring B58in 2014

Table 5.2: 2014 Rock Volumes

	Portage Pit (tonnes)												
	Ore	Waste Rock											
		Tailings Dams		Other Construction		Waste Dump		Overburden		Backfill		Total	
		NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG
Q1	474,510	0	0	17,308	86	1,395,922	333,812	4,375	0	79,490	1,441,798	1,497,095	1,775,696
Q2	504,819	31,596	162,625	524,466	145,600	911,771	1,706	1,986	0	18,703	1,262,805	1,488,522	1,572,736
Q3	396,560	130,593	624,120	1,170,700	55,428	202,709	5,564	0	0	33,761	1,228,208	1,537,763	1,913,320
Q4	168,271	452	0	82,042	5,080	1,008,017	409,552	0	0	41,379	1,493,655	1,131,890	1,908,287
TOTAL	1,544,160	162,641	786,745	1,794,516	206,194	3,518,419	750,634	6,361	0	173,333	5,426,466	5,655,270	7,170,039

	Bay-Goose Pit (tonnes)												
	Ore	Waste Rock											
		Tailings Dams		Other Construction		Waste Dump		Overburden		Backfill		Total	
		NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG
Q1	440,357	0	0	4,227	8,229	855,840	152,154	0	0	2,979	560,512	863,046	720,895
Q2	216,732	83	19,623	2,814	0	105,546	1,497	0	0	1,050	252,096	109,493	273,216
Q3	11,563	0	0	0	0	1,432	0	0	0	0	14,755	1,432	14,755
Q4	193,109	0	0	0	3,887	37,830	18,602	0	0	523	266,516	38,353	289,005
TOTAL	861,761	83	19,623	7,041	12,116	1,000,648	172,253	0	0	4,552	1,093,879	1,012,324	1,297,871

	Vault Pit (tonnes)												
	Ore	Waste Rock											
		Tailings Dams		Other Construction		Waste Dump		Overburden		Backfill		Total	
		NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG
Q1	676	0	0	4,133	7,938	1,724,648	66,734	0	0	86,015	0	1,814,796	74,672
Q2	297,177	0	0	29,649	465	3,542,309	369,786	145,850	0	261,576	3,200	3,979,384	373,451
Q3	610,795	0	0	694,261	16,518	2,754,474	494,697	184,755	0	70,513	2,273	3,704,003	513,488
Q4	673,287	0	0	2,348	3,086	2,357,769	710,461	0	0	563	68	2,360,680	713,615
TOTAL	1,581,935	0	0	730,391	28,007	10,379,200	1,641,678	330,605	0	418,667	5,541	11,858,863	1,675,226

	Portage, Bay-Goose and Vault Pits (tonnes)												
	Ore	Waste Rock											
		Tailings Dams		Other Construction		Waste Dump		Overburden		Backfill		Total	
		NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG	NPAG	PAG
TOTAL	3,987,856	162,724	806,368	2,531,948	246,317	14,898,267	2,564,565	336,966	0	596,552	6,525,886	18,526,457	10,143,136

Table 5.3: 2014 Tailings Volume

	Tailings Placed in TSF (m³)
January	428914
February	373270
March	374312
April	426173
May	402361
June	381513
July	387649
August	367890
September	409037
October	357662
November	409538
December	432344
TOTAL	4,750,663

Table 5.4: Tailings Monitoring

Analysis	Date	03-Jan-14	06-May-14	14-Jul-14	04-Oct-14
	Units				
NP	t CaCO ₃ /1000 t	22	20	72	37
AP	t CaCO ₃ /1000 t	44.1	46.6	53.1	56.2
Net NP	t CaCO ₃ /1000 t	-22.5	-26.46	-19.3	-19.45
NP/AP	ratio	0.49	0.43	1.36	0.65
S	%	1.78	2.19	1.93	2.22
Acid Leachable SO ₄ -S	%	0.37	0.7	0.23	0.42
Sulphide	%	1.41	1.49	1.7	1.80
C	%	0.212	0.221	0.937	0.428
CO ₃	%	0.435	0.615	3.51	1.180
Initial pH	units	9.32	9.28	10.0	9.29
Final pH	units	8.91	8.65	9.16	8.42
As	mg/L	0.0173	0.0201	0.0034	0.0117
Cu	mg/L	0.0015	0.0081	0.0030	0.0025
Ni	mg/L	0.0028	0.0021	0.0010	0.0025
Zn	mg/L	< 0.001	< 0.001	< 0.001	0.002

Table 6.1: 2014 Volume of Waste Transferred

Month	Volume of Waste Transferred to AEM Landfill (m³)	Volume of Waste Sent to Incinerator (m³)
January	348	343
February	252	310
March	648	343
April*	538	332
May	558	343
June	642	265
July	606	343
August*	538	343
September	636	332
October	600	343
November	528	332
December	564	343
Total	6,458	3,971

* For April and August, data are missing so AEM made a mean.

Table 6.3: 2014 Hazardous Materials Shipped Off Site

Type of Waste	Type of Packaging and Amount of Items					
	Drum	Tote	Quatrex	60 L steel drum	20 L plastic pail	Container (Bulk)
Acid lead batteries			12			
Activated alumina	7					
Airplane de-icing	15					
Crushed neon	1					
Environmental Hazardous N.O.S (Copper)			4			
Corrosif liquid flammable (Diethylenetriamine)	1					
Empty content	196	17		68	5860	
Empty contaminated steel pail			1			
Flammable compressed gaz N.O.S.			1			
Glycol	3	17				
Glycol and oil mix		40				
Oil filters	186		1			
Oily solids waste	13		448	1		
Oily water		16				
Plastic pail lids (SO)			35			
Scraped tire						7
Tetrachloroethylene			1			
Vegetal oil (cooking)	6					
Vegetal grease (cooking)	19					
Waste diesel	21	9				
Waste Jet fuel	29					
Waste grease	168			53		
Waste Kerosene	19					
Waste lamp			1			
Waste Methanol	1		9			
Waste oil	108	439			2	
Waste paint	1		8			
Waste petroleum distilled	1					
Waste spray cans (aerosols)			22			
TOTAL	795	538	543	122	5862	7

Table 6.4: 2014 Incinerator Ash Monitoring

		Guideline for Industrial Waste Discharge*	Mine Site Incinerator 07/07/2014	Mine Site Incinerator 02/09/2014	Mine Site Incinerator 15/09/2014	Mine Site Incinerator 06/10/2014	Mine Site Incinerator 04/11/2014	Mine Site Incinerator 01/12/2014
	Units							
Arsenic	mg/L	2.5	0.0128	0.2788	0.3291	0.1055	0.0564	0.0859
Barium	mg/L	100	0.3902	0.318	0.0534	0.0658	0.1266	0.2494
Cadmium	mg/L	0.5	0.0084	0.0019	0.0025	0.0035	0.0033	0.0064
Chromium	mg/L	0.5	2.581	2.387	2.354	0.002	0.0079	0.0033
Lead	mg/L	5	<0.0005	0.0125	<0.0005	<0.0005	<0.0005	<0.0005
Mercury	mg/L	0.1	0.00376	0.00655	0.0002	0.00122	0.00099	0.00289
Selenium	mg/L	1	0.039	0.017	0.016	0.017	0.019	0.048
Silver	mg/L	5	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	500	0.013	0.157	0.195	<0.001	0.01	0.011

Footnotes:

* Government of Nunavut Environmental Guideline for Industrial Waste Discharges (D of SD, 2002)

Table 6.5: 2014 Waste Oil - Volume Incinerated or Consumed

Month	Volume of Waste Oil Incinerated at the Incinerator (m ³)	Volume of Waste Oil Consumed in the Furnace (m ³)**
January	1*	6.25
February	1*	6.25
March	1*	6.25
April	1*	6.25
May	0.60	6.25
June	1*	6.25
July	1*	6.25
August	1	6.25
September	1.5	6.25
October	2.25	6.25
November	0.9	6.25
December	0.5	6.25
Total	12.75	75

Footnotes:

* Estimated values

**AEM don't have the detail per month for the waste oil consumption in the furnace

Table 6.6: 2014 Waste Oil Monitoring at Incinerator

	Units	Maximum Allowable Concentration *	13-Jan-14	9-Feb-14	16-Mar-14	7-Apr-14	5-May-14	2-Jun-14
Cadmium	mg/L	2	< 1	< 1	< 1	< 1	< 1	< 1
Chromium	mg/L	10	< 1	< 1	< 1	< 1	< 1	< 1
Lead	mg/L	100	< 5	< 5	< 5	< 5	< 5	< 5
PCB	mg/L	2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorine	mg/L	1000	150	340	230	2100	130	< 100
Flash point	°C	≥ 37.7	73	61	> 80	> 80	> 80	> 80

	Units	Maximum Allowable Concentration *	7-Jul-14	4-Aug-14	2-Sep-14	5-Oct-14	4-Nov-14	1-Dec-14
Cadmium	mg/L	2	< 1	< 1	< 1	< 1	< 1	< 1
Chromium	mg/L	10	< 1	< 1	< 1	< 1	< 1	< 1
Lead	mg/L	100	< 5	< 5	< 5	< 5	< 5	< 5
PCB	mg/L	2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorine	mg/L	1000	< 100	310	58	50	88	68
Flash point	°C	≥ 37.7	> 80	> 80	73	65	> 80	> 80

Footnotes:

* NWT Used Oil and Waste Fuel Management Regulations (NWT, 2003)

Highlighted values exceed the maximum allowable concentration

Table 7.1: 2014 Reported Spills

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-01-02	Diesel	80L	Meadowbank Fuel Farm Fueling Area	O rings on the fuel farm at the fueling station shrunk in the extreme cold weather, causing the diesel to leak out of the joints of the fueling arm.	Site Services to have plumber on site January 8th to replace O-rings. In the meantime a new flexible hose is put in place to stop the leaking. Contaminated soil cleaned up.	No
2014-01-14	Hydraulic oil	96L	Vault Pit Blast #5137825	Rock fell off the face of wall and came in contact with Hydraulic Tank - causing Hydraulic line to break and spill.	Hydraulic line was replaced. 980 Loader collected contaminated snow. Contaminated snow was picked up and brought to contaminated soil pad. Electric/Powerhouse will monitor the genset. No present solution.	No
2014-01-16	Glycol	40L	Vault 6182GEN01-02	Cold leak on Genset 6182GEN01-02	Genset will leak until part can be replaced - estimate of 3 - 6 month before job will be completed. Containment to be placed. Immediately briquettes were safely removed off the ground. No residual cyanide was left outside the sea can, as a skid steer was used to remove the snow in the area of the spill. All of the briquettes and snow were placed in the mixing circuit for use.	No
2014-01-17	Cyanide	30Kg	Outside Reagent Sea-Can at Mill	Operator was using telehandler try and remove the HCN Box from the seacan, but in the process he punctured one cyanide box.	Stop the equipment and let the machine warm up longer. Bring the loader and cleaned up the spill with the bucket and put the contaminated product inside the yellow bin.	Yes
2014-01-20	Transmission oil	5L	Incinerator Parking	Cold weather blocked filter and the oil overflow by the breather on the Fork Hyster.		No

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-01-22	Raw Sewage	300L	Incinerator Parking	The operator of the sewage truck left the valve slightly open after checking to see if it was frozen. After he noticed that sewage was spilling on the ground he went to shut it completely.	After he noticed that sewage was spilling on the ground he went to shut it completely. Operator was met and reminded of operating procedures to prevent any future reoccurrences. Contaminated material was collected and disposed of at the Stormwater management pond. There was no off site impact or discharge to any receiving watercourses. Spill was cleaned up and put into yellow roll-off. Maintenance was notified and pick-up was brought to maintenance for repair during night shift.	Yes
2014-01-27	Power Steering	2L	Site Services Parking	During Pre-operation inspection, operator noticed a small leak under the truck. The power steering hose was leaking fluid.	Cleaned fuel with rags, contained with snow. Contaminated snow brought at tailings pond (1 yard) Rags brought at incinerator.	No
2014-02-09	Fuel	25L	Vault Fuel Farm	Air vent on haul truck #29 did not work properly.	Clean up the spill the Bac 06, put it in the HTR 08 and bring it to the landfarm (pile #00007, app. 25m3).	No
2014-02-12	Hydraulic Oil	95L	Pushback Blast #5067413	Haul truck broken bolt on an hydraulic hose and pump.	Stop the equipment, call mechanics, clean the spill. Contaminated material disposed in yellow bin.	No
2014-02-14	Motor Oil	5L	Incinerator	Broken seal from the filter on incinerator.	Empty the tote, scrape the contaminated snow and put it in the tailings pond.	No
2014-02-15	Glycol	70L	Reclaim Road	Glycol tote with glycol and ice split open when lifting it.	Spill pads were placed on the ground under the spill. Site Services picked up contaminated snow/material with Backhoe and placed in yellow roll off bin.	No
2014-03-01	Engine oil	50L	Haul Truck Parking	During start up of Haul Truck - the air compressor failed and the pressure from the engine oil broke the seal.		No

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-03-06	Diesel Fuel	50L	Refueling station MBK	Overfilling of the fuel truck caused by the rope holding the valve open that got stuck	Snow in the yellow bin than in the tailing	No
2014-03-10	Diesel Fuel	20L	Refueling station MBK	Fuel leak on the mast to fill the fuel truck on one of the joint	Absorbant pads in the HAZMAT and the snow in the tailing	No
2014-03-11	Diesel fuel	25L	Vault tank farm	Valve was not closed properly on fuel line.	Valve was closed and spill contained. Contaminated materiel sent to landfarm	No
2014-03-14	Hydraulic oil	75L	Pit E2 - pattern 5116636	Blown hydraulic hose on backhoe 8.	Spill was stopped and contained. Contaminated materiel sent to landfarm	No
2014-03-19	Sewage black water	50L	Sewage treatment plant	Probably operator error in emptying the vacuum truck. Sewage ended up outside on the pipe.	Was cleaned up and disposed at TSF Precedure updated and operators will be met.	No
2014-03-21	Glycol	50L	TSF	While moving glycol totes, one was leaking.	Used loader 966 to scrapped all glycol and snow and disposed at TSF.	No
2014-04-01	Coolant	60L	End of Maintenance Shop	Backhoe was brought outside and parked at the end of the Maintenance Shop. When operator came to pick up machine he noticed a coolant leak.	Containment drum was placed under the baco. Site Services was called to remove contaminated snow and material.	No
2014-04-06	Hydraulic oil	340L	Vault pit	Failure on stick cylinder	Pick up oil with absorbant pad, pick up contaminated soil and sent it to the landfarm.	Yes
2014-04-08	Hydraulic oil	50L	Behind white coverall	Hydraulic reservoir flows on the ground on lift due to mechanical issue.	Call site services for clean up, call mechanical shop for repair. Contaminated material disposed of in the yellow roll off bin.	No
2014-04-13	Glycol	10L	Genset #7	While filling Genset with Glycol, a failure occured causing glycol to spill through the air vent.	Contaminated snow was picked up and taken to yellow roll off container. Operator will close air vent prior to refilling.	No

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-04-18	Hydraulic oil	20L	Quarry 19 at AWPARG KM 85	Hydraulic hose on loader broke while removing snow from Quarry 19.	Spill Rags were placed on the ground. Oily rags were brought to the incinerator. Contaminated snow was scraped up and brought to the yellow roll off for disposal in the tailings pond.	No
2014-04-20	Diesel	40L	Vault GenSet #1	Genset was not working. Electrician went to repair and noticed a gasket on the fuel flange broke. The pipe emptied itself due to the broken gasket.	Gasket was replaced on the flange. Contaminated snow and gravel will be collected with loader.	No
2014-04-25	Diesel	30L	Goose Pit	While refueling, fuel came out of breather.	Absorbant pads were placed on the ground and contaminated soil was collected.	No
2014-04-25	Diesel	50L	Between tankfarm and incinerator	Unreported spill so unknow	Scraped the contaminated material and brought it to the landfarm	No
2014-04-25	Diesel	50L	South pit view point	Unreported spill so unknow	Scraped the contaminated soil and brought it to the landfarm	No
2014-04-27	Diesel Fuel, Engine Coolant, Oil and Grease	20L	Vault Coverall	Minor leaks from several equipment being parked in this garage	Pump Crew cleaned up contaminated gravel on the floor with hand shovels and pales filling a 45 gallon steel drum	No
2014-04-27	Diesel	30L	Mbk fuel farm	Did not release the pump leaver on time.	Put some absorbant pads and disposed of them at the maintenance hazmat area.	No
2014-04-28	Diesel	30L	Vault Pit	Fuel vent on RBD01 is defective, when wiggins gun reach pressure it shut off like usual and pressure in the fuel tank releases through the fuel vent on top of the tank.	Clean it all out with absorbant pads and dispose of the pads in the waste management drum at the main shop. Contaminated soil disposed of at the yellow roll off then to the tailings pond. Mechanics have been trying to fix the problem on dayshift and on night shift prior to the spill and continue trying to fix the issue with the vent.	No

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-04-28	Diesel	50L	Vault Pit	Breather on RBD01 is defective. When refueling - fuel spill out of breather.	Spill pads were placed on the ground. Contaminated soil was scraped up with loader. Spill Pads were placed in oily rag drum at the maintenance shop and contaminated soil was put in yellow roll off.	No
2014-04-29	Lime	<5Kg	Reagent Laydown	Operator went to bring quicklime into mill and noticed the bag was torn in the sea can.	Material was shoveled into a skidsteer bucket and brought into the Mill.	No
2014-05-02	Glycol	1L	Heat exchanger	While transferring glycol into a tote, the wind blow the glycol on the ground.	Contaminated soil cleanu-up and adqutely disposed of.	No
2014-05-02	Glycol	30L	Under wing 3 and 4	Welding broke on the glycol line.	Weld the pipe again and inspect all the lines.	No
2014-05-06	Oil	20L	BL gate house	Crank case vent plug up and improper oil filling technic of 61GEN07.	Spill partially removed. Unable to remove all the frozen ground. We will do a follow up on the next week round.	No
2014-05-06	Transmission oil	4L	Behind Portage waste rock	The transmission line broked	Used absorbant pads and shoveled the contaminated soil. Contaminated soil disposed at the Landfarm	No
2014-05-07	Diesel	25L	SO2 plant	Fuel cap doesn't tighted properly, the pick up wasn't parcked leveled so fuel leaked out 1000kg bag was damaged during the winter. Bag stayed in Sea-can over winter and was to disposed of in the tailings pond. While removing the bag from the sea-can, the bottom gave out and caused the spill.	Absorbent pad has been use and the contaminated soil remove and haul on proper bin.	No
2014-05-13	Quick Lime	500Kg	Tailings Interception Sump	New vent kit was installed on Fuel Truck last month but still having issues with breather. Fuel comes out of breather while refueling.	Site Services cleaned up area with loader and disposed of material into the tailings pond.	Yes
2014-05-16	Diesel	10L	Vault Pit near blast pattern		Mechanic will troubleshoot new vent kit. Contaminated material clean-up and Oily Rag disposed in drum in maintenance shop	No

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-05-18	Diesel	30L	Vault Waste Dump	Breather was plugged causing fuel to spill.	Material was scraped up with loader and taken to contaminated soil pad. Maintenance is working on correcting the problem with equipment.	No
2014-05-19	Lead Cupels	19Kg	Between Assay Lab Warehouse door and Mill Transformers	A number of lead cupels were found on the ground beside the disposal bin after the snow melt. Cause unknown but probably human error.	Area was cleaned up and lead cupels were shovelled into disposal bin. Bin is sent to Mill Stockpile when full.	No
2014-05-29	Waste Oil	80L	Near incinerator	Broken valve on waste oil tote inside the sea-can and some oil spilled on the ground.	Transfer the remaining oil in an other tote. Clean-up contaminated soil with loader and disposed into roll-off yellow bin. Contaminated soil disposed at the landfarm.	No
2014-05-29	Sodium Metabisulphite	5L	Mill Sea-Can Lay Down Area	Zoom boom operator went to bring out a bag of Metabisulphite from sea-can. Pallet broke and caused bag to fall in pool of water outside the sea-can. Operator lifted the bag up to put it back in sea-can and noticed the bag had ripped. Product spilled in the pool of water while operator lifted bag back into sea-can.	Any Metabisulphite not spilled in water was picked up and taken into the mill and added to grinding sump. Vacuum truck sucked up pool of water surrounding the sea-can. S/S will scrape area with loader and replace with some clean 3/4" fill.	No
2014-06-02	Caustic soda	45.4Kg	Row 11 Seacan Laydown	While moving a seacan containing Caustic soda with the Hyster, 5 bags of product fell out of the seacan. Upon contact with the ground, the bags bursted open as they fell 10 to 12. feet	Area of spill was immediately taped off to prevent anyone to go near the spill area, product was cleaned up and disposed of at Tailings pond.	Yes
2014-06-06	Jet-A fuel	20L	Baker Lake Jet A Pad	AFS truck driver didn't open the main air valve on the trailer creating a by-pass and causing a spill on the ground.	Ground has been scraped and contaminated material will be bring at the Meadowbank landfarm later	No
2014-06-07	Hydraulic oil	20L	Pit D	Broken hydraulic hose on the boom of Loader 980	Cleaned-up of the area and contaminated material disposed at the landfarm	No

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-06-11	Diesel	20L	In front of Blue Maintenance Coverall	Equipment was parked in front of Blue Maintenance Coverall for repair. When equipment was moved inside a small spill was visible on the ground.	Contaminated Material was shoveled and picked up and disposed at the landfarm	No
2014-06-20	Contaminated water	60L	East side of the leach pad	A hole was discover through the secondary containment concrete floor and water was starting to come out of the secondary containment on the east side.	A plastic bag was installed as well as some slurry berm around the hole to prevent more water to seep out. The floor was fix later on using SIKA Grout 212 and EWL	No
2014-06-23	Used Sika Equipment Cleaner	10L	Entrance to Mill smoke shack by reagent bay	Used 20L pail of Sika equipment cleaner was used to keep open the door of the Mill smoke shack. The wind knocked over the pail.	Mill Maintenance employee quickly put absorbant pads on the spill. The skidsteer picked up the contaminated material and was processed through the sag mill.	No
2014-07-08	Diesel	10L	Dome side of the truck shop	A punctured secondary containment container.	Damaged container will be repaired by the welding shop. The area was cleaned up by site surfaces and contaminated material disposed of to the landfarm.	No
2014-07-11	Drill Oil	140L	Row 2 of Laydown sea can	Pallet wrap broke off while being relocated, the tubs then fell off balanced and 7 tubs of 20L were spilled.	Empty Pails relocated to Hazmat. Contaminated soil was scraped and disposed of to the landfarm.	Not reported following logistic error
2014-07-11	Diesel	25L	Vault Fuel unloading station	Gasket hose broke on equipment	Hose gasket replaced. Contaminated material cleaned up and disposed of at the landfarm.	No
2014-07-14	Hydraulic oil	4L	Between power plant and dome warehouse	Broken hydraulic hose on zoom-boom	Stopped equipment immediately and layed down absorbant pads. Cleaned up of the contaminated material and advised the truck shop for repairs.	No

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-07-15	Tailing Slurry	1000L	Mill garage door A	Inside the mill, while mill was operating, the tailings line became disconnected. Before being able to completely stop the mill operation the tailings continued to come out of the pipe. The vast majority of the tailings slurry stayed inside the mill. However, the level became high enough that some leaked outside the door of the mill.	Site services department immediately commenced clean up of the slurry. Back hoes were used to mix slurry with rock fill. This material was excavated and disposed to the Tailings Storage Facility.	Yes
2014-07-20	Hydraulic oil	20L	East side of the truck shop	Leaking cylinder hydraulic hose on HTR 04.	Put some absorbant. Cleaned up the contaminated soil and sent it to the landfarm.	No
2014-07-29	Hydraulic oil	5L	In front of the warehouse dome	Broken hydraulic hose.	Stop the machine and put some absorbant pads. Call site services for clean up and disposed of the contaminated material in the yellow roll off. Call maintenance to fix the broken hose.	No
2014-08-06	Coolant	10L	End of truck shop	Mechanical issues on Hault truck.	Leak was stopped. Contaminated soil cleaned-up soil and disposed adequately.	No
2014-08-11	Diesel	200L	Baker Lake Diesel Refuelling Station	The truck driver hear a strange sound during the refuelling. He looked and see nothing. By the time he go to stop the pump, diesel fuel goes on the ground.	Stop the pump. Spill absorbents were deployed to absorb fuel. Contaminated soil was picked up and will be bring to the Landfarm on the Meadowbank Mine Site. Artic Fuel company advised all of his employees to always shut off the pump in first when they hear or see anything wrong.	Yes
2014-08-12	Drill Oil	140L	Transit Laydown	Pallet of drill oil tipped during the transport.	All the contaminated material was cleaned-up with the loader and sent to contaminated soil landfarm.	Yes
2014-08-19	Hydraulic oil	5L	Road near refer pad	Hydraulic hose failed on equipment.	Call maintenance to plug the leak.	No

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-08-23	Engine oil	90L	Vault Sana Crusher	Engine crankcase rupture.	Cleaned-up of the area and contaminated material disposed at the landfarm	No
2014-08-25	Copper Sulphate	5Kg	Transit Laydown	During packaging one bag was damage. Once on site when we open the container small amount of copper sulphate leaked out.	Cleaned up contaminated material and brought it to the tailing pond.	Yes
2014-09-27	Hydraulic Oil	15L	Goose Pit Ramp Access	Mechanical failure on compressor	Site Services was notified and asked to scrape area with shovel	No
2014-10-01	Mix coolant and oil	50L	Winter Parking	Leaking reservoir & hoses on Bac 10 Overhaul	Most of contaminants was removed with absorbent pads. Remainder of contaminants was removed by site services loader. Contaminated material sent to landfarm.	No
2014-10-09	Engine oil	30L	Waste dump ramp	Engine failure on haul truck	Contaminated material cleaned up and disposed adequately.	No
2014-10-22	Diesel	20L	PowerHouse	Tanker has been filled at full capacity and was parked in an angle. The fuel start to flow by the overflow of the tank.	Contaminated snow has been removed and brings to the yellow roll-off bin. Tanker driver has been informed to not fill the tank at full capacity.	No
2014-10-25	Hydraulic oil	90L	Top of Pushback Ramp	Hydraulic pump broke on RH120	A tote was installed under equipment to prevent further spilling. Berm was created and contaminated material was picked up with shovel and disposed off at the contaminated soil pad.	No
2014-10-25	Hydraulic oil	60L	Vault Pit	Hydraulic pump broke on BACK 10	Absorbant Pads were placed down and then sent to Hazmat area	No
2014-11-02	Used Oil	50L	Outside Incinerator	Operator was cleaning snow around the incinerator and got too close to the tote. Loader damage top of tote.	Loader removed contaminated material with bucket. Tote was brought into incinerator	No

Date of Spill	Hazardous Material	Quantity (L/Kg)	Location	Cause of spill	Clean-up action taken	Reported to Spill Hot Line
2014-11-15	Hydraulic oil	40L	Vault Parking	Hydraulic oil hose busted on HTR 20	Put absorbents pads on the spills. Scrapped the ground and cleaned up with IT14. Disposal of contaminated material in the roll off bin.	No
2014-11-23	Compressor oil	30L	Old Warehouse Cover-all	Air filters were frozen, oil ended up going out through the relief valve	Contaminated soil piled into 1 spot using a grader, picked up with CAT IT-14 than placed inside yellow roll-off bin	No
2014-12-30	Hydraulic oil	30L	Winter Parking	Broken seal due to cold weather	All the contaminated material was cleaned-up and adequately disposed of	No

Table 7.3: 2014 Mill Seepage Water Quality Monitoirng

Regulatory limit				Date	Assay road seep North					Assay road seep South					Mill Trench				TPL - Assay			
Parameters	Water Licnese	MMER	CCME		CN t (mg/L)	CN WAD (mg/L)	Free CN (mg/L)	Cu (mg/L)	Fe (mg/L)	CN t (mg/L)	CN WAD (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)	1	1	NA	07/11/2013	281	112	60	3.87	2.8	85.5	43.46	60	3.895	1.8	Frozen				Frozen			
				16/11/2013			Frozen					Frozen										
				09/12/2013			Frozen					Frozen										
				13/01/2014			Frozen					Frozen										
CN WAD (mg/L)	NA	NA	NA	10/02/2014			Frozen					Frozen			Frozen				Frozen			
				08/04/2014			Frozen					Frozen										
				14/04/2014			Frozen					Frozen										
Free CN (mg/L)	NA	NA	0.005	26/05/2014	0.48			0.20	2.60					0.087		0.0103	1.0	Shoreline breaking up				
				17/06/2014	5.49		0.596	3.24	0.91			0.426		0.436	0.061	0.0567	1.6					
				28/06/2014			Dry					Dry						0.005	<0.005	0.0014	0.04	
				21/07/2014			Dry					Dry		0.378	0.02	0.031	1.6	<	0.005	<0.01	0.0011	0.04
Cu (mg/L)	0.2	0.6	0.002	14/08/2014			Dry					Dry										
				19/08/2014			Dry					Dry		0.173	0.028	0.0115	1.5	<	0.005	<0.01	0.0016	0.05
Fe (mg/L)	NA	NA	0.3	10/09/2014	0.06	Not enough water to fill all bottle				0.07	Not enough water to fill all bottle											
				29/09/2014			Dry					Dry		0.030		0.0077	0.77	<	0.005		0.0009	0.03

Regulatory limit				Date	MW-04				MW-05				MW-06				MW-07				MW-08						
Parameters	Water Licnese	MMER	CCME		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)	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)	1	1	NA	07/11/2013																							
				16/11/2013																							
				09/12/2013																							
CN WAD (mg/L)	NA	NA	NA	13/01/2014																							
				10/02/2014																							
				08/04/2014																							
				14/04/2014																							
Free CN (mg/L)	NA	NA	0.005	26/05/2014		Dry			Dry				Dry				Dry										
				17/06/2014		Dry			Dry				Dry			0.069	<0.005	0.14	2.2	0.024	<0.005	0.11	0.41				
				28/06/2014		Dry			Dry				Dry				Dry										
				21/07/2014		Dry			Dry				Dry				Dry			<	0.005	<0.01	0.01	0.43			
Cu (mg/L)	0.2	0.6	0.002	14/08/2014		Dry			Dry				Dry				Dry										
				19/08/2014		0.12	<0.01	0.08	5.8	<	0.005	<0.01	0.03	2.2	0.1	<0.01	0.24	4.8	0.046	<0.01	0.11	9.4	<	0.005	<0.01	0.05	6.4
				10/09/2014		Dry			Dry				Dry				Dry										
Fe (mg/L)	NA	NA	0.3	29/09/2014		Dry			Dry				Dry				Dry			0.0013		0.13	10.9				

Table 8.1: 2014 GPS Coordinates of Meadowbank Mine Site Sampling Location

Sample Location Description	Sample ID	GPS Coordinates Easting / Northing
<i>MMER and EEM</i>		
Portage Attenuation Pond effluent water quality monitoring and toxicity testing	ST-9 / ST-MMER-1	14W 0637593 7215174
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
Portage Attenuation Pond water quality monitoring in receiving environment - discharge area	TPN	14W 0636531 7214581
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	MB-Fuel	14W 0638258 7213430
<i>Baker Lake Bulk Fuel Storage Facility</i>		
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
Water quality monitoring of discharge from secondary containment area for Jet-A tank	ST-40.3	15W 0357487 7134617
<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

Sample Location Description	Sample ID	GPS Coordinates Easting / Northing
<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>Portage Attenuation Pond</i> Water quality monitoring	ST-18	14W 0638335 7214719
<i>Vault Attenuation Pond</i> Water quality monitoring	ST-25	15W 0359030 7219607
<i>Portage Waste Rock Storage Facility</i> Water quality monitoring of seepage from Waste Rock Storage Facility	ST-16	14W 0638617 7216164
<i>Vault Waste Rock Storage Facility</i> 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

Sample Location Description	Sample ID	GPS Coordinates Easting / Northing
<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 WSF	ST-5	14W 0638732 7216495
<i>Vault Lake Dewatering</i>		
Dewatering water quality monitoring of Vault Lake	ST-DD-3	15W 359686 7219718

Table 8.2 : Vault Lake Dewatering Monitoring

Date	ST-DD-3				Both pump								WLE	
	Turbidity	TSS	pH	Total Aluminium	NTU 24-hour Mean	NTU 30-day Mean	TSS 24-hour Mean	TSS 30-day Mean	pH 24-hour Mean	pH 30-day Mean	Al 24-hour Mean	Al 30-day Mean	Turbidity	TSS
	NTU	mg/L		mg/L	30	15	22.5	15	6.0 - 9.0	6.0 - 9.0	3	1.5	NTU	mg/L
21/06/2014	13.09	9.20	8.23		13.09	13.09	9.20	9.20	8.23	8.23				
22/06/2014	12.81	13.20	8.21		12.81	12.95	13.20	11.20	8.21	8.22				
23/06/2014	16.43	16.70	7.64		16.43	14.11	16.70	13.03	7.64	8.03				
24/06/2014	13.65	10.00	7.80	0.239	13.65	14.00	10.00	12.28	7.80	7.97	0.239	0.24	NA	1.00
25/06/2014	12.62	8.40	7.96		12.62	13.72	8.40	11.50	7.96	7.97		0.24		
26/06/2014	12.21	7.20	8.02		12.21	13.47	7.20	10.78	8.02	7.98		0.24		
27/06/2014	10.84	10.80	7.56		10.84	13.09	10.80	10.79	7.56	7.92		0.24		
28/06/2014	10.90	8.80			10.90	12.82	8.80	10.54		7.92		0.24	NA	1.00

Table 8.3: 2014 Water Transfers around the Mine Site

Water Pumped From Various Mine Site Locations (m³)						
	North Pit (ST-17)	South Pit (ST-19)	Stormwater Management Pond	Bay Goose (ST-20)	Waste Rock Seepage (ST-16)	Vault Pit (ST-23)
January	0	0	0	26,304	0	0
February	0	0	0	31,040	0	0
March	0	0	0	17,601	0	0
April	0	0	0	16,210	0	0
May	0	0	20,175	31,906	14,591	0
June	0	0	6,067	31,158	9,294	0
July	0	0	0	23,072	3,810	9,146
August	0	13,212	3,417	36,083	3,386	53,542
September	0	47,195	6,925	34,163	1,088	26,539
October	0	4,396	0	21,596	0	11,250
November	0	0	0	12,989	0	1,140
December	0	0	0	15,252	0	0
Total	0	64,803	36,584	297,375	32,169	101,617
Water Pumped TO Various Mine Site Locations						
	North Pit	South Pit	Stormwater Management Pond	Bay Goose	Waste Rock Seepage	Vault Pit
	pumped to Attenuation Pond	from January to August pumped to Stormwater Management Pond #1; from September to December pumped to Attenuation Pond	pumped to Tailings Pond	Pumped to attenuation pond or to Bay Goose pond	pumped to Tailings Pond	pumped to Vault Attenuation Pond

Table 8.4: 2014 Portage Attenuation Pond Water Quality Monitoring (ST-18)

Lab Identification		ST-18	ST-18	ST-18	ST-18	ST-18
Date	Units	03/06/2014	01/07/2014	05/08/2014	07/09/2014	13/10/2014
Conductivity*	µS/cm	1830	1021	1497	2870	
pH*		6.86	7.78	7.83		
Turbidity*	NTU	38.9	26.3	8.1	2.2	
TDS	mg/L	754	2628	1155	1283	1363
Total alkalinity	mg CaCO ₃ /L	113	96	103	114	106
Ammonia (NH ₃)	mg N/L	0.12	0.20	0.00	0.18	0.19
Ammonia-nitrogen (NH ₃ -NH ₄)	mg N/L	8.50	8.40	9.70		11.80
Arsenic (As)	mg/L	0.0041	0.0061	0.0005	0.0111	0.0084
Copper (Cu)	mg/L	0.0076	0.0064	0.0005	0.0054	0.0065
Lead (Pb)	mg/L	< 0.0003	< 0.0003	0.0003	< 0.0003	0.0017
Nickel (Ni)	mg/L	0.0427	0.0398	0.0005	0.0659	0.0727
Zinc (Zn)	mg/L	0.002	0.040	0.001	0.006	0.012
Hardness	mg/L		318	406		
Nitrate	mg/L		1.2	1.3		
Nitrite	mg/L		0.27	0.21		
Chloride (Cl)	mg/L		84.40	112.00		
Fluoride (F)	mg/L		0.57	0.56		
Sulphate (SO ₄ -4)	mg/L		471	612		
Dissolved aluminum (Al)	mg/L	<	0.006	< 0.006		
Dissolved arsenic (As)	mg/L		0.0041	0.0068		
Dissolved barium (Ba)	mg/L		0.0447	0.0462		
Dissolved cadmium (Cd)	mg/L		0.00007	0.0001		
Dissolved copper (Cu)	mg/L		0.0041	0.0052		
Dissolved iron (Fe)	mg/L	<	0.01	0.01		
Dissolved lead (Pb)	mg/L	<	0.0003	< 0.0003		
Dissolved manganese (Mn)	mg/L		2.43	2.86		
Dissolved mercury (Hg)	mg/L	<	0.0001	< 0.0001		
Dissolved molybdenum (Mo)	mg/L		0.0237	0.0269		
Dissolved nickel (Ni)	mg/L		0.0346	0.041		
Dissolved selenium (Se)	mg/L		0.001	0.004		
Dissolved silver (Ag)	mg/L	<	0.0001	< 0.0001		
Dissolved thallium (Tl)	mg/L	<	0.005	< 0.005		
Dissolved zinc (Zn)	mg/L	<	0.001	< 0.001		

Footnotes:

* Parameter measured in the field by environment department

Table 8.5: 2014 Vault Attenuation Pond Water Quality Monitoring (ST-25)

Lab Identification		08/07/2014	06/08/2014	09/09/2014
Date	Units			
Conductivity	µS/cm	105.900	191.9	
pH		7.340	7.34	
Turbidity	NTU	1.440	10.34	
TDS	mg/L	80.000	144	229
Total alkalinity	mg CaCO ₃ /L	33.000	41	52
Ammonia (NH ₃)	mg N/L	< 0.010	0.02	0.03
Ammonia-nitrogen (NH ₃ -NH ₄)	mg N/L	0.730	1.7	
Arsenic (As)	mg/L	< 0.001	0.0023	0.0019
Copper (Cu)	mg/L	0.002	0.004	0.0033
Lead (Pb)	mg/L	0.019	< 0.0003	< 0.0003
Nickel (Ni)	mg/L	0.001	0.0033	0.0042
Zinc (Zn)	mg/L	< 0.001	0.002	< 0.001
Total Cyanide	mg/L	< 0.005	< 0.005	0.017
Hardness	mg CaCO ₃ /L	49.000	74	
Nitrate	mg N/L	1.400	3.2	
Nitrite	mg N/L	0.030	0.13	
Chloride (Cl)	mg/L	0.600	7.6	
Fluoride (F)	mg/L	0.170	0.11	
Sulphate (SO ₄ -2)	mg/L	17.900	29.9	
Dissolved aluminum (Al)	mg/L	0.026	< 0.006	
Dissolved arsenic (As)	mg/L	< 0.001	< 0.0005	
Dissolved barium (Ba)	mg/L	0.008	0.0183	
Dissolved cadmium (Cd)	mg/L	< 0.000	0.00003	
Dissolved copper (Cu)	mg/L	0.001	0.0026	
Dissolved iron (Fe)	mg/L	0.030	0.04	
Dissolved lead (Pb)	mg/L	0.013	< 0.0003	
Dissolved manganese (Mn)	mg/L	< 0.001	0.0044	
Dissolved mercury (Hg)	mg/L	< 0.000	< 0.0001	
Dissolved molybdenum (Mo)	mg/L	0.005	0.0103	
Dissolved nickel (Ni)	mg/L	0.001	0.0022	
Dissolved selenium (Se)	mg/L	< 0.001	0.001	
Dissolved silver (Ag)	mg/L	< 0.000	< 0.0001	
Dissolved thallium (Tl)	mg/L	< 0.005	< 0.005	
Dissolved zinc (Zn)	mg/L	< 0.001	0.001	
Aluminum	mg/L	0.123		
Antimony	mg/L	0.000		
Arsenic	mg/L	< 0.001		
Boron	mg/L	< 0.010		
Barium	mg/L	0.008		
Beryllium	mg/L	< 0.001		
Cadmium	mg/L	< 0.000		
Copper	mg/L	0.002		
Chromium	mg/L	< 0.001		
Cobalt	mg/L	< 0.001		
Iron	mg/L	0.120		
Lithium	mg/L	< 0.005		
Manganese	mg/L	0.016		
Mercury	mg/L	< 0.000		
Molybdenum	mg/L	0.005		
Nickel	mg/L	0.001		
Lead	mg/L	0.019		
Selenium	mg/L	< 0.001		
Tin	mg/L	< 0.001		
Strontium	mg/L	0.071		
Titanium	mg/L	0.010		
Thallium	mg/L	< 0.005		
Uranium	mg/L	0.001		
Vanadium	mg/L	0.001		
Zinc	mg/L	< 0.001		

Footnotes:

* Parameter measured in the field by environment department

Table 8.6: 2014 Vault Pit Sump Water Quality Monitoring (ST-23)

Date		2014-05-19	2014-08-06
Lab Identification	Units		
pH		6.53	7.73
Turbidity	NTU	19.9	18
Alkalinity	mg CaCO ₃ /L	50	127
Ammonia	mg N/L	0.03	0.33
Ammonia- nitrogen	mg N/L	2	26.7
As	mg/L	0.0023	0.0395
Cu	mg/L	0.002	0.0229
Ni	mg/L	0.0035	0.049
Pb	mg/L	< 0.0003	0.0378
TDS (dissolved solids)	mg/L	175	736
Zn	mg/L	0.002	0.026
Hardness	mg CaCO ₃ /L		378
Nitrate (NO ₃)	mg N/L		46.4
Nitrite (NO ₂)	mg N/L		1.5
Chloride	mg/L		30.9
Fluoride	mg/L		0.26
Sulphate (SO ₄ -4)	mg SO ₄ /L		148
Dissolved Ag	mg/L		< 0.0001
Dissolved Al	mg/L		< 0.006
Dissolved As	mg/L		0.0127
Dissolved Ba	mg/L		0.0588
Dissolved Cd	mg/L		0.0003
Dissolved Cu	mg/L		0.0116
Dissolved Fe	mg/L		0.22
Dissolved Hg	mg/L		0.0001
Dissolved Mn	mg/L		0.1328
Dissolved Mo	mg/L		0.1089
Dissolved Ni	mg/L		0.0254
Dissolved Pb	mg/L		< 0.0003
Dissolved Se	mg/L		0.007
Dissolved Tl	mg/L		< 0.005
Dissolved Zn	mg/L		0.002

Footnotes:

*Parameter measured in the field by environment department

Table 8.7: 2014 Saddle Dam 1 Water Quality Monitoring (ST-S-2)

Date		12-May-14	3-Jun-14	1-Jul-14	5-Aug-14	2-Sep-14
Lab Identification	Units	ST-S-2	ST-S-2	ST-S-2	ST-S-2	ST-S-2
Alkalinity	mg CaCO ₃ /L	47	46	76	66	95
Ammonia	mg N/L	0.01	< 0.01	0.06	0.08	0.04
Ammonia nitrogen	mg N/L	1.00	0.19	3.60	4.30	2.10
Chloride	mg/L	30.3	2.4	74.7	16.8	12.5
Hardness	mg CaCO ₃ /L	63	29	345	249	307
Nitrate (NO ₃)	mg N/L	1.2	0.5	14.4	14.2	19.1
Sulphate (SO ₄ -4)	mg SO ₄ /L	53.5	16.5	352.0	230.0	209.0
pH*		6.92	7.28	7.60	7.33	7.42
Turbidity*	NTU	27.30	63.90	31.50	9.38	2.47
Silver	mg/L	< 0.0001	< 0.0001	<0.0001	<0.0001	< 0.0001
Aluminium	mg/L	0.484	0.672	0.313	0.259	0.058
Arsenic	mg/L	0.0052	0.0078	0.0405	0.0467	0.0401
Barium	mg/L	0.010	0.008	0.026	0.026	0.031
Cadmium	mg/L	0.00006	< 0.00002	0.00015	0.00007	< 0.00002
Chromium	mg/L	0.0028	0.0047	0.0017	0.0026	0.0007
Copper	mg/L	0.0185	0.0119	0.0117	0.0050	0.0043
Fluoride	mg/L	0.06	0.03	0.41	0.40	0.38
Iron	mg/L	0.96	1.40	0.48	0.29	0.08
Mercury	mg/L	< 0.00001	< 0.00001	<0.00001	<0.00001	< 0.00001
Manganese	mg/L	0.084	0.053	0.483	0.272	0.337
Molybdenum	mg/L	0.007	0.002	0.042	0.026	0.026
Nickel	mg/L	0.0086	0.0090	0.0447	0.0352	0.0372
Lead	mg/L	< 0.0003	< 0.0003	<0.0003	<0.0003	< 0.0003
Selenium	mg/L	0.003	< 0.001	0.001	<0.001	0.002
Thalium	NTU	< 0.005	< 0.005	<0.005	<0.005	< 0.005
Zinc	mg/L	0.005	0.001	<0.001	0.002	0.004

Footnotes:

* Parameters measured in field by environment department

Table 8.8: 2014 Bay Goose Pit Sump Water Quality Monitoring (ST-20)

Date	Units	11-Mar-14	3-Jun-14	1-Jul-14	10-Aug-14	8-Sep-14
pH*		8.38	6.82	8.21	8.22	8.24
Turbidity*	NTU	2.8	30.9	79.2	7.4	16.4
Alkalinity	mg CaCO ₃ /L	93	90	94	83	88
Ammonia	mg N/L	0.01	0.05	0.22	0.03	0.01
Ammonia nitrogen (NH ₃ -NH ₄)	mg/L	0.02	2.40	5.60	0.40	0.61
TDS (dissolved solids)	mg/L	175	288	1544	319	322
Arsenic As	mg/L	0.017	0.006	0.005	0.008	0.006
Copper Cu	mg/L	< 0.0005	0.0022	0.0005	0.0022	0.0020
Nickel Ni	mg/L	0.0018	0.0137	0.0109	0.0360	0.0277
Lead Pb	mg/L	0.0006	< 0.0003	< 0.0003	0.0009	< 0.0003
Zinc Zn	mg/L	< 0.001	0.001	< 0.001	0.003	0.009
Conductivity*	us/cm	310	463	517	473	477
Hardness	mg CaCO ₃ /L			111	151	
Nitrate (NO ₃)	mg N/L			16.4	5.3	
Nitrite (NO ₂)	mg N/L			0.39	0.13	
Chloride	mg/L			73.6	31.3	
Fluoride	mg/L			0.91	0.96	
Sulphate (SO ₄ -4)	mg SO ₄ /L			50.9	70.6	
Dissolved Ag	mg/L		<	0.0001	< 0.0001	
Dissolved Al	mg/L			0.016	0.046	
Dissolved As	mg/L			0.001	0.006	
Dissolved Ba	mg/L			0.016	0.039	
Dissolved Cd	mg/L		<	0.00002	< 0.00002	
Dissolved Cu	mg/L		<	0.001	0.001	
Dissolved Fe	mg/L		<	0.010	< 0.010	
Dissolved Hg	mg/L			0.0001	< 0.0001	
Dissolved Mn	mg/L			0.012	0.107	
Dissolved Mo	mg/L			0.019	0.017	
Dissolved Ni	mg/L			0.004	0.025	
Dissolved Pb	mg/L		<	0.0003	< 0.0003	
Dissolved Se	mg/L			0.001	0.001	
Dissolved Ti	mg/L		<	0.005	< 0.005	
Dissolved Zn	mg/L		<	0.001	< 0.001	

Footnotes:

*Parameter measured in the field by environment department

Table 8.9: 2014 Non Contact Water West Diversion Ditch Water Quality Monitoring (ST-6)

Parameters	Date Units	Limit maximum	31-May-14	17-Jun-14	24-Jun-14	1-Jul-14	5-Aug-14	2-Sep-14	6-Oct-14
pH*			6.66		7.12	7.06	7.21	7.52	7.32
Turbidity*	NTU		16.31		0.29	0.00	0.33	0.43	0.22
CN	mg/L		0.007		0.005	< 0.005	0.005	< 0.005	< 0.001
TSS	mg/l	30	13	2	4	< 1	1	< 1	7
Ra	Bq/l		< 0.002		0.002	< 0.002	< 0.002	0.002	0.002
Al	mg/l		0.37		0.02	0.05	0.15	0.03	0.03
As	mg/L		< 0.0005		0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cu	mg/L		0.0060		0.0005	< 0.0005	0.0013	0.0008	0.0005
Ni	mg/L		0.0064		0.0007	< 0.0005	0.0016	0.0012	0.0006
Pb	mg/L		< 0.0003		0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
SO ₄	mg/L		8.5		5.2	6.0	10.4	8.5	3.8
Zn	mg/L		0.005		0.010	< 0.001	0.003	< 0.001	< 0.001

Footnotes:

* Parameters measured in the field by environment department

Table 8.10: 2014 Non Contact Water East Diversion Ditch Water Quality Monitoring (ST-5)

Parameters	Date Units	Limit maximum	31-May-14	17-Jun-14	24-Jun-14	1-Jul-14	5-Aug-14	2-Sep-14
pH*			6.51		7.55	7.65	8.13	7.53
Turbidity*	NTU		16.14		1.88	0.53	0.72	0.67
CN	mg/L		0.011		0.010	< 0.005	0.007	< 0.005
TSS	mg/l	30	10	1	1	< 1	1	1
Ra	Bq/l		0.006		0.002	< 0.002	< 0.002	0.003
Al	mg/l		0.33		0.07	0.03	0.02	0.05
As	mg/L		0.0052		0.0005	< 0.0005	< 0.0005	0.0006
Cu	mg/L		0.0122		0.0005	0.0016	0.0082	0.0073
Ni	mg/L		0.0072		0.0186	0.0026	0.0082	0.0058
Pb	mg/L		< 0.0003			< 0.0003	< 0.0003	< 0.0003
SO ₄	mg/L		16		115	514	122	74
Zn	mg/L		< 0.001		0.010	0.002	0.003	0.001

Footnotes:

* Parameters measured in the field by environment department

Table 8.11: 2014 Tailings Reclaim Pond Water Quality Monitoring (ST-21)

Monthly Monitoring

Date	Units	08/01/2014	04/02/2014	11/03/2014	08/04/2014	06/05/2014	03/06/2014	01/07/2014	05/08/2014	07/09/2014	07/10/2014	04/11/2014	01/12/2014**
Alkalinity	mg CaCO ₃ /L	135	120	95	110	73	67	90	89	84	93	120	127
Ammonia (NH ₃)	mg/L						0.42	1.3	0.7	0.56	0.52	1.2	88.2
Chloride	mg/L	1035	1289	1860	2153	1549	727	1235	1847	2236	2372	2902	256
Cyanide (Cn(tot))	mg/L	8.33	9.17	14.49	23.1	11.69	6.21	0.913	1.33	3.36	17.79	20.54	6.02
Fluoride	mg/L	0.18	< 0.02	6.8	0.32	2.2	0.41	2	0.48	3.7	4.8	1.5	< 0.02
Hardness	mg CaCO ₃ /L	1329	1428	1286	1721	949	674	1265	1246	1390	1387	1693	659
Copper (Cu)	mg/L	9.135	10.9	5.466	0.37	0.9237		3.538	0.015	0.5292		1.393	1.7009
Nitrate (NO ₃)	mg/L	25.5	32	29.8	27.7	24.2	14.3	26.7	33.5	21.7	35.6	39.6	3.7
Nitrite (NO ₂)	mg/L	0.97	0.97	0.8	0.58	0.24	0.16	0.19	0.24	0.19	0.19	0.2	0.3
pH*		7.39	7.45	8.12	9.25	8.19	7.05	8.18	7.8	7.32		7.91	7.58
Sulphate (SO ₄ -4)	mg SO ₄ /L	2115	2496	2542	2275	2015	1251	2289	2683	2400	2359	3033	951
TDS	mg/L	1329	2660	2740	4633	3878	2142	8573	3909	3636	4746	1694	1461
Turbidity*	NTU	4.6	4.86	0.98	3.3	10.57	13.88	3.94	3.78	8.09	0.95	2.41	1.21
Dissolved Ag	mg/L	< 0.0001	0.0107	0.0036	0.0041	0.0016	0.0042	< 0.0001	< 0.0001	0.0222	0.0333	0.1837	0.0032
Dissolved Al	mg/L	0.072	0.15	< 0.006	0.079	0.139	0.046	0.099	0.134	0.072	0.034	0.109	0.04
Dissolved As	mg/L	0.021	0.031	0.024	0.0229	0.0162	0.0085	0.007	0.0143	0.0075	0.018	0.0254	0.0122
Dissolved Ba	mg/L	0.0838	0.0914	0.1096	0.1219	0.0826	0.0512	0.0691	0.0791	0.0893	0.1068	0.1048	0.0439
Dissolved Cd	mg/L	0.00134	0.00173	0.00417	0.0004	0.00267	0.00065	0.00084	0.0013	0.00114	0.00266	0.00303	0.00026
Dissolved Cu	mg/L	9.053	10.9	2.189	0.2578	0.7796	8.398	0.7023	0.8784	2.139	8.68	1.261	1.267
Dissolved Fe	mg/L	0.03	0.08	0.69	0.09	0.29	0.02	0.09	0.12	0.25	0.26	0.65	0.6
Dissolved Hg	mg/L	0.0002	0.0004	0.0004	0.0003	0.0005	0.0002	0.0003	0.0006	0.0004	0.0006	0.0009	< 0.0001
Dissolved Mn	mg/L	0.0595	0.0141	0.0035	< 0.0005	0.003	0.0447	0.0615	0.0212	0.0269	0.0285	0.0261	1.355
Dissolved Mo	mg/L	0.5826	0.7348	0.6747	0.1866	0.3037	0.2232	0.359	0.5202	0.5631	0.65	0.721	0.0641
Dissolved Ni	mg/L	0.2525	0.0754	0.0871	0.0578	0.0756	0.2941	0.6107	0.2237	0.5444	1.399	1.518	0.2428
Dissolved Pb	mg/L	0.0016	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Dissolved Se	mg/L	0.072	0.113	0.188	0.273	0.247	0.122	0.17	0.239	0.209	0.217	0.222	0.016
Dissolved TI	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
Dissolved Zn	mg/L	< 0.001	< 0.001	0.002	< 0.001	0.007	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.011	0.001
Ammonia-Nitrogen	mg/L	36.8	53.6	58.8	58.8	59.5	51.5	61.1	48.7	46.3	55.1	67.3	88.2
Lead (Pb)	mg/L	< 0.0003	0.0011	0.0009	< 0.0003			< 0.0003	< 0.0003				< 0.0003
Aluminum (Al)	mg/L							0.163					
Arsenic (As)	mg/L							0.0107					
Barium (Ba)	mg/L							0.0774					
Beryllium (Be)	mg/L							< 0.0005					
Cadmium (Cd)	mg/L							0.00101					
Chrome (Cr)	mg/L							< 0.0006					
Iron (Fe)	mg/L							0.42					
Mercury (Hg)	mg/L							0.00035					
Lithium (Li)	mg/L							< 0.005					
Manganese (Ma)	mg/L							0.0674					
Molybdenum (Mo)	mg/L							0.3672					
Nickel (Ni)	mg/L							0.6694					
Antimony (Sb)	mg/L							0.0036					
Selenium (Se)	mg/L							0.177					
Tin (Se)	mg/L							0.002					
Strontium (Sr)	mg/L							0.743					
Thallium (TI)	mg/L							< 0.005					
Titanium (Ti)	mg/L							0.71					
Uranium (U)	mg/L							0.01					
Vanadium (V)	mg/L							< 0.0005					
Zinc (Zn)	mg/L							0.01					

Footnotes:

* Parameters measured in field by environment department

** Sample taken from TSF South Cell

Table 8.12: 2014 Portage Waste Rock Storage Facility Seepage Water Quality Monitoring (ST-16)

Date		06/05/2014	24/06/2014	01/07/2014	05/08/2014	09/09/2014
Lab Identification	Units					
Alaklinity	mg CaCO ₃ /L	52	227	241	234	102
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L	0.79	51.7	53.8	44.3	6.1
TDS	mg/L	107	2924	8080	3082	568
pH*		6.22	7.38	7.85	8.07	7.2
Conductivity*	us/cm	261	89.6	5179	5120	1511
Turbidity*	NTU	80.9	11.2	3.53	6.03	10.56
Arsenic (As)	mg/L	0.0025	0.0164	0.0097	0.0092	0.0027
Copper (Cu)	mg/L	0.0136	1.312	1.113	1.226	0.0737
Lead (Pb)	mg/L	0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Nickel (Ni)	mg/L	0.0176	1.563	0.9758	0.2401	0.1064
Zinc (Zn)	mg/L	0.006	0.01	0.002	0.024	0.003
Ammonia (NH ₃)	mg/L			1.4	1.1	
Chloride	mg/L			1031	886	
Fluoride	mg/L			0.57	0.55	
Hardness	mg/L			1221	1040	
Nitrate	mg/L			25.9	22.8	
Nitrite	mg/L			0.61	1.3	
Sulphate	mg/L			2254	1786	
Dissolved Aluminium (Al)	mg/L			0.012	0.023	
Dissolved Arsenic (As)	mg/L			0.006	0.0078	
Dissolved Barium (Ba)	mg/L			0.0596	0.0549	
Dissolved Cadmium (Cd)	mg/L			0.00078	0.00062	
Dissolved Copper (Cu)	mg/L			1.463	1.187	
Dissolved Iron (Fe)	mg/L			0.07	0.45	
Dissolved Lead (Pb)	mg/L			< 0.0003	0.0023	
Dissolved Manganese (Mn)	mg/L			2.482	2.263	
Dissolved Mercury (Hg)	mg/L			0.0001	0.0001	
Dissolved Molybdenum (Mo)	mg/L			0.2045	0.172	
Dissolved Nickel (Ni)	mg/L			0.9097	0.2324	
Dissolved Selenium (Se)	mg/L			0.101	0.094	
Dissolved Silver (Ag)	mg/L			< 0.0001	< 0.0001	
Dissolved Thallium (Tl)	mg/L			< 0.005	< 0.005	
Dissolved Zinc (Zn)	mg/L			< 0.001	0.001	
Aluminium (Al)	mg/L			0.066		
Antimony (Sb)	mg/L			0.0016		
Boron (B)	mg/L			0.24		
Barium (Ba)	mg/L			0.0632		
Beryllium (Be)	mg/L			< 0.0005		
Cadmium (Cd)	mg/L			0.00091		
Chromium (Cr)	mg/L			0.0006		
Cobalt (Co)	mg/L			0.2657		
Iron (Fe)	mg/L			0.49		
Lithium (Li)	mg/L			< 0.005		
Manganese (Mn)	mg/L			2.47		
Mercury (Hg)	mg/L			0.00005		
Molybdenum (Mo)	mg/L			0.211		
Selenium (Se)	mg/L			0.099		
Tin (Sn)	mg/L			0.002		
Strontium (Sr)	mg/L			0.94		
Titanium (Ti)	mg/L			0.58		
Thallium (Tl)	mg/L			< 0.005		
Uranium (U)	mg/L			0.252		
Vanadium (V)	mg/L			< 0.0005		

Footnotes:

* Parameters measured in the field by environment department

Table 8.14: 2014 Vault Waste Rock Storage Facility Seepage Water Quality Monitoring (ST-24)

Date Lab Identification	Units	2014-05-19	2014-06-09	2014-07-08
pH		6.51	6.51	
Turbidity	NTU	29.7	22.1	
Alkalinity	mg CaCO ₃ /L	41	43	56
Ammonia	mg N/L	< 0.01	< 0.01	< 0.01
Ammonia- nitrogen	mg N/L	0.09	< 0.01	0.06
As	mg/L	0.0019	0.0047	0.0173
Cu	mg/L	0.0025	0.005	0.0036
Ni	mg/L	0.0023	0.0032	0.0036
Pb	mg/L	0.0003	< 0.0003	0.016
TDS (dissolved solids)	mg/L	48	47	79
Zn	mg/L	0.007	< 0.001	0.003
Hardness	mg CaCO ₃ /L			59
Nitrate (NO ₃)	mg N/L			0.02
Nitrite (NO ₂)	mg N/L			< 0.01
Chloride	mg/L			3.2
Fluoride	mg/L			0.07
Sulphate (SO ₄ -4)	mg SO ₄ /L			5.1
Dissolved Ag	mg/L			< 0.0001
Dissolved Al	mg/L			0.238
Dissolved As	mg/L			0.0157
Dissolved Ba	mg/L			0.0092
Dissolved Cd	mg/L			< 0.00002
Dissolved Cu	mg/L			0.0036
Dissolved Fe	mg/L			1.3
Dissolved Hg	mg/L			< 0.0001
Dissolved Mn	mg/L			0.019
Dissolved Mo	mg/L			0.0014
Dissolved Ni	mg/L			0.0032
Dissolved Pb	mg/L			< 0.0003
Dissolved Se	mg/L			< 0.001
Dissolved Tl	mg/L			< 0.005
Dissolved Zn	mg/L			< 0.001

Footnotes:

* Parameters measured in the field by environment department

Table 8.15: 2014 Portage Attenuation Pond Discharge (ST-9)

Parameters	Units	Limit Maximum	10/06/2014	16/06/2014	24/06/2014	30/06/2014	05/07/2014
Alkalinity Total	mg CaCO ₃ /L		92	73	81	82	83
Alkalinity bicarbonate	mg/L					82	83
Alkalinity carbonate	mg/L				< 2	< 2	< 2
Ammonia-nitrogen	mg N/L	32	9.2	6.6	8.2	7.6	7.8
Calcium	mg/L		104	55.9	91.8	89	101
Chloride	mg/L	2000	90.2	87.3	84.8	91.6	97.9
Conductivity*	µS/cm		1175	843	1072	1059	1097
Cyanide Total	mg/L	1.0	0.351	0.269	0.358	0.312	0.45
Dissolved organic carbon	mg/L		12.4	9	11.9	11.5	12.8
Fluoride	mg/L		0.28	0.53	0.38	0.4	0.4
Hardness	mg CaCO ₃ /L		404	226	359	350	332
Magnesium	mg/L		35.2	21.1	31.7	31.2	27.2
Nitrate	mg N/L	40	1.3	1.6	1.4	1.4	1.6
Nitrite	mg N/L		0.54	0.38	0.33	0.29	0.28
Ortho-phosphate	mg/L		< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phosphorous total	mg/L	2.0	0.06	< 0.01	< 0.01	0.03	< 0.01
pH*	pH Unit	6.0 to 9.0	6.64	6.6	7.28	NA	7.21
Potassium	mg/L		14.4	9.9	13.9	15	15
Reactive silica	mg/L		10.1	6.4	9.6	8.7	10.2
Sodium	mg/L		123	61.4	110	108	102
Sulphate	mg/L		462	327	465	389	440
TDS	mg/L		782	583	796	740	840
Kjeldahl Nitrogen	mg/L		19	9.7	13.9	13.3	15.6
TOC	mg/L		13.7	10	13.7	13	13.7
Total petroleum hydrocarbons	mg/L	6	< 0.1	< 0.1	0.1	0.1	< 0.1
TSS	mg/L	30	7	11	6	9	9
Turbidity*	NTU	15	3.07	2.35	2.18	1.63	1.69
Aluminum	mg/L	1.5	1.87	1.14	1.55	1.62	1.79
Arsenic	mg/L	0.60	0.0013	0.0033	0.0035	0.0007	0.0029
Boron	mg/L		0.07	0.05	0.08	0.08	0.07
Barium	mg/L		0.0418	0.0366	0.0415	0.0453	0.0454
Beryllium	mg/L		< 0.0005	< 0.0005	< 0.0005	<0.0005	<0.0005
Cadmium	mg/L	0.004	0.00012	0.00008	0.00007	0.00006	<0.00002
Copper	mg/L	0.2	0.0046	0.0041	0.0044	0.0049	0.006
Chromium	mg/L		< 0.0006	0.0009	< 0.0006	<0.0006	<0.0006
Iron	mg/L		0.08	0.13	0.07	0.06	0.01
Lithium	mg/L		0.005	0.006	< 0.005	<0.005	<0.005
Manganese	mg/L		2.783	1.497	2.366	2.291	2.21
Mercury	mg/L	0.0008	0.00003	0.00002	0.00002	0.00002	< 0.00001
Molybdenum	mg/L		0.0237	0.0173	0.0221	0.0215	0.0244
Nickel	mg/L	0.4	0.0421	0.0297	0.0381	0.0362	< 0.0005
Lead	mg/L	0.20	< 0.0003	< 0.0003	0.0039	<0.0003	0.0011
Selenium	mg/L		0.018	< 0.001	0.001	0.001	0.002
Antimony	mg/L		0.0005	0.0006	0.0004	0.0004	0.0006
Tin	mg/L		< 0.001	0.001	< 0.001	<0.001	<0.001
Strontium	mg/L		0.466	0.346	0.488	0.231	0.467
Titanium	mg/L		0.08	0.06	0.09	0.1	0.12
Thallium	mg/L		< 0.005	< 0.005	< 0.005	<0.005	0.124
Uranium	mg/L		0.004	0.005	0.007	0.008	0.009
Vanadium	mg/L		< 0.0005	< 0.0005	< 0.0005	<0.0005	<0.0005
Zinc	mg/L	0.8	0.004	0.003	0.001	<0.001	0.003
Dissolved aluminum	mg/L	1.0	0.031	0.064	0.098	0.6	0.052
Dissolved arsenic	mg/L		0.0013	0.0019	0.0021	0.0007	0.0005
Dissolved boron	mg/L		0.07	0.01	0.06	0.06	0.04
Dissolved barium	mg/L		0.0371	0.0334	0.0414	0.0425	0.0437
Dissolved beryllium	mg/L		< 0.0005	< 0.0005	< 0.0005	<0.0005	<0.0005
Dissolved cadmium	mg/L		0.00023	0.00005	0.00008	0.00009	<0.00002
Dissolved copper	mg/L		0.0032	0.003	0.0036	0.0056	<0.0005
Dissolved chromium	mg/L		< 0.0006	< 0.0006	< 0.0006	<0.0006	<0.0006
Dissolved iron	mg/L		0.08	0.01	< 0.01	<0.01	<0.01
Dissolved lithium	mg/L		0.005	< 0.005	< 0.005	<0.005	<0.005
Dissolved manganese	mg/L		2.485	1.516	2.356	2.212	2.273
Dissolved mercury	mg/L		< 0.0001	< 0.0001	< 0.0001	<0.0001	<0.0001
Dissolved molybdenum	mg/L		0.0335	0.0171	0.0225	0.0221	0.024
Dissolved nickel	mg/L		0.038	0.0265	0.037	0.0354	< 0.0005
Dissolved lead	mg/L		< 0.0003	< 0.0003	0.0041	<0.0003	0.0005
Dissolved selenium	mg/L		0.018	< 0.001	0.002	0.002	0.002
Dissolved antimony	mg/L		0.0006	< 0.0001	< 0.0001	0.0009	0.0006
Dissolved tin	mg/L		0.005	< 0.001	< 0.001	<0.001	<0.001
Dissolved strontium	mg/L		0.457	0.352	0.449	0.225	0.466
Dissolved titanium	mg/L		0.06	0.06	0.09	0.09	0.12
Dissolved thallium	mg/L		< 0.005	< 0.005	< 0.005	<0.005	<0.005
Dissolved uranium	mg/L		0.002	0.003	0.005	0.06	0.006
Dissolved vanadium	mg/L		< 0.0005	< 0.0005	< 0.0005	<0.0005	<0.0005
Dissolved zinc	mg/L		0.001	0.004	0.002	<0.001	<0.001
Daphnia Magna			>100%				91.6
Rainbow trout			>100%				>100

Footnotes:

*Taken on field par environment technician

NA: Missing data

Highlighted cell represented exceedance

Table 8.16: 2014 Vault Attenuation Pond Discharge (ST-10)

Parameters	Units	Limit Maximum	28/07/2014	31/07/2014	06/08/2014	12/08/2014
Alkalinity Total	mg CaCO ₃ /L			30	30	33
Alkalinity bicarbonate	mg/L			30	30	33
Alkalinity carbonate	mg/L			< 2	< 2	< 2
Ammonia-nitrogen	mg N/L	40		0.41	0.37	0.22
Calcium	mg/L			12.6	13.8	11.5
Chloride	mg/L	1000		3.1	4.5	2.2
Conductivity*	µS/cm			88		93.6
Cyanide Total	mg/L			< 0.005	< 0.005	< 0.005
Dissolved organic carbon	mg/L			5.4	6.6	7.5
Fluoride	mg/L			0.13	0.11	0.12
Hardness	mg CaCO ₃ /L			45	50	38
Magnesium	mg/L			3.5	3.8	2.4
Nitrate	mg N/L	100		1	1.1	0.2
Nitrite	mg N/L			0.03	0.05	0.01
Ortho-phosphate	mg/L			< 0.01	0.01	< 0.01
Phosphorous total	mg/L	3.0		0.02	0.06	0.03
pH*	pH Unit	6-9.0		7.88		7.86
Potassium	mg/L			1.4	1.7	1.2
Reactive silica	mg/L			1.2	5.4	1.4
Sodium	mg/L			0.97	1.5	1.1
Sulphate	mg/L			19.5	17.9	18.6
TDS	mg/L			85	96	88
Kjeldahl Nitrogen	mg/L			3.7	1.3	0.99
TOC	mg/L			6.1	0.5	7.8
Total petroleum hydrocarbons	mg/L			0.3	< 0.1	< 0.1
TSS	mg/L	30		3	57	4
Turbidity*	NTU	15		2.33		2.41
Aluminum	mg/L	3.0		0.013	0.993	0.06
Arsenic	mg/L	0.20		0.0006	0.0011	0.0035
Boron	mg/L			< 0.01	< 0.01	< 0.01
Barium	mg/L			0.011	0.0185	0.0129
Beryllium	mg/L			< 0.0005	< 0.0005	< 0.0005
Cadmium	mg/L	0.004		< 0.00002	< 0.00002	< 0.00002
Copper	mg/L	0.2		0.0022	0.0087	0.0038
Chromium	mg/L			< 0.0006	0.002	< 0.0006
Iron	mg/L			0.07	1.5	0.19
Lithium	mg/L			0.009	< 0.005	< 0.005
Manganese	mg/L			0.0127	0.0528	0.0444
Mercury	mg/L	0.0080		< 0.00001	< 0.00001	< 0.00001
Molybdenum	mg/L			0.0044	0.0034	0.0038
Nickel	mg/L	0.4		0.0012	0.0039	0.0015
Lead	mg/L	0.20		< 0.0003	0.0011	< 0.0003
Selenium	mg/L			< 0.001	0.001	< 0.001
Antimony	mg/L			0.0001	0.0002	< 0.0001
Tin	mg/L			< 0.001	< 0.001	< 0.001
Strontium	mg/L			0.069	0.07	0.061
Titanium	mg/L			0.01	0.06	< 0.01
Thallium	mg/L			< 0.005	< 0.005	< 0.005
Uranium	mg/L			0.001	0.002	< 0.001
Vanadium	mg/L			< 0.0005	< 0.0005	< 0.0005
Zinc	mg/L	0.4		< 0.001	0.006	< 0.001
Dissolved aluminum	mg/L	2.0		0.012	< 0.006	0.008
Dissolved arsenic	mg/L			< 0.0005	0.0005	0.0014
Dissolved boron	mg/L			< 0.01	< 0.01	< 0.01
Dissolved barium	mg/L			0.0104	0.0119	0.011
Dissolved beryllium	mg/L			< 0.0005	< 0.0005	< 0.0005
Dissolved cadmium	mg/L			< 0.00002	< 0.00002	< 0.00002
Dissolved copper	mg/L			0.002	0.0016	0.0033
Dissolved chromium	mg/L			< 0.0006	< 0.0006	< 0.0006
Dissolved iron	mg/L			< 0.01	0.01	0.06
Dissolved lithium	mg/L			< 0.005	< 0.005	< 0.005
Dissolved manganese	mg/L			< 0.0005	0.0035	0.0099
Dissolved mercury	mg/L			< 0.0001	< 0.0001	< 0.00001
Dissolved molybdenum	mg/L			0.0045	0.0048	0.004
Dissolved nickel	mg/L			0.0013	0.0012	0.0015
Dissolved lead	mg/L			< 0.0003	< 0.0003	< 0.0003
Dissolved selenium	mg/L			< 0.001	< 0.001	< 0.001
Dissolved antimony	mg/L			0.0001	< 0.0001	< 0.0001
Dissolved tin	mg/L			< 0.001	< 0.001	< 0.001
Dissolved strontium	mg/L			0.066	0.065	0.061
Dissolved titanium	mg/L			< 0.01	0.01	< 0.01
Dissolved thallium	mg/L			< 0.005	< 0.005	< 0.005
Dissolved uranium	mg/L			0.001	< 0.001	< 0.001
Dissolved vanadium	mg/L			< 0.0005	< 0.0005	< 0.0005
Dissolved zinc	mg/L			< 0.001	< 0.001	< 0.001
Daphnia Magna			> 100			58.7
Rainbow trout			> 100			> 100

Footnotes:

*Taken on field par environment technician

NA: Missing data

Highlighted cell represented exceedance

Table 8.17: 2014 Sewage Treatment Plant Water Quality Monitoring

Sample Location: STP-SEP

Date	Units	8-Jan-14	17-Feb-14	3-Mar-14	7-Apr-14	5-May-14	2-Jun-14	7-Jul-14	4-Aug-14	2-Sep-14	7-Oct-14	2-Nov-14	1-Dec-14
Ammonia	mg N/L	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Ammonia-Nitrogen	mg N/L	7.2	10.9	8.7	3.3	2.8		9.1	0.92	2.1	6.3	8.3	13.9
Total Kjeldahl Nitrogen	mg N/L	10	11.1	8.9	4.2	3		10.1	6.5	6.5	9.7	11.7	18
BOD-5	mg/L	5	1	1	2	2		4	2	14	9	11	21
COD	mg/L	74	51	32	48	46		53	34	67	50	63	93
Total Suspended Solids	mg/L	41	11	6	<1	6		5	4	23	19	17	26
Nitrate (NO3)	mg N/L	30.4	28.9	29.6	24.8	25.2		27.2	22.3	23.2	21.8	23.3	20
Nitrite (NO2)	mg N/L	0.01	0.04	0.04	0.06	0.02		0.28	0.05	0.31	0.18	0.16	0.49
Total Phosphorus**	mg/L												
pH *	units	3.7	4	5.6	4.4	4.1	4.2	7.3	4.7	5.8	5.3	5.2	5.8
Fecal Coliform	UFC/100 mL	36	11	3	<4	3		2	0	15	28	20	72
Total Coliform	UFC/100 mL	900	400	50	10	70		200	1000	<1000	1500	400	3200

Sample Location: LJ-Mix

Date	Units	8-Jan-14	17-Feb-14	3-Mar-14	7-Apr-14	5-May-14	2-Jun-14	7-Jul-14	4-Aug-14	2-Sep-14	7-Oct-14	2-Nov-14	1-Dec-14
Ammonia	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	mg N/L	20.9	22.7	18.2	16.1	6.6		11.4	13.4	6.4	8.8	9.3	4
Total Kjeldahl Nitrogen	mg N/L	24.2	20.4	18.5	25.2	8.4		15.6	24.4	10.7	10.1	9.4	5.1
BOD-5	mg/L	10	2	5	11	11		6	5	6	1	2	4
COD	mg/L	95	54	75	68	87		79	72	51	34	19	43
Total Suspended Solids	mg/L	43	12	11	3	20		13	24	7	9	5	7
Nitrate (NO3)	mg N/L	46.2	42	39	39.5	29.7		35	33	27.5	25.4	26.5	22.1
Nitrite (NO2)	mg N/L	0.28	0.07	0.07	0.1	0.1		0.1	0.04	0.22	0.06	0.07	0.11
Total Phosphorus	mg/L												
pH *	units	5.3	4.1	4.3	5.4	NA	5.3	4.9	3.8	4.3	3.9	4.1	4.1
Fecal Coliform	UFC/100 mL	9	6	3	32	8		88	<4	14	<4	1	1
Total Coliform	UFC/100 mL	30	100	40	400	1000		5000	2000	2000	10	6	<10000

Sample Location: STP-IN

Date	Units	8-Jan-14	17-Feb-14	3-Mar-14	7-Apr-14	5-May-14	2-Jun-14	8-Jul-14	4-Aug-14	2-Sep-14	7-Oct-14	2-Nov-14	1-Dec-14
Ammonia	mg N/L	0.53	0.66	2.5	0.75	1.7		0.01	0.85	0.99	1.2	1.1	0.18
Ammonia-nitrogen	mg N/L	67.9	80.3	109	87	87.3		90.1	90.3	103	79.9	104	21.9
Total Kjeldahl Nitrogen	mg N/L	77.6	114	122	94.6	103		119	91	127	89.6	112	102
BOD-5	mg/L	188	188	235	211	278		316	231	271	226	200	75
COD	mg/L	468	470	506	518	620		556	595	550	337	409	564
Total Suspended Solids	mg/L	98	49	63	113	47		97	150	76	94	79	75
Nitrate (NO3)	mg N/L	0.01	0.07	0.02	<0.01	0.01		0.03	<0.01	<0.01	0.02	0.01	0.02
Nitrite (NO2)	mg N/L	0.02	0.03	0.05	0.08	0.03		0.03	0.03	0.02	0.02	0.02	0.04
Total Phosphorus	mg/L	7.8	7	16.8	10.8	10.2		12.8	11.4	12.8	10	13.6	10.1
pH *	units	7.1	8.6	8	7.2	7.4	7.2	7.2	7.4	7.6	8.1	8	7.4
Fecal Coliform	UFC/100 mL	2100000	3200000	1900000	1600000	2600000		2800000	2600000	44000000	2,900,000	4800000	4100000
Total Coliform	UFC/100 mL	34000000	53000000	10000000	29000000	29000000		59000000	8000000	43000000	54000000	50000000	7300000

Footnotes:

* Parameter measured in 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.

NA: Analyse not conduct

Table 8.18: 2014 Sewage Treatment Plant Waste Volume

Month	Liquid Sewage Volume (m ³)	Sewage Sludge Volume (m ³)
	Readings from Equalization Tank at STP	STP
January	2392	0.0
February	2313	0.0
March	2160	47.6
April	2196	13.6
May	2377	20.4
June	2023	27.2
July	2331	21.9
August	2397	34.0
September	2336	23.4
October	2465	6.8
November	2351	6.8
December	2348	12.9
Total	27,689	214.6

Table 8.19: 2014 Secondary Containment Water Quality at the Meadowbank Bulk Fuel Storage Facility (Mb-Fuel)

Parameters	Units	Maximum Allowable Concentration *	26-May-14	7-Oct-13
Benzene	ug/L	370	< 0.3	< 0.3
Toluene	ug/L	2	< 0.3	< 0.3
Ethylbenzene	ug/L	90	< 0.3	< 0.3
Total Xylenes	ug/L		0.5	< 0.3
Total oil and grease	mg/L	15	< 1	< 1
pH**	units		6.55	NA
Lead	mg/L	0.001	< 0.0003	< 0.0003

Footnotes:

* NWB Type A water license 2AM-MEA0815, Part F, Item 6

**Take on field by environment department

Table 8.20: 2014 Secondary Containment Water Quality at the Baker Lake Bulk Fuel Storage Facility (ST-40)

	Units	Maximum Allowable Concentration *	BL tank farm 1-4 (ST-40.2) 26-May-14	BL tank farm 1-4 (ST-40.2) 20-Jul-14	BL tank farm 5-6 (ST-40.1) 26-May-14	BL tank farm 5-6 (ST-40.1) 20-Jul-14	BL tank farm 5-6 (ST-40.1) 05-Sep-14	BL Jet-A tank farm (ST-40.3) 31-May-14	BL Jet-A tank farm (ST-40.3) 09-Jun-14	BL Jet-A tank farm (ST-40.3) 20-Jul-14
Ammonia nitrogen	mg N/L		0.05	< 0.01	0.07	< 0.01	0.07	0.04	< 0.01	< 0.01
Ammonia	mg N/L	6					< 0.01		< 0.01	
Arsenic	mg/L	1	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0005		0.0036
Benzene	ug/L	370	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		< 0.3
Copper	mg/L	0.6	0.0038	0.006	0.0061	0.0083	0.007	0.0396		0.1867
Ethylbenzene	ug/L	90	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		< 0.3
Lead**	mg/L	0.001/0.1	< 0.0003	0.0007	< 0.0003	0.0165	< 0.0003	0.0519		0.0225
Nickel	mg/L	1	0.001	0.0011	0.0013	0.0014	0.0005	0.0114		0.0404
pH***	units	6.0-9.5	6.71	8.14	6.77	7.73	8.28		8.68	8.29
Toluene	ug/L	2	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		< 0.3
Total Cyanide	mg/L	0.2	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005	< 0.005
Total oil and grease	mg/L	5	< 1	1	< 1	< 1	< 1	< 1		1
Total Xylenes	ug/L		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		< 0.3
TSS	mg/L	30	16	2	23	3	2		53	46
Zinc	mg/L	1	0.004	< 0.001	0.005	< 0.001	0.001	0.084		0.092
Aluminium	mg/L		0.757	0.129	1.18	0.601	0.303	9.28		27.91
Antimony	mg/L		0.0001	0.0002	0.0001	< 0.0001	< 0.0001	0.0001		0.0029
Barium	mg/L		0.0353	0.0612	0.0207	0.0199	0.0191	0.0907		0.5911
Beryllium	mg/L		< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.001		0.006
Cadmium	mg/L		< 0.00002	0.00014	0.00003	< 0.00002	< 0.00002	< 0.00002		0.00176
Chrome	mg/L		0.0057	< 0.0006	0.0064	< 0.0006	< 0.0006	0.0102		0.0328
Cobalt	mg/L		< 0.0005	0.0005	0.0007	< 0.0005	< 0.0005	0.0089		0.0351
Tin	mg/L		< 0.001	0.012	< 0.001	0.003	< 0.001	0.01		0.005
Iron	mg/L		0.71	0.1	1.6	0.62	0.21	13.6		27.9
Lithium	mg/L		< 0.005	< 0.005	< 0.005	0.011	< 0.005	0.015		0.058
Manganese	mg/L		0.0201	0.0058	0.0288	0.01	0.0028	0.2485		0.888
Molybdenum	mg/L		0.0005	0.003	0.0006	0.0012	0.002	0.0012		0.0029
Selenium	mg/L		0.001	0.001	< 0.001	< 0.001	< 0.001	0.001		0.003
Strontium	mg/L		< 0.005	0.067	< 0.005	0.053	0.107	0.027		0.149
Thallium	mg/L		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		< 0.005
Titanium	mg/L		0.02	0.02	0.05	0.02	0.01	0.06		0.05
Uranium	mg/L		< 0.001	0.001	< 0.001	< 0.001	< 0.001	0.002		0.011
Vanadium	mg/L		< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0142		0.0582
Hydrocarbons C10-C50	mg/L		< 0.1	0.2	< 0.1	0.3	< 0.1		< 0.1	0.4
Conductivity****	us/cm		168.2	144.1	124.2	115.2	369		50.7	208
Temperature****	°C		6.71	13.1	6.77	16.7	11.1		18	16.8

Footnotes:

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

** two allowable concentrations are listed in the license

***Take on field by environment department

Highlighted values exceed the maximum allowable concentration

Table 8.21: 2014 East Dike Seepage Water Quality Monitoring (ST-S-1)

Date		2014-05-06	2014-06-03	2014-07-01
Alkalinity	mg CaCO ₃ /L	40	45	26
Ammonia	mg N/L	< 0.01	< 0.01	< 0.01
Ammonia nitrogen	mg N/L	< 0.01	< 0.01	0.01
Chloride	mg/L	1	0.7	0.5
conductivity*	µs/cm		95.2	49
Hardness	mg CaCO ₃ /L	27	21	24
Nitrate (NO ₃)	mg N/L	0.09	0.07	0.18
Nitrite (NO ₂)	mg N/L	< 0.01	0.01	< 0.01
Sulphate (SO ₄ -2)	mg SO ₄ /L	7	3.9	7
pH*			7.36	7.53
Turb*	NTU	10.54	10.33	1.53
Ag	mg/L	< 0.0001	< 0.0001	0.0001
Al	mg/L	0.062	0.055	0.157
As	mg/L	0.0015	0.004	0.0048
Ba	mg/L	0.0062	0.0051	0.0095
Cd	mg/L	< 0.00002	< 0.00002	0.00013
Cr	mg/L	< 0.0006	< 0.0006	< 0.0006
Cu	mg/L	0.0017	0.0014	0.0017
F	mg/L	0.1	0.08	0.08
Fe	mg/L	0.09	0.06	0.23
Hg	mg/L	< 0.00001	< 0.00001	< 0.00001
Mn	mg/L	0.0041	0.0019	0.0097
Mo	mg/L	< 0.0005	< 0.0005	0.0049
Ni	mg/L	0.0015	0.0012	0.0016
Pb	mg/L	0.0061	< 0.0003	< 0.0003
Se	mg/L	< 0.001	< 0.001	0.001
Tl	mg/L	< 0.005	< 0.005	< 0.005
Zn	mg/L	0.002	0.001	< 0.001

Footnotes:

* Parameter measured in the field by
environment department

Table 8.22 - 2014 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	5440	0	0	0	0	0
2	0	0	0	0	0	0	4750	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	3900	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	5750	0	0	0	0	0	0
11	0	0	0	0	0	5950	0	0	0	0	0	0
12	0	0	0	0	0	5740	0	0	0	0	0	0
13	0	0	0	0	0	12810	0	0	0	0	0	0
14	0	0	0	0	0	13120	0	0	0	0	0	0
15	0	0	0	0	0	6370	0	0	0	0	0	0
16	0	0	0	0	0	7390	0	0	0	0	0	0
17	0	0	0	0	0	5900	0	0	0	0	0	0
18	0	0	0	0	0	5980	0	0	0	0	0	0
19	0	0	0	0	0	5848	0	0	0	0	0	0
20	0	0	0	0	0	6260	0	0	0	0	0	0
21	0	0	0	0	0	5714	0	0	0	0	0	0
22	0	0	0	0	0	12060	0	0	0	0	0	0
23	0	0	0	0	0	11710	0	0	0	0	0	0
24	0	0	0	0	0	13950	0	0	0	0	0	0
25	0	0	0	0	0	13640	0	0	0	0	0	0
26	0	0	0	0	0	13300	0	0	0	0	0	0
27	0	0	0	0	0	13360	0	0	0	0	0	0
28	0	0	0	0	0	12750	0	0	0	0	0	0
29	0		0	0	0	13280	0	0	0	0	0	0
30	0		0	0	0	2841	0	0	0	0	0	0
31	0		0				0	0		0		0
Total (m³)	0	0	0	0	0	193,723	14,090	0	0	0	0	0

Table 8.23 - 2014 Water Treatment Plan FDP Discharge MMER Effluent Monitoring

	Units	Maximum Allowable Concentration	January	February	March	April	May	10-Jun-14	16-Jun-14
Date Time									
Arsenic	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	0.0013	NMR
Copper	mg/L	0.6	NDEP	NDEP	NDEP	NDEP	NDEP	0.0046	NMR
Cyanide	mg/L	2	NDEP	NDEP	NDEP	NDEP	NDEP	0.331	0.269
Lead	mg/L	0.4	NDEP	NDEP	NDEP	NDEP	NDEP	<0.0003	NMR
Nickel	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	0.0421	0.0297
Zinc	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	0.004	NMR
Total Suspended Solids	mg/L	30	NDEP	NDEP	NDEP	NDEP	NDEP	7	11
Radium 226	Bq/L	1.11	NDEP	NDEP	NDEP	NDEP	NDEP	0.035	NMR
pH *	units	6-9.5	NDEP	NDEP	NDEP	NDEP	NDEP	6.64	6.60
Daphnia magna	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	>100	NMR
Rainbow trout	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	>100	NMR

	Units	Maximum Allowable Concentration	24-Jun-14	30-Jun-14	5-Jul-14	August	September	October	November	December
Date Time										
Arsenic	mg/L	1	NMR	NMR	0.0029	NDEP	NDEP	NDEP	NDEP	NDEP
Copper	mg/L	0.6	NMR	NMR	0.006	NDEP	NDEP	NDEP	NDEP	NDEP
Cyanide	mg/L	2	0.358	0.312	0.45	NDEP	NDEP	NDEP	NDEP	NDEP
Lead	mg/L	0.4	NMR	NMR	0.0011	NDEP	NDEP	NDEP	NDEP	NDEP
Nickel	mg/L	1	0.0381	0.0362	<0.0005	NDEP	NDEP	NDEP	NDEP	NDEP
Zinc	mg/L	1	NMR	NMR	0.003	NDEP	NDEP	NDEP	NDEP	NDEP
Total Suspended Solids	mg/L	30	6	9	9	NDEP	NDEP	NDEP	NDEP	NDEP
Radium 226	Bq/L	1.11	NMR	NMR	0.04	NDEP	NDEP	NDEP	NDEP	NDEP
pH *	units	6-9.5	7.32	NA	7.21	NDEP	NDEP	NDEP	NDEP	NDEP
Daphnia magna	LC50 %		NMR	NMR	91.6	NDEP	NDEP	NDEP	NDEP	NDEP
Rainbow trout	LC50 %		NMR	NMR	>100	NDEP	NDEP	NDEP	NDEP	NDEP

Footnotes:

* Parameter measured in field by environment department

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 8.24: 2014 EEM Monitoring

Water Treatment Pond Discharge	Date Units	30-Jun-14
Alkalinity	mg CaCO ₃ /L	82
Aluminium	mg/L	1.59
Ammonia nitrogen	mg N/L	7.6
Cadmium	mg/L	0.00004
Conductivity	µs/cm	37
Hardness	mg CaCO ₃ /L	355
Iron	mg/L	0.07
Mercury	mg/L	0.00002
Molybdenum	mg/L	0.0214
Nitrate	mg N/L	1.1
Selenium	mg/L	0.001
Temperature	°C	14.6
Fathead Minnow IC25	% v/v	>100
Fathead Minnow LC50	% v/v	>100
Ceriodaphnia dubia IC25	% v/v	7
Ceriodaphnia dubia LC50	% v/v	33.3
Freshwater Alga IC25	% v/v	>100
Lemna minor IC25 (dw)	% v/v	12.9
Lemna minor IC25 (f#)	% v/v	5.83

Vault Discharge	Date Units	24-Jun-14	28-Jul-14
Alkalinity	mg CaCO ₃ /L	28	26
Aluminium	mg/L	0.333	0.059
Ammonia nitrogen	mg N/L	1	0.03
Cadmium	mg/L	<0.00002	<0.00002
Conductivity	µs/cm	73.9	78
Hardness	mg CaCO ₃ /L	31	37
Iron	mg/L	0.55	0.07
Mercury	mg/L	0.00001	<0.00001
Molybdenum	mg/L	0.0012	0.0026
Nitrate	mg N/L	0.56	0.56
Selenium	mg/L	<0.001	<0.001
Temperature	°C	15.7	13.3

East Dike Discharge	Date Units	7-Jan-14	26-Aug-14	28-Sep-14	30-Nov-14
Alkalinity	mg CaCO ₃ /L	50	34	24	26
Aluminium	mg/L	0.108	0.073	0.038	0.051
Ammonia nitrogen	mg N/L	0.04	<0.01	0.04	0.03
Cadmium	mg/L	<0.00002	<0.00002	<0.00002	<0.00002
Conductivity	µs/cm	69.7	44.8	76	45
Hardness	mg CaCO ₃ /L	23	34	22	22
Iron	mg/L	0.08	0.06	0.02	0.06
Mercury	mg/L	0.00002	<0.00001	<0.00001	<0.00001
Molybdenum	mg/L	<0.0005	<0.0005	<0.0005	<0.0005
Nitrate	mg N/L	0.03	0.42	0.28	0.05
Selenium	mg/L	<0.001	<0.001	<0.001	<0.001
Temperature	°C	0.6	13.9	4.7	3.3

Vault Discharge WLE (Exposure Area)	Date Units	28-Jul-14
Alkalinity	mg CaCO ₃ /L	15
Aluminum	mg/L	0.027
Ammonia nitrogen	mg N/L	0.01
Arsenic	mg/L	<0.0005
Cadmium	mg/L	<0.00002
Conductivity	µs/cm	11
Copper	mg/L	0.0006
Cyanide	mg/L	<0.005
Dissolved oxygen *	mg/L	9.76
Hardness	mg CaCO ₃ /L	15
Iron	mg/L	<0.01
Lead	mg/L	<0.0003
Mercury	mg/L	<0.00001
Molybdenum	mg/L	<0.0005
Nickel	mg/L	<0.0005
Nitrate	mg N/L	0.02
pH *	Units	7.48
Radium 226	Bq/L	<0.002
Selenium	mg/L	<0.001
Temperature *	(°C)	16.17
Total suspended solids	mg/L	<1
Zinc	mg/L	<0.001

East Dike Discharge SPLE (Exposure Area)	Date Units	27-Jan-14	26-Aug-14	28-Sep-14	30-Nov-14
Alkalinity	mg CaCO ₃ /L	25	38	13	16
Aluminum	mg/L	0.007	0.025	0.01	0.012
Ammonia nitrogen	mg N/L	0.09	0.03	0.07	0.01
Arsenic	mg/L	0.0005	0.0005	0.0005	0.0005
Cadmium	mg/L	0.00007	0.00018	0.00002	0.00002
Conductivity	µs/cm	65.7	86.1	33	9
Copper	mg/L	0.0011	0.0013	<0.0005	<0.0005
Cyanide	mg/L	<0.005	<0.005	<0.005	<0.005
Dissolved oxygen *	mg/L	15.86	10.41	11.7	13.74
Hardness	mg CaCO ₃ /L	13	12	10	13
Iron	mg/L	<0.01	0.02	<0.01	0.01
Lead	mg/L	<0.0003	<0.0003	0.0021	<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	0.0009	<0.0005	<0.0005
Nitrate	mg N/L	<0.01	0.01	<0.01	0.01
pH *	Units	7.16	7.52	6.55	7.04
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)	0.31	11.8	1.72	0.88
Total suspended solids	mg/L	4	<1	<1	2
Zinc	mg/L	<0.001	<0.001	0.003	0.004

TPS (Reference Area)	Date Units	27-Jan-14	28-Jul-14	26-Aug-14	28-Sep-14	30-Nov-14
Alkalinity	mg CaCO ₃ /L	27	9	30	8	12
Aluminum	mg/L	0.102	0.023	0.01	0.021	0.011
Ammonia nitrogen	mg N/L	0.25	0.01	0.05	0.05	0.07
Arsenic	mg/L	0.0021	0.0005	0.0005	0.0005	0.0005
Cadmium	mg/L	0.00004	0.00002	0.00002	0.00002	0.00002
Conductivity	µs/cm	59.6	6	86.1	25	6
Copper	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cyanide	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Dissolved oxygen *	mg/L	13.73	11.61	10.41	11.02	13.99
Hardness	mg CaCO ₃ /L	9	8	7	6	8
Iron	mg/L	0.07	<0.01	<0.01	<0.01	<0.01
Lead	mg/L	<0.0003	<0.0003	<0.0003	0.0028	<0.0003
Mercury	mg/L	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nickel	mg/L	0.0009	0.0007	<0.0005	<0.0005	<0.0005
Nitrate	mg N/L	0.1	0.05	0.05	0.05	0.06
pH *	Units	6.95	7.51	7.52	6.67	6.84
Radium 226	Bq/L	<0.002	<0.002	<0.002	0.002	<0.002
Selenium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Temperature *	(°C)	0.83	11.72	11.8	5.01	0.73
Total suspended solids	mg/L	10	<1	3	<1	11
Zinc	mg/L	<0.001	<0.001	<0.001	0.014	0.003

Footnotes:

NA: Date not available following technician error

NMR: no measure required

* Parameters measured in the field

Italic -> only ammonia NH₃

Table 8.25 - 2014 Vault Discharge MMER Effluent Monitoring

	Units	Maximum Allowable Concentration							
Date Time			January	February	March	April	May	24-Jun-14	28-Jul-14
Arsenic	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	0.0021	<0.0005
Copper	mg/L	0.6	NDEP	NDEP	NDEP	NDEP	NDEP	<0.0005	0.002
Cyanide	mg/L	2	NDEP	NDEP	NDEP	NDEP	NDEP	<0.005	<0.005
Lead	mg/L	0.4	NDEP	NDEP	NDEP	NDEP	NDEP	<0.0003	0.0187
Nickel	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	0.0014	0.0011
Zinc	mg/L	1	NDEP	NDEP	NDEP	NDEP	NDEP	0.001	0.001
Total Suspended Solids	mg/L	30	NDEP	NDEP	NDEP	NDEP	NDEP	11	5
Radium 226	Bq/L	1.11	NDEP	NDEP	NDEP	NDEP	NDEP	<0.002	<0.002
pH *	units	6-9.5	NDEP	NDEP	NDEP	NDEP	NDEP	7.51	7.42
Daphnia magna	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	>100	>100
Rainbow trout	LC50 %		NDEP	NDEP	NDEP	NDEP	NDEP	>100	>100

	Units	Maximum Allowable Concentration						
Date Time			6-Aug-14	12-Aug-14	September	October	November	December
Arsenic	mg/L	1	0.0011	0.0035	NDEP	NDEP	NDEP	NDEP
Copper	mg/L	0.6	0.0087	0.0037	NDEP	NDEP	NDEP	NDEP
Cyanide	mg/L	2	<0.005	<0.005	NDEP	NDEP	NDEP	NDEP
Lead	mg/L	0.4	0.0011	<0.0003	NDEP	NDEP	NDEP	NDEP
Nickel	mg/L	1	0.0039	0.0015	NDEP	NDEP	NDEP	NDEP
Zinc	mg/L	1	0.006	<0.001	NDEP	NDEP	NDEP	NDEP
Total Suspended Solids	mg/L	30	57	4	NDEP	NDEP	NDEP	NDEP
Radium 226	Bq/L	1.11	0.006	<0.002	NDEP	NDEP	NDEP	NDEP
pH *	units	6-9.5	7.17	7.86	NDEP	NDEP	NDEP	NDEP
Daphnia magna	LC50 %			58.7	NDEP	NDEP	NDEP	NDEP
Rainbow trout	LC50 %			>100	NDEP	NDEP	NDEP	NDEP

Footnotes:

* Parameter measured in field by environment department

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: No sample taken due to analysis delay.

Table 8.26 - 2014 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	12,000	0	0	0	0
2	0	0	0	0	0	0	0	12,000	0	0	0	0
3	0	0	0	0	0	0	0	12,000	0	0	0	0
4	0	0	0	0	0	0	0	12,000	0	0	0	0
5	0	0	0	0	0	0	0	12,000	0	0	0	0
6	0	0	0	0	0	0	0	12,000	0	0	0	0
7	0	0	0	0	0	0	0	2,338	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	3,075	0	0	0	0
11	0	0	0	0	0	0	0	6,600	0	0	0	0
12	0	0	0	0	0	0	0	6,600	0	0	0	0
13	0	0	0	0	0	0	0	5,400	0	0	0	0
14	0	0	0	0	0	0	0	1,688	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	8,220	0	0	0	0	0	0
21	0	0	0	0	0	16,440	0	0	0	0	0	0
22	0	0	0	0	0	16,440	0	0	0	0	0	0
23	0	0	0	0	0	16,440	0	0	0	0	0	0
24	0	0	0	0	0	16,440	7,500	0	0	0	0	0
25	0	0	0	0	0	16,440	12,000	0	0	0	0	0
26	0	0	0	0	0	16,440	12,000	0	0	0	0	0
27	0	0	0	0	0	16,440	12,000	0	0	0	0	0
28	0	0	0	0	0	15,600	12,000	0	0	0	0	0
29	0		0	0	0	1,000	12,000	0	0	0	0	0
30	0		0	0	0	0	12,000	0	0	0	0	0
31	0		0		0		12,000	0		0		0
Total (m³)	0	0	0	0	0	139,900	91,500	97,701	0	0	0	0

Table 8.27 - 2014 East Dike Seepage Discharge MMER Effluent Volume

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	0	460	449	363	264	0	0	695	696	601	552	475
2	0	469	448	370	264	0	0	692	689	617	555	610
3	0	459	449	388	0	0	0	684	692	593	555	569
4	0	460	447	380	0	0	0	685	686	593	546	591
5	0	459	445	389	0	0	0	686	686	592	554	622
6	298	457	444	396	0	0	0	725	681	603	552	574
7	502	456	442	396	0	0	0	698	688	636	555	551
8	500	459	442	396	0	0	0	691	696	608	553	551
9	496	455	441	396	0	0	0	692	700	585	577	551
10	492	456	441	0	0	0	0	686	681	581	569	598
11	485	459	441	0	0	0	0	688	676	575	540	622
12	484	459	441	167	0	0	0	690	664	578	556	561
13	485	461	440	423	0	0	0	669	664	575	561	586
14	178	458	441	412	0	0	0	703	661	573	551	549
15	271	457	440	422	0	0	0	696	654	571	553	547
16	358	454	438	413	0	0	0	689	647	554	547	551
17	684	453	437	408	0	0	0	744	648	572	547	558
18	391	450	433	418	0	0	0	773	640	571	545	535
19	480	448	426	315	0	0	0	763	658	569	542	524
20	479	448	418	405	0	0	0	752	651	565	556	528
21	476	446	413	408	0	0	0	763	646	568	550	523
22	500	446	401	411	0	0	0	762	629	567	544	512
23	505	448	392	334	0	0	0	703	693	566	549	512
24	468	447	376	365	0	0	0	704	702	564	538	510
25	468	454	365	457	0	0	0	695	656	562	541	523
26	467	450	354	408	0	0	0	691	637	557	543	504
27	465	449	348	384	0	0	0	707	626	563	532	494
28	463	453	380	371	0	0	0	757	620	556	532	521
29	464		408	369	0	0	376	759	619	556	564	516
30	461		375	376	0	0	669	704	630	554	491	502
31	460		355		0		671	704		555		512
Total (m³)	11,779	12,729	12,971	10,737	528	0	1,716	22,049	19,914	17,880	16,453	16,881

Table 8.28 - 2014 East Dike Seepage Discharge MMER Effluent Monitoring

Units			Maximum Allowable Concentration							
Date	Time		7-Jan-14	14-Jan-14	20-Jan-14	27-Jan-14	4-Feb-14	10-Feb-14	18-Feb-14	
Arsenic	mg/L	1	< 0.0005	0.053	< 0.001	0.0033	< 0.0005	0.0022	0.0022	
Copper	mg/L	0.6	0.0066	0.02	0.002	0.0235	< 0.0005	0.0022	0.0079	
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	0.0021	< 0.0005	0.0653	< 0.0003	0.0072	< 0.0003	
Nickel	mg/L	1	0.0007	0.014	0.0023	0.0031	0.0013	0.0008	0.003	
Zinc	mg/L	1	0.012	0.0088	< 0.007	0.042	0.003	0.007	0.008	
Total Suspended Solids	mg/L	30	19	11	20	5	13	3	13	
Radium 226	Bq/L	1.11	< 0.002	0.002	< 0.002	< 0.002	0.005	< 0.002	0.062	
pH *	units	6-9.5	6.78	6.89	6.83	7.56	6.74	6.85	6.86	
Daphnia magna	LC50 %			> 100					> 100	
Rainbow trout	LC50 %			> 100					> 100	

Units			Maximum Allowable Concentration							
Date	Time		27-Feb-14	5-Mar-14	11-Mar-14	17-Mar-14	24-Mar-14	1-Apr-14	8-Apr-14	
Arsenic	mg/L	1	0.0011	0.0005	< 0.0005	0.0008	0.0057	0.0081	0.0038	
Copper	mg/L	0.6	0.0026	< 0.0005	< 0.0005	0.001	0.0012	0.0027	0.0014	
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	0.0006	0.0032	< 0.0003	< 0.0003	0.0087	
Nickel	mg/L	1	0.0023	0.0009	0.0008	0.0008	0.0023	0.0034	0.0017	
Zinc	mg/L	1	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.002	0.003	
Total Suspended Solids	mg/L	30	10	8	11	14	21	30	14	
Radium 226	Bq/L	1.11	< 0.002	0.009	0.02	0.013	0.022	< 0.002	0.003	
pH *	units	6-9.5	6.64	8.1	8.47	6.51	6.72	6.81	6.62	
Daphnia magna	LC50 %			> 100					> 100	
Rainbow trout	LC50 %			> 100					> 100	

	Units	Maximum Allowable Concentratio									
Date			15-Apr-14	19-Apr-14	22-Apr-14	29-Apr-14	MAY	JUNE	31-Jul-14	6-Aug-14	12-Aug-14
Time											
Arsenic	mg/L	1	0.0022		0.0016	0.0016	NDEP	NDEP	0.0016	0.0042	0.0019
Copper	mg/L	0.6	0.0014		0.001	0.0015	NDEP	NDEP	0.0009	0.0015	< 0.0005
Cyanide	mg/L	2	< 0.005		< 0.005	< 0.005	NDEP	NDEP	< 0.005	< 0.005	< 0.005
Lead	mg/L	0.4	< 0.0003		< 0.0003	0.0013	NDEP	NDEP	< 0.0003	< 0.0003	< 0.0003
Nickel	mg/L	1	0.0016		0.0012	0.0012	NDEP	NDEP	0.0018	0.0034	0.001
Zinc	mg/L	1	0.002		0.003	0.008	NDEP	NDEP	0.005	0.003	< 0.001
Total Suspended Solids	mg/L	30	12	10	8	12	NDEP	NDEP	2	7	6
Radium 226	Bq/L	1.11	0.024		< 0.002	0.005	NDEP	NDEP	< 0.002	< 0.002	< 0.002
pH *	units	6-9.5	6.63	6.72	6.58	6.56	NDEP	NDEP	7.4	7.16	7.51
Daphnia magna	LC50 %						NDEP	NDEP	> 100		> 100
Rainbow trout	LC50 %						NDEP	NDEP	> 100		> 100

		Maximum Allowable Concentration								
Units			19-Aug-14	26-Aug-14	2-Sep-14	9-Sep-14	17-Sep-14	24-Sep-14	28-Sep-14	
Date	Time									
Arsenic	mg/L	1	0.0022	0.0009	< 0.0005	0.0019	<	0.0005	0.0027	< 0.0005
Copper	mg/L	0.6	0.0017	0.0008	0.0008	0.0019	<	0.0005	0.0123	0.0008
Cyanide	mg/L	2	< 0.005	< 0.005	< 0.005	0.007	<	0.005	< 0.005	< 0.005
Lead	mg/L	0.4	< 0.0003	< 0.0003	< 0.0003	< 0.0003		0.0155	0.0052	< 0.0003
Nickel	mg/L	1	0.0032	< 0.0005	0.0011	0.0031		0.0009	0.004	0.0005
Zinc	mg/L	1	0.003	< 0.001	0.002	0.008		0.007	0.003	0.017
Total Suspended Solids	mg/L	30	13	7	4	4		7	14	< 1
Radium 226	Bq/L	1.11	< 0.002	< 0.002	0.002	0.005		0.003	0.006	0.003
pH *	units	6-9.5	7.55	7.54	7.71	7.9		7.54	7.2	7.31
Daphnia magna	LC50 %				> 100					
Rainbow trout	LC50 %				> 100					

		Maximum Allowable Concentration								
Units			8-Oct-14	15-Oct-14	21-Oct-14	27-Oct-14	4-Nov-14	10-Nov-14	18-Nov-14	
Date	Time									
Arsenic	mg/L	1	0.0009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Copper	mg/L	0.6	0.0008	0.0011	0.0008	0.0007	0.0007	0.0006	0.0008	
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	< 0.0003	< 0.0003	
Nickel	mg/L	1	0.0012	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Zinc	mg/L	1	< 0.001	< 0.001	0.001	0.002	0.002	< 0.001	< 0.001	
Total Suspended Solids	mg/L	30	8	24	12	3	6	11	< 1	
Radium 226	Bq/L	1.11	< 0.002	0.002	0.003	< 0.002	0.002	0.002	< 0.002	
pH *	units	6-9.5	7.45	7.42	7.02	7.92	7.04	7.42	7.19	
Daphnia magna	LC50 %		> 100				> 100			
Rainbow trout	LC50 %		> 100				> 100			

		Maximum Allowable Concentration							
Units			25-Nov-14	30-Nov-14	8-Dec-14	16-Dec-14	22-Dec-14	29-Dec-14	
Date	Time								
Arsenic	mg/L	1	< 0.0005	< 0.0005	0.0006	0.0007	< 0.0005	< 0.0005	
Copper	mg/L	0.6	0.0008	< 0.0005	0.0007	0.0009	< 0.0005	0.2995	
Cyanide	mg/L	2	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	
Lead	mg/L	0.4	0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	0.4001	
Nickel	mg/L	1	< 0.0005	0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	
Zinc	mg/L	1	0.002	0.003	< 0.001	< 0.001	0.001	0.2663	
Total Suspended Solids	mg/L	30	5	7	< 1	6	3	3	
Radium 226	Bq/L	1.11	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	
pH *	units	6-9.5	7.17	7.31	7.36	7.44	7.16	7.26	
Daphnia magna	LC50 %				> 100				
Rainbow trout	LC50 %				> 100				

Footnotes:

* Parameter measured in field by environment department

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: No sample taken due to analysis delay.

Table 8.29: 2014 MMER & EEM QAQC

Duplicate / Field Blank Analytical Certificate ID	Units	10-Jun-14				28-Jul-14				7-Jan-14			
		Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank
		ST-9/ST-MMER-1/EEM-1	ST-9/ST-MMER-1/EEM-1 DUP		ST-9/ST-MMER-1/EEM-1 FB	ST-MMER-2	ST-MMER-2 DUP		ST-MMER-2 FB	ST-8/MMER 3	ST-8/MMER 3 DUP		ST-8/MMER 3 FB
Arsenic	mg/L	0.0013	0.0017	-27	< 0.0005	< 0.0005	0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Copper	mg/L	0.0046	0.0048	-4	< 0.0005	0.0020	0.0019	5	< 0.0005	0.0066	0.0050	28	0.0012
Cyanide	mg/L	0.331	0.3150	5	< 0.0050	< 0.0050	< 0.0050	0	< 0.005	< 0.0050	< 0.0050	0	< 0.005
Lead	mg/L	< 0.0003	< 0.000	0	< 0.00	0.019	0.001	190	< 0.0003	< 0.0003	0.002	-140	0.0271
Nickel	mg/L	0.0421	0.043	-2	< 0.0005	0.0011	0.0011	0	< 0.0005	0.0007	0.0018	-88	0.0007
Zinc	mg/L	0.004	0.0050	-22	< 0.006	0.001	< 0.001	0	< 0.001	0.012	0.008	40	0.011
Total Suspended Solids	mg/L	7	9.000	-25	< 1.000	5	6	-18	NA	19	14	30	4
Radium 226	Bq/L	0.035	0.029	19	< 0.002	< 0.002	< 0.002	0	< 0.002	< 0.002	< 0.002	0	< 0.002

Duplicate / Field Blank Analytical Certificate ID	Units	8-Oct-14				27-Oct-14				30-Nov-14			
		Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank
		ST-MMER-3a/ST-8	ST-MMER-3a/ST-8 DUP		ST-MMER-3a/ST-8 FB	ST-MMER-3	ST-MMER-3 DUP		ST-MMER-3 FB	ST-MMER-3	ST-MMER-3 DUP		ST-MMER-3 FB
Arsenic	mg/L	0.0009	0.0017	-62	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Copper	mg/L	0.0008	0.0008	0	< 0.0005	0.0007	0.0009	-25	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Cyanide	mg/L	< 0.005	< 0.005	0	< 0.005	0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005
Lead	mg/L	< 0.000	< 0.000	0	< 0.0003	< 0.0003	0.0016	-137	0.0013	< 0.000	< 0.000	0	< 0.0003
Nickel	mg/L	0.0012	0.0014	-15	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	0.0005	< 0.0005	0	0.0062
Zinc	mg/L	< 0.001	< 0.001	0	< 0.001	0.002	0.001	67	0.001	0.003	0.003	0	0.003
Total Suspended Solids	mg/L	8	11	-32	NA	3	4	-29	3	7	5	33	5
Radium 226	Bq/L	< 0.002	0.004	-67	0.002	< 0.002	< 0.002	0	< 0.002	< 0.002	< 0.002	0	< 0.002

Duplicate / Field Blank Analytical Certificate ID	Units	28-Jul-14				7-Jan-14				25-Aug-14				30-Nov-14			
		Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank
		ST-EEM2a	ST-EEM-2a Dup		ST-EEM-2a FB	ST-MMER-3-EEM	ST-MMER-3-EEM DUP		ST-MMER-3-EEM FB	ST-EEM-3a	ST-EEM-3a DUP		ST-EEM-3a FB	ST-MMER-3-EEM	ST-MMER-3-EEM DUP		ST-MMER-3-EEM FB
Alkalinity	mg CaCO3/L	26	26	0	4	50	37	30	7	34	46	-30	7	26	26	0	7
Aluminium	mg/L	0.059	0.081	-31	0.018	0.108	0.113	-5	0.006	0.073	0.07	4	0.006	0.051	0.063	-21	0.008
Ammonia nitrogen	mg N/L	0.03	0.03	0	0.03	0.04	0.06	-40	0.09	< 0.01	< 0.01	0	< 0.01	0.03	0.01	100	0.01
Cadmium	mg/L	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	< 0.00002	0	< 0.00002	< 0.00002	< 0.00002	0	< 0.00002
Hardness	mg CaCO3/L	37	38	-3	< 1	23	25	-8	< 1	34	33	3	< 1	22	24	-9	< 1
Iron	mg/L	0.07	0.07	0	< 0.01	0.08	0.09	-12	< 0.01	0.06	0.06	0	< 0.01	0.06	0.06	0	< 0.01
Mercury	mg/L	< 0.00001	< 0.00001	0	< 0.00001	0.00002	< 0.00001	67	< 0.00001	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	0.0026	0.0026	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nitrate	mg N/L	0.56	0.56	0	0.01	0.03	0.05	-50	0.01	0.42	0.46	-9	0.05	0.05	0.11	-75	< 0.01
Selenium	mg/L	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001

Parameters	Units	28-Jul-14				27-Jan-14				26-Aug-14				30-Nov-14			
		Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank
		ST-EEM-2c WAL	ST-EEM-2c WAL DUP		ST-EEM-2c WAL FB	ST-MMER-3-EEM SPLE	ST-MMER-3-EEM SPLE DUP		ST-MMER-3-EEM SPLE FB	ST-EEM-3c SP	ST-EEM-3c SP DUP		ST-EEM-3c SP FB	ST-MMER-3-EEM SPLE	ST-MMER-3-EEM SPLE DUP		ST-MMER-3-EEM SPLE FB
Alkalinity	mg CaCO ₃ /L	15	16	-6	5	25	42	-51	12	38	16	81	7	16	17	-6	7
Aluminum	mg/L	0.027	0.041	-41	0.019	0.007	0.006	15	0.121	0.025	0.072	-97	0.006	0.012	0.018	-40	0.020
Ammonia nitrogen	mg N/L	0.01	0.01	0	0.01	0.09	0.15	-50	0.05	0.03	0.03	0	0.02	0.01	0.01	0	0.01
Arsenic	mg/L	< 0.0005	< 0.0005	0	< 0.0005	0.0005	0.0006	-18	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0	0.0005
Cadmium	mg/L	< 0.00002	< 0.00002	0	< 0.00002	0.00007	0.00005	33	0.00002	0.00018	0.00018	0	0.00002	0.00002	0.00002	0	0.00002
Copper	mg/L	0.0006	0.0010	-50	< 0.0005	0.0011	< 0.0005	75	< 0.0005	0.0013	0.0014	-7	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Cyanide	mg/L	< 0.005	< 0.005	0	< 0.005	< 0.005	0.007	-33	< 0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005
Hardness	mg CaCO ₃ /L	15	15	0	< 1	13	15	-14	< 1	12	12	0	< 1	13	13	0	1
Iron	mg/L	< 0.01	0.02	-67	< 0.01	< 0.01	< 0.01	0	< 0.01	0.02	0.02	0	< 0.01	0.01	0.01	0	< 0.01
Lead	mg/L	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0.0012	-120	< 0.0003	< 0.0003	< 0.0003	0	0.0009
Mercury	mg/L	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nickel	mg/L	< 0.0005	0.0013	-89	< 0.0005	0.0005	0.005	-164	< 0.0005	0.0009	< 0.0005	57	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nitrate	mg N/L	0.02	0.02	0	< 0.01	< 0.01	< 0.01	0	< 0.01	0.01	0.01	0	0.01	0.01	0.01	0	< 0.01
Radium 226	Bq/L	< 0.002	< 0.002	0	< 0.002	< 0.002	< 0.002	0	< 0.002	0.002	0.003	-40	0.002	< 0.002	< 0.002	0	< 0.002
Selenium	mg/L	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001
Total suspended solids	mg/L	< 1	2	-67	1	4	4	0	3	< 1	< 1	0	< 1	2	8	-120	1
Zinc	mg/L	< 0.001	0.003	-100	< 0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001	0.004	0.005	-22	0.007

Parameters	Units	27-Jan-14				28-Jul-14				26-Aug-14				30-Nov-14			
		Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank	Original ID	Duplicate ID	RPD	Field Blank
		ST-MMER-EEM-TPS	ST-MMER-EEM-TPS DUP		ST-MMER-EEM-TPS FB	ST-EEM-2c TPS	ST-EEM-2c TPS DUP		ST-EEM-2c TPS FB	ST-EEM-1c TPS	ST-EEM-1c TPS DUP		ST-EEM-1c TPS FB	ST-MMER-EEM-TPS	ST-MMER-EEM-TPS DUP		ST-MMER-EEM-TPS FB
Alkalinity	mg CaCO ₃ /L	27	36	-29	21	9	9	0	5	30	12	86	7	12	12	0	7
Aluminum	mg/L	0.102	0.787	-154	0.558	0.023	0.081	-112	0.017	0.01	0.010	0	0.006	0.011	0.024	-74	0.023
Ammonia nitrogen	mg N/L	0.25	0.05	133	0.05	0.02	0.02	-67	0.01	0.05	0.07	-33	0.05	0.07	0.07	0	0.04
Arsenic	mg/L	0.0021	0.0005	123	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0	0.0005	0.0005	0.0005	0	0.0005
Cadmium	mg/L	0.00004	0.00002	67	0.00002	0.00002	0.00002	0	0.00002	0.00002	0.00002	0	0.00002	0.00002	0.00002	0	0.00002
Copper	mg/L	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	0.0006	< 0.0005	< 0.0005	0	< 0.0005
Cyanide	mg/L	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005
Hardness	mg CaCO ₃ /L	9	7	25	3	8	8	0	1	7	7	0	< 1	8	8	0	8
Iron	mg/L	0.07	0.18	-88	< 0.01	< 0.01	< 0.01	0	< 0.01	< 0.01	< 0.01	0	< 0.01	< 0.01	< 0.01	0	< 0.01
Lead	mg/L	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0.0031	-165	< 0.0003	< 0.0003	< 0.0003	0	< 0.0003
Mercury	mg/L	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nickel	mg/L	0.0009	0.0007	25	< 0.0005	0.0007	< 0.001	33	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	< 0.0005	0	< 0.0005
Nitrate	mg N/L	0.10	0.09	11	0.01	0.05	0.05	0	0.01	0.05	0.05	0	< 0.01	0.06	0.05	18	< 0.01
Radium 226	Bq/L	< 0.002	< 0.002	0	< 0.002	< 0.002	< 0.002	0	< 0.002	< 0.002	< 0.002	0	< 0.002	< 0.002	< 0.002	0	< 0.002
Selenium	mg/L	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	< 0.001
Total suspended solids	mg/L	10	7	35	4	1	1	0	1	3	1	100	< 1	11	7	44	8
Zinc	mg/L	< 0.001	< 0.001	0	< 0.001	< 0.001	< 0.001	0	0.007	< 0.001	< 0.001	0	< 0.001	0.003	0.008	-91	0.009

Footnotes:

RPD = Relative Percent Difference

RPD values in bold represent concentrations within 10x the MDL

Highlighted RPD values represent exceedences of QAQC objectives

Italic RPD values represent one of the result are within 10X the MDL and one exceed 10x the MDL

Table 8.30: 2014 STP QAQC

Duplicate / Field Blank Analytical Certificate ID	Units	3-Mar-14			7-Jul-14		
		Original ID STP-SEP	Duplicate ID STP-SEP DUP	RPD	Original ID STP-SEP	Duplicate ID STP-SEP DUP	RPD
Ammonia	mg N/L	< 0.01	< 0.01	0	< 0.01	< 0.01	0
Ammonia-Nitrogen	mg N/L	8.7	8.4	4	9.1	9.1	0
Total Kjeldahl Nitrogen	mg N/L	9	9	-3	10	10	3
BOD-5	mg/L	1	2	-67	4	3	29
COD	mg/L	32	46	-36	53	53	0
Total Suspended Solids	mg/L	6	5	18	5	4	22
Nitrate (NO3)	mg/L	29.6	29.1	2	27.2	27.8	-2
Nitrite (NO2)	mg/L	0.04	0.05	-22	0.28	0.27	4

Duplicate / Field Blank Analytical Certificate ID	Units	3-Mar-14			7-Jul-14		
		Original ID LJMIX	Duplicate ID LMIX DUP	RPD	Original ID LJMIX	Duplicate ID LMIX DUP	RPD
Ammonia	mg N/L	< 0.01	< 0.01	0	< 0.01	< 0.01	0
Ammonia-Nitrogen	mg N/L	18.2	14.2	25	11.4	11.1	3
Total Kjeldahl Nitrogen	mg N/L	19	15	22	16	14	13
BOD-5	mg/L	5	8	-46	6	5	18
COD	mg/L	75	65	14	79	70	12
Total Suspended Solids	mg/L	11	11	0	13	14	-7
Nitrate (NO3)	mg/L	39.0	44.1	-12	35.0	36.5	-4
Nitrite (NO2)	mg/L	0.07	0.17	-83	0.10	0.09	11

Duplicate / Field Blank Analytical Certificate ID	Units	3-Mar-14			8-Jul-14		
		Original ID STP-IN	Duplicate ID STP-IN DUP	RPD	Original ID STP-IN	Duplicate ID STP-IN DUP	RPD
Ammonia	mg N/L	2.50	2.60	-4	0.01	0.90	-196
Ammonia-Nitrogen	mg N/L	109.0	105.0	4	90.1	91.3	-1
Total Kjeldahl Nitrogen	mg N/L	122	114	7	119	111	7
BOD-5	mg/L	235	229	3	316	298	6
COD	mg/L	506	516	-2	556	510	9
Total Suspended Solids	mg/L	63	68	-8	97	566	-141
Nitrate (NO3)	mg/L	0.02	< 0.01	67	0.03	0.05	-50
Nitrite (NO2)	mg/L	0.05	0.05	0	0.03	0.03	0
Total Phosphorus	mg/L	16.80	14.40	15	12.80	12.40	3

Footnotes:

RPD = Relative Percent Difference

RPD values in bold represent concentrations within 10x the MDL

Highlighted RPD values represent exceedences of QAQC objectives

Italic RPD values represent one of the result are within 10X the MDL and one exceed 10x the MDL

Table 8.31: 2013 Surface Water QAQC

Duplicate / Field Blank Analytical Certificate ID	Units	1-Jul-14			1-Jul-14		
		Original ID	Duplicate ID	RPD	Original ID	Duplicate ID	RPD
		ST-5	ST-5-DUP		ST-6	ST-6-DUP	
CN	mg/L	< 0.005	< 0.005	0	< 0.005	< 0.005	0
TSS	mg/l	< 1	< 1	0	< 1	< 1	0
Ra	Bq/l	< 0.002	< 0.002	0	< 0.002	< 0.002	0
Al	mg/l	0.033	0.171	-135	0.053	0.016	107
As	mg/L	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0
Cu	mg/L	0.0016	0.0016	0	< 0.0005	0.0016	-105
Ni	mg/L	0.003	0.003	0	< 0.001	0.003	-141
Pb	mg/L	< 0.0003	< 0.0003	0	< 0.0003	< 0.0003	0
SO4	mg/L	514	52	163	6	< 0.6	164
Zn	mg/L	0.002	0.001	67	< 0.001	0.019	-180

Footnotes:

RPD = Relative Percent Difference

RPD values in bold represent concentrations within 10x the MDL

Highlighted RPD values represent exceedences of QAQC objectives

Italic RPD values represent one of the result are within 10X the MDL and one exceed 10x the MDL

Duplicate / Field Blank Analytical Certificate ID	Units	12-May-14			3-Jun-14		
		Original ID	Duplicate ID	RPD	Original ID	Duplicate ID	RPD
		ST-S-2	ST-S-2 Dup		ST-S-2	ST-S-2 Dup	
Alkalinity	mg CaCO ₃ /L	47	50	-6	46	46	0
Ammonia	mg N/L	0.01	0.01	0	< 0.01	< 0.01	0
Ammonia nitrogen	mg N/L	1	1	0	0.19	0.25	-27
Chloride	mg/L	30.3	30.8	-2	2.4	2.5	-4
Hardness	mg CaCO ₃ /L	63	63	0	29	28	4
Nitrate (NO ₃)	mg N/L	1.2	1.2	0	0.5	0.5	-2
Sulphate (SO ₄ -4)	mg SO ₄ /L	53.5	54.5	-2	16.5	19.9	-19
Silver	mg/L	< 0.0001	< 0.0001	0	< 0.0001	< 0.0001	0
Aluminium	mg/L	0.484	0.484	0	0.672	0.596	12
Arsenic	mg/L	0.0052	0.0052	0	0.0078	0.0074	5
Barium	mg/L	0.0102	0.0091	11	0.0082	0.0085	-4
Cadmium	mg/L	0.00006	0.00003	67	< 0.00002	< 0.00002	0
Chromium	mg/L	0.0028	0.0029	-4	0.0047	0.0035	29
Copper	mg/L	0.0185	0.0194	-5	0.0119	0.0131	-10
Fluoride	mg/L	0.06	0.02	100	0.03	0.03	0
Iron	mg/L	0.96	0.97	-1	1.40	1.20	15
Mercury	mg/L	< 0.00001	< 0.00001	0	< 0.00001	< 0.00001	0
Manganese	mg/L	0.0842	0.0862	-2	0.0527	0.0509	3
Molybdenum	mg/L	0.0071	0.0070	1	0.0015	0.0015	0
Nickel	mg/L	0.0086	0.0091	-6	0.0090	0.0092	-2
Lead	mg/L	< 0.0003	0.0054	-179	< 0.0003	< 0.0003	0
Selenium	mg/L	0.003	0.002	40	< 0.001	< 0.001	0
Thallium	NTU	< 0.005	< 0.005	0	< 0.005	< 0.005	0
Zinc	mg/L	0.005	0.005	0	0.001	< 0.001	0

Duplicate / Field Blank Analytical Certificate ID	Units	1-Jul-14			
		Original ID	Duplicate ID	RPD	Field Blank
		ST-18	ST-18 Dup		ST-18-FB
TDS	mg/L	2628	2634	0	13
Total alkalinity	mg CaCO ₃ /L	96	96	0	4
Ammonia (NH ₃)	mg N/L	0.20	0.21	-5	< 0.01
Ammonia-nitrogen (NH ₃ -NH ₄)	mg N/L	8.4	8.4	0	0.0
Arsenic (As)	mg/L	0.0061	0.0069	-12	< 0.0005
Copper (Cu)	mg/L	0.0064	0.0065	-2	0.0009
Lead (Pb)	mg/L	0.0003	0.0003	0	0.0223
Nickel (Ni)	mg/L	0.0398	0.0392	2	0.0183
Zinc (Zn)	mg/L	0.040	0.004	164	0.025
Hardness	mg/L	318	316	1	6
Nitrate	mg/L	1.2	1.2	0	< 0.0
Nitrite	mg/L	0.27	0.29	-7	< 0.01
Chloride (Cl)	mg/L	84.4	83.6	1	< 0.5
Fluoride (F)	mg/L	0.57	0.57	0	< 0.02
Sulphate (SO ₂ -4)	mg/L	471	467	1	< 1
Dissolved aluminum (Al)	mg/L	< 0.006	< 0.006	0	< 0.006
Dissolved arsenic (As)	mg/L	0.0041	0.0038	8	< 0.0005
Dissolved barium (Ba)	mg/L	0.0447	0.0453	-1	< 0.0005
Dissolved cadmium (Cd)	mg/L	0.00007	0.00002	111	< 0.00002
Dissolved copper (Cu)	mg/L	0.0041	0.0041	0	< 0.0005
Dissolved iron (Fe)	mg/L	< 0.01	< 0.01	0	< 0.01
Dissolved lead (Pb)	mg/L	< 0.0003	< 0.0003	0	0.0215
Dissolved manganese (Mn)	mg/L	2.43	2.43	0	< 0.0
Dissolved mercury (Hg)	mg/L	< 0.0001	< 0.0001	0	< 0.0001
Dissolved molybdenum (Mo)	mg/L	0.0237	0.0237	0	< 0.0005
Dissolved nickel (Ni)	mg/L	0.0346	0.0348	-1	< 0.0005
Dissolved selenium (Se)	mg/L	0.001	0.002	-67	< 0.001
Dissolved silver (Ag)	mg/L	< 0.0001	< 0.0001	0	< 0.0001
Dissolved thallium (Tl)	mg/L	< 0.005	< 0.005	0	< 0.005
Dissolved zinc (Zn)	mg/L	< 0.001	< 0.001	0	< 0.001

Duplicate / Field Blank Analytical Certificate ID	Units	1-Jul-14			
		Original ID	Duplicate ID	RPD	
		ST-20	ST-20 Dup		
Alkalinity	mg CaCO ₃ /L	94	96	-2	
Ammonia	mg N/L	0.22	0.23	-4	
Ammonia nitrogen (NH ₃ -NH ₄)	mg/L	5.60	5.50	2	
TDS (dissolved solids)	mg/L	1544	1554	-1	
Arsenic As	mg/L	0.0045	0.0050	-11	
Copper Cu	mg/L	0.0005	0.0018	-113	
Nickel Ni	mg/L	0.0109	0.0109	0	
Lead Pb	mg/L	< 0.0003	< 0.0003	0	
Zinc Zn	mg/L	< 0.0010	0.0010	0	
Hardness	mg CaCO ₃ /L	111	111	0	
Nitrate (NO ₃)	mg N/L	16.4	15.8	4	
Nitrite (NO ₂)	mg N/L	0.39	0.39	0	
Chloride	mg/L	73.6	74.4	-1	
Fluoride	mg/L	0.91	0.89	2	
Sulphate (SO ₂ -4)	mg SO ₄ /L	50.9	51.7	-2	
Dissolved Al	mg/L	< 0.0001	< 0.0001	0	
Dissolved Al	mg/L	0.016	0.015	6	
Dissolved As	mg/L	0.0013	0.0013	0	
Dissolved Ba	mg/L	0.0163	0.0165	-1	
Dissolved Cd	mg/L	< 0.00002	< 0.00002	0	
Dissolved Cu	mg/L	< 0.0005	< 0.0005	0	
Dissolved Fe	mg/L	< 0.01	< 0.01	0	
Dissolved Hg	mg/L	0.0001	0.0001	0	
Dissolved Mn	mg/L	0.0115	0.0108	6	
Dissolved Mo	mg/L	0.0191	0.0192	-1	
Dissolved Ni	mg/L	0.0043	0.0042	2	
Dissolved Pb	mg/L	< 0.0003	< 0.0003	0	
Dissolved Se	mg/L	0.001	0.001	0	
Dissolved Tl	mg/L	< 0.005	< 0.005	0	
Dissolved Zn	mg/L	< 0.001	< 0.001	0	

Duplicate / Field Blank Analytical Certificate ID	Units	1-Jul-14			
		Original ID ST-21	Duplicate ID ST-21-Dup	RPD	Field Blank ST-21 Blank
Alkalinity	mg CaCO ₃ /L	90	90	0	2
Ammonia (NH ₃)	mg/L	1.3	1.3	0	< 0.1
Chloride	mg/L	1235	1397	-12	< 0.5
Cyanide (Cn(tot))	mg/L	0.913	0.812	12	< 0.005
Fluoride	mg/L	2	2	0	0.03
Hardness	mg CaCO ₃ /L	1265	1259	0	1
Copper (Cu)	mg/L	3.538	2.817	23	< 0.0005
Nitrate (NO ₃)	mg/L	26.7	25.6	4	< 0.01
Nitrite (NO ₂)	mg/L	0.19	0.19	0	< 0.01
Sulphate (SO ₄ -4)	mg SO ₄ /L	2289	2157	6	2
TDS	mg/L	8573	8740	-2	33
Dissolved Ag	mg/L	< 0.0001	< 0.0001	0	< 0.0001
Dissolved Al	mg/L	0.099	0.103	-4	< 0.006
Dissolved As	mg/L	0.007	0.006	22	< 0.001
Dissolved Ba	mg/L	0.0691	0.0699	-1	< 0.0005
Dissolved Cd	mg/L	0.00084	0.00091	-8	< 0.00002
Dissolved Cu	mg/L	0.7023	0.6585	6	0.0055
Dissolved Fe	mg/L	0.09	0.10	-11	< 0.01
Dissolved Hg	mg/L	0.0003	0.0003	0	< 0.0001
Dissolved Mn	mg/L	0.0615	0.0614	0	< 0.0005
Dissolved Mo	mg/L	0.359	0.355	1	< 0.0005
Dissolved Ni	mg/L	0.6107	0.6058	1	< 0.0005
Dissolved Pb	mg/L	< 0.0003	< 0.0003	0	< 0.0003
Dissolved Se	mg/L	0.17	0.17	1	0.002
Dissolved Ti	mg/L	< 0.005	< 0.005	0	< 0.005
Dissolved Zn	mg/L	< 0.001	0.013	-171	< 0.001
Ammonia-Nitrogen	mg/L	61.1	60.8	0	0.05
Lead (Pb)	mg/L	< 0.0003	< 0.0003	0	< 0.0003
Aluminum (Al)	mg/L	0.163	0.172	-5	0.032
Arsenic (As)	mg/L	0.0107	0.0102	5	< 0.0005
Barium (Ba)	mg/L	0.0774	0.0746	4	0.0007
Beryllium (Be)	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Cadmium (Cd)	mg/L	0.00101	0.00096	5	< 0.00002
Chromium (Cr)	mg/L	< 0.0006	< 0.0006	0	< 0.0006
Iron (Fe)	mg/L	0.42	0.41	2	0.04
Mercury (Hg)	mg/L	0.00035	0.00028	22	0.00001
Lithium (Li)	mg/L	< 0.005	< 0.005	0	< 0.005
Manganese (Mn)	mg/L	0.0674	0.0655	3	0.0029
Molybdenum (Mo)	mg/L	0.3672	0.3554	3	< 0.0005
Nickel (Ni)	mg/L	0.6694	0.6613	1	0.0060
Antimony (Sb)	mg/L	0.0036	0.0020	57	< 0.0001
Selenium (Se)	mg/L	0.177	0.173	2	< 0.001
Tin (Sn)	mg/L	0.002	0.001	67	0.001
Strontium (Sr)	mg/L	0.743	0.742	0	< 0.005
Thallium (Tl)	mg/L	< 0.005	< 0.005	0	< 0.005
Titanium (Ti)	mg/L	0.710	0.680	4	< 0.010
Uranium (U)	mg/L	0.01	0.01	11	< 0.001
Vanadium (V)	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Zinc (Zn)	mg/L	0.01	0.004	86	0.051

Duplicate / Field Blank Analytical Certificate ID	Units	3-Jun-14			RPD
		Original ID ST-S-1	Duplicate ID ST-S-1-DUP		
Alkalinity	mg CaCO ₃ /L	45	47	-4	
Ammonia	mg N/L	< 0.01	< 0.01	0	
Ammonia nitrogen	mg N/L	< 0.01	< 0.01	0	
Chloride	mg/L	0.7	0.7	0	
Hardness	mg CaCO ₃ /L	21	21	0	
Nitrate (NO ₃)	mg N/L	0.07	0.07	0	
Nitrite (NO ₂)	mg N/L	0.01	0.01	0	
Sulphate (SO ₄ -4)	mg SO ₄ /L	3.9	3.7	5	
Aq	mg/L	< 0.0001	< 0.0001	0	
Al	mg/L	0.055	0.052	6	
As	mg/L	0.004	0.004	-7	
Ba	mg/L	0.0051	0.0048	6	
Cd	mg/L	< 0.00002	< 0.00002	0	
Cr	mg/L	< 0.0006	< 0.0006	0	
Cu	mg/L	0.0014	0.0011	24	
F	mg/L	0.08	0.08	0	
Fe	mg/L	0.06	0.05	18	
Hg	mg/L	< 0.00001	< 0.00001	0	
Mn	mg/L	0.0019	0.0190	-164	
Mo	mg/L	< 0.0005	< 0.0005	0	
Ni	mg/L	0.0012	0.0012	0	
Pb	mg/L	< 0.0003	< 0.0003	0	
Se	mg/L	< 0.001	< 0.001	0	
Tl	mg/L	< 0.005	< 0.005	0	
Zn	mg/L	0.001	< 0.001	0	

Duplicate / Field Blank Analytical Certificate ID	Units	10-Jun-14			
		Original ID	Duplicate ID	RPD	Field Blank
		ST-9	ST-9 Dup		ST-9 FB
Alkalinity Total	mg CaCO ₃ /L	92	92	0	29
Ammonia-nitrogen	mg N/L	9.2	9.1	1	< 0.01
Calcium	mg/L	104	NA	NA	NA
Chloride	mg/L	90.2	91.9	-2	< 0.05
Cyanide Total	mg/L	0.331	0.315	5	< 0.005
Dissolved organic carbon	mg/L	12.4	13.1	-5	< 0.2
Fluoride	mg/L	0.28	0.28	0	< 0.02
Hardness	mg CaCO ₃ /L	404	415	-3	< 1
Magnesium	mg/L	35.2	36.1	-3	< 0.04
Nitrate	mg N/L	1.3	1.3	0	< 0.03
Nitrite	mg N/L	0.54	0.54	0	< 0.01
Ortho-phosphate	mg/L	< 0.01	< 0.01	0	< 0.01
Phosphorous total	mg/L	0.06	< 0.01	143	< 0.01
Potassium	mg/L	14.4	14.9	-3	< 0.05
Reactive silica	mg/L	10.1	10.4	-3	< 0.19
Sodium	mg/L	123	127	-3	< 0.07
Sulphate	mg/L	462	460	0	< 0.6
TDS	mg/L	782	786	-1	< 1.0
Kjeldahl Nitrogen	mg/L	19.0	16.6	13	< 0.05
TOC	mg/L	13.7	12.6	8	< 0.4
Total petroleum hydrocarbons	mg/L	< 0.1	< 0.1	0	< 0.1
TSS	mg/L	7	9	-25	< 1
Aluminum	mg/L	1.87	1.88	-1	< 0.021
Arsenic	mg/L	0.0013	0.0017	-27	< 0.0005
Boron	mg/L	0.07	0.07	0	< 0.01
Barium	mg/L	0.0418	0.0431	-3	< 0.0005
Beryllium	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Cadmium	mg/L	0.00012	0.00010	18	< 0.00002
Copper	mg/L	0.0046	0.0048	-4	< 0.0005
Chromium	mg/L	< 0.0006	0.0006	0	< 0.0013
Iron	mg/L	0.08	0.09	-12	< 0.01
Lithium	mg/L	0.005	< 0.005	0	< 0.005
Manganese	mg/L	2.783	2.823	-1	< 0.0006
Mercury	mg/L	0.00003	0.00001	100	< 0.0001
Molybdenum	mg/L	0.0237	0.0240	-1	< 0.0011
Nickel	mg/L	0.0421	0.043	-2	< 0.0005
Lead	mg/L	< 0.0003	< 0.0003	0	< 0.0003
Selenium	mg/L	0.018	< 0.001	179	< 0.001
Antimony	mg/L	0.0005	0.0005	0	< 0.0001
Tin	mg/L	< 0.001	< 0.001	0	< 0.001
Strontium	mg/L	0.466	0.458	2	< 0.005
Titanium	mg/L	0.08	0.07	NA	< 0.01
Thallium	mg/L	< 0.005	< 0.005	0	< 0.005
Uranium	mg/L	0.004	0.004	0	< 0.001
Vanadium	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Zinc	mg/L	0.004	0.005	-22	< 0.006
Dissolved aluminum	mg/L	0.031	0.031	0	< 0.006
Dissolved arsenic	mg/L	0.0013	0.0033	-87	< 0.0005
Dissolved boron	mg/L	0.07	0.07	0	< 0.01
Dissolved barium	mg/L	0.0371	0.0362	2	< 0.0005
Dissolved beryllium	mg/L	< 0.00050	< 0.00050	0	< 0.00050
Dissolved cadmium	mg/L	0.00023	0.00011	71	< 0.00002
Dissolved copper	mg/L	0.0032	0.0027	17	< 0.0005
Dissolved chromium	mg/L	< 0.0006	< 0.0006	0	< 0.0006
Dissolved iron	mg/L	0.08	0.01	156	< 0.01
Dissolved lithium	mg/L	0.005	0.005	0	< 0.005
Dissolved manganese	mg/L	2.485	2.445	2	< 0.001
Dissolved mercury	mg/L	< 0.0001	< 0.0001	0	< 0.0001
Dissolved molybdenum	mg/L	0.0335	0.0256	27	< 0.0011
Dissolved nickel	mg/L	0.0380	0.0371	2	< 0.0005
Dissolved lead	mg/L	< 0.0003	< 0.0003	0	< 0.0003
Dissolved selenium	mg/L	0.018	0.006	100	< 0.001
Dissolved antimony	mg/L	0.0006	< 0.0001	143	< 0.0001
Dissolved tin	mg/L	0.005	< 0.001	133	< 0.001
Dissolved strontium	mg/L	0.457	0.456	0	< 0.005
Dissolved titanium	mg/L	0.06	0.06	NA	< 0.01
Dissolved thallium	mg/L	< 0.005	< 0.005	0	< 0.005
Dissolved uranium	mg/L	0.002	0.002	0	< 0.001
Dissolved vanadium	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Dissolved zinc	mg/L	0.001	0.002	-87	< 0.001

Duplicate / Field Blank Analytical Certificate ID	Units	1-Jul-14		
		Original ID	Duplicate ID	RPD
		ST-16	ST-16 Dup	
Alkalinity	mg CaCO ₃ /L	241	238	1
Ammonia nitrogen (NH ₃ -NH ₄)	mg N/L	53.8	52.7	2
TDS	mg/L	8080	8406	-4
Arsenic (As)	mg/L	0.0097	0.0109	-12
Copper (Cu)	mg/L	1.113	2.414	-74
Lead (Pb)	mg/L	< 0.0003	< 0.0003	0
Nickel (Ni)	mg/L	0.9758	0.9733	0
Zinc (Zn)	mg/L	0.002	0.001	67
Ammonia (NH ₃)	mg/L	1.4	1.4	0
Chloride	mg/L	1031	868	17
Fluoride	mg/L	0.57	1	-55
Hardness	mg/L	1221	1299	-6
Nitrate	mg/L	25.9	25.9	0
Nitrite	mg/L	0.61	0.59	3
Sulphate	mg/L	2254	2556	-13
Dissolved Aluminium (Al)	mg/L	0.012	0.019	-45
Dissolved Arsenic (As)	mg/L	0.006	0.0056	7
Dissolved Barium (Ba)	mg/L	0.0596	0.059	1
Dissolved Cadmium (Cd)	mg/L	0.00078	0.00083	-6
Dissolved Copper (Cu)	mg/L	1.463	2.016	-32
Dissolved Iron (Fe)	mg/L	0.07	0.07	0
Dissolved Lead (Pb)	mg/L	< 0.0003	< 0.0003	0
Dissolved Manganese (Mn)	mg/L	2.482	2.552	-3
Dissolved Mercury (Hg)	mg/L	0.0001	0.0001	0
Dissolved Molybdenum (Mo)	mg/L	0.2045	0.2139	-4
Dissolved Nickel (Ni)	mg/L	0.9097	0.9017	1
Dissolved Selenium (Se)	mg/L	0.101	0.101	0
Dissolved Silver (Ag)	mg/L	< 0.0001	< 0.0001	0
Dissolved Thallium (Tl)	mg/L	< 0.005	< 0.005	0
Dissolved Zinc (Zn)	mg/L	< 0.001	< 0.001	0
Aluminium (Al)	mg/L	0.066	0.058	13
Antimony (Sb)	mg/L	0.0016	0.0018	-12
Boron (B)	mg/L	0.24	0.24	0
Barium (Ba)	mg/L	0.0632	0.0642	-2
Beryllium (Be)	mg/L	< 0.0005	< 0.0005	0
Cadmium (Cd)	mg/L	0.00091	0.00097	-6
Chromium (Cr)	mg/L	0.0006	< 0.0006	0
Cobalt (Co)	mg/L	0.2657	0.269	-1
Iron (Fe)	mg/L	0.49	0.47	4
Lithium (Li)	mg/L	< 0.005	< 0.005	0
Manganese (Mn)	mg/L	2.47	2.569	-4
Mercury (Hg)	mg/L	0.00005	0.00006	-18
Molybdenum (Mo)	mg/L	0.211	0.2224	-5
Selenium (Se)	mg/L	0.099	0.104	-5
Tin (Sn)	mg/L	0.002	0.002	0
Strontium (Sr)	mg/L	0.94	0.964	-3
Titanium (Ti)	mg/L	0.58	0.6	-3
Thallium (Tl)	mg/L	< 0.005	< 0.005	0
Uranium (U)	mg/L	0.252	0.262	-4
Vanadium (V)	mg/L	< 0.0005	< 0.0005	0

Duplicate / Field Blank Analytical Certificate ID	Units	7-Jan-14			Field Blank	8-Oct-14			Field Blank
		Original ID	Duplicate ID	RPD		Original ID	Duplicate ID	RPD	
		ST-8	ST-8 DUP		ST-8 FB	ST-8	ST-8 DUP		ST-8 FB
CN	mg/L	< 0.005	< 0.005	0	< 0.005	< 0.005	< 0.005	0	< 0.005
TSS	mg/L	19	14	30	4	8	11	-32	
Ra	mg/L	< 0.002	< 0.002	0	< 0.002	< 0.002	0.004	-67	0.002
Al	mg/L	0.135	0.17	-23	0.016	0.105	0.09	15	< 0.006
As	mg/L	< 0.0005	< 0.0005	0	< 0.0005	0.0009	0.0017	-62	< 0.0005
Cu	mg/L	0.0066	0.0050	28	0.0012	0.0008	0.0008	0	< 0.0005
Ni	mg/L	0.0007	0.0018	-88	0.0007	0.0012	0.0014	-15	< 0.0005
Pb	mg/L	< 0.0003	0.0017	-140	0.0271	< 0.0003	< 0.0003	0	< 0.0003
SO ₄	mg/L	3.3	3.0	10	0.6	8	8.1	-1	< 0.6
Zn	mg/L	0.012	0.008	40	0.011	< 0.001	< 0.001	0	< 0.001

Duplicate / Field Blank Analytical Certificate ID	Units	6-Aug-14		
		Original ID	Duplicate ID	RPD
		ST-23	ST-23 DUP	
Alkalinity	mg CaCO ₃ /L	127	128	-1
Ammonia	mg N/L	0.33	0.33	0
Ammonia- nitrogen	mg N/L	26.7	31.3	-16
As	mg/L	0.0395	0.0398	-1
Cu	mg/L	0.0229	0.0227	1
Ni	mg/L	0.049	0.0477	3
Pb	mg/L	0.0378	0.0348	8
TDS (dissolved solids)	mg/L	736	735	0
Zn	mg/L	0.026	0.026	0
Hardness	mg CaCO ₃ /L	378	370	2
Nitrate (NO ₃)	mg N/L	46.4	45.9	1
Nitrite (NO ₂)	mg N/L	1.5	1.5	0
Chloride	mg/L	30.9	29.5	5
Fluoride	mg/L	0.26	0.25	4
Sulphate (SO ₄ -4)	mg SO ₄ /L	148	150	-1
Dissolved Aq	mg/L	< 0.0001	< 0.0001	0
Dissolved Al	mg/L	< 0.006	< 0.006	0
Dissolved As	mg/L	0.0127	0.0125	2
Dissolved Ba	mg/L	0.059	0.058	1
Dissolved Cd	mg/L	0.0003	0.0003	3
Dissolved Cu	mg/L	0.0116	0.0115	1
Dissolved Fe	mg/L	0.22	0.22	0
Dissolved Hg	mg/L	0.0001	0.0001	0
Dissolved Mn	mg/L	0.1328	0.1349	-2
Dissolved Mo	mg/L	0.1089	0.1066	2
Dissolved Ni	mg/L	0.0254	0.0249	2
Dissolved Pb	mg/L	< 0.0003	< 0.0003	0
Dissolved Se	mg/L	0.007	0.006	15
Dissolved Ti	mg/L	< 0.005	< 0.005	0
Dissolved Zn	mg/L	0.002	0.001	67

Duplicate / Field Blank Analytical Certificate ID	Units	8-Jul-14		
		Original ID	Duplicate ID	RPD
		ST-24	ST-24 DUP	
Alkalinity	mg CaCO ₃ /L	56	56	0
Ammonia	mg N/L	< 0.01	< 0.01	0
Ammonia- nitrogen	mg N/L	0.06	0.04	40
As	mg/L	0.0173	0.0154	12
Cu	mg/L	0.0036	0.0035	3
Ni	mg/L	0.0036	0.0035	3
Pb	mg/L	0.016	0.0216	-30
TDS (dissolved solids)	mg/L	79	79	0
Zn	mg/L	0.003	0.002	40
Hardness	mg CaCO ₃ /L	59	57	3
Nitrate (NO ₃)	mg N/L	0.02	0.03	-40
Nitrite (NO ₂)	mg N/L	< 0.01	< 0.01	0
Chloride	mg/L	3.2	< 0.1	194
Fluoride	mg/L	0.07	0.07	0
Sulphate (SO ₄ -4)	mg SO ₄ /L	5.1	4.4	15
Dissolved Aq	mg/L	< 0.0001	< 0.0001	0
Dissolved Al	mg/L	0.238	0.038	145
Dissolved As	mg/L	0.0157	0.0160	-2
Dissolved Ba	mg/L	0.009	0.010	-5
Dissolved Cd	mg/L	< 0.00002	< 0.00002	0
Dissolved Cu	mg/L	0.0036	0.0028	25
Dissolved Fe	mg/L	1.30	1.40	-7
Dissolved Hg	mg/L	< 0.0001	< 0.0001	0
Dissolved Mn	mg/L	0.0190	0.0184	3
Dissolved Mo	mg/L	0.0014	0.0016	-13
Dissolved Ni	mg/L	0.0032	0.0033	-3
Dissolved Pb	mg/L	< 0.0003	0.0113	-190
Dissolved Se	mg/L	< 0.001	< 0.001	0
Dissolved Ti	mg/L	< 0.005	< 0.005	0
Dissolved Zn	mg/L	< 0.001	< 0.001	0

Duplicate / Field Blank Analytical Certificate ID	Units	8-Jul-14			
		Original ID	Duplicate ID	RPD	Field Blank
		ST-25	ST-25 DUP		ST-25 FB
TDS	mg/L	80	81	-1	1
Total alkalinity	mg CaCO ₃ /L	33	33	0	4
Ammonia (NH ₃)	mg N/L	< 0.01	< 0.01	0	< 0.01
Ammonia-nitrogen (NH ₃ -NH ₄)	mg N/L	0.73	0.75	-3	< 0.01
Arsenic (As)	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Copper (Cu)	mg/L	0.0024	0.0019	23	0.0022
Lead (Pb)	mg/L	0.0189	0.0007	186	< 0.0003
Nickel (Ni)	mg/L	0.0011	0.0012	-9	< 0.0005
Zinc (Zn)	mg/L	< 0.001	0.001	0	0.002
Total Cyanide	mg/L	< 0.005	< 0.005	0	< 0.005
Hardness	mg CaCO ₃ /L	49.00	47.00	4	1.00
Nitrate	mg N/L	1.40	1.30	7	0.02
Nitrite	mg N/L	0.03	0.03	0	< 0.01
Chloride (Cl)	mg/L	0.60	1.50	-86	< 0.50
Fluoride (F)	mg/L	0.17	0.09	62	< 0.02
Sulphate (SO ₄ -S)	mg/L	17.9	17.1	5	< 0.6
Dissolved aluminum (Al)	mg/L	0.026	< 0.006	125	< 0.006
Dissolved arsenic (As)	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Dissolved barium (Ba)	mg/L	0.0077	0.0075	3	< 0.0005
Dissolved cadmium (Cd)	mg/L	< 0.00002	< 0.00002	0	< 0.00005
Dissolved copper (Cu)	mg/L	0.0014	0.0012	15	< 0.0005
Dissolved iron (Fe)	mg/L	0.03	0.02	40	< 0.01
Dissolved lead (Pb)	mg/L	0.0129	< 0.0003	191	< 0.0003
Dissolved manganese (Mn)	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Dissolved mercury (Hg)	mg/L	< 0.0001	< 0.0001	0	< 0.0001
Dissolved molybdenum (Mo)	mg/L	0.0050	0.0049	2	< 0.0005
Dissolved nickel (Ni)	mg/L	0.0012	0.0008	40	< 0.0005
Dissolved selenium (Se)	mg/L	< 0.001	< 0.001	0	< 0.001
Dissolved silver (Ag)	mg/L	< 0.0001	< 0.0001	0	< 0.0001
Dissolved thallium (Tl)	mg/L	< 0.005	< 0.005	0	< 0.005
Dissolved zinc (Zn)	mg/L	< 0.001	< 0.001	0	< 0.001
Aluminum	mg/L	0.123	0.063	65	0.021
Antimony	mg/L	0.0003	0.0004	-29	< 0.0001
Arsenic	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Boron	mg/L	< 0.01	< 0.01	0	< 0.01
Barium	mg/L	0.0081	0.0095	-16	< 0.0005
Beryllium	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Cadmium	mg/L	< 0.00002	0.00004	-67	< 0.00002
Copper	mg/L	0.0024	0.0019	23	0.0022
Chromium	mg/L	< 0.0006	< 0.0006	0	< 0.0006
Cobalt	mg/L	< 0.0005	< 0.0005	0	< 0.0005
Iron	mg/L	0.12	0.12	0	0.02
Lithium	mg/L	< 0.005	< 0.005	0	< 0.005
Manganese	mg/L	0.016	0.016	-1	0.014
Mercury	mg/L	< 0.00001	< 0.00001	0	< 0.00001
Molybdenum	mg/L	0.0045	0.0046	-2	< 0.0005
Nickel	mg/L	0.0011	0.0012	-9	< 0.0005
Lead	mg/L	0.0189	0.0007	186	< 0.0003
Selenium	mg/L	< 0.001	< 0.001	0	< 0.001
Tin	mg/L	< 0.001	< 0.001	0	< 0.001
Strontium	mg/L	0.071	0.072	-1	< 0.005
Titanium	mg/L	0.01	0.01	0	< 0.01
Thallium	mg/L	< 0.005	< 0.005	0	< 0.005
Uranium	mg/L	0.001	NA		NA
Vanadium	mg/L	0.0005	NA		NA
Zinc	mg/L	< 0.001	0.001	0	0.002

Table 8.32: 2014 Bulk Fuel Storage Facility QAQC

Duplicate / Field Blank Analytical Certificate ID	Units	26-May-14			20-Jul-14			
		Original ID	Duplicate ID	RPD	Original ID	Duplicate ID	RPD	Field Blank
		ST-40.2	ST-40.2 DUP		ST-40.2	ST-40.2 DUP		ST-40.2 FB
Ammonia nitrogen	mg N/L	0.05	0.03	50	< 0.01	< 0.01	0	< 0.01
Arsenic	mg/L	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005
Benzene	ug/L	< 0.3	< 0.3	0	< 0.3	< 0.3	0	< 0.3
Copper	mg/L	0.0038	0.0036	5	0.006	0.0062	-3	< 0.0005
Ethylbenzene	ug/L	< 0.3	< 0.3	0	< 0.3	< 0.3	0	< 0.3
Lead**	mg/L	< 0.0003	0.0172	-193	0.0007	0.0024	-110	< 0.0003
Nickel	mg/L	0.001	0.001	0	0.0011	0.0012	-9	< 0.0005
Toluene	ug/L	< 0.3	< 0.3	0	< 0.3	< 0.3	0	< 0.3
Total Cyanide	mg/L	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005
Total oil and grease	mg/L	< 1	< 1	0	< 1	< 1	0	< 1
Total Xylenes	ug/L	< 0.3	< 0.3	0	< 0.3	< 0.3	0	< 0.3
TSS	mg/L	16	11	37	2	2	0	< 1
Zinc	mg/L	0.004	0.005	-22	< 0.001	< 0.001	0	< 0.001
Aluminium	mg/L	0.757	0.392	64	0.129	0.274	-72	0.011
Antimony	mg/L	0.0001	< 0.0001	0	0.0002	0.001	-133	0.0004
Barium	mg/L	0.0353	0.0347	2	0.0612	0.0643	-5	0.0013
Beryllium	mg/L	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005
Cadmium	mg/L	< 0.00002	< 0.00002	0	0.00014	0.00017	-19	< 0.00002
Chrome	mg/L	0.0057	< 0.0006	162	< 0.0006	0.0018	-100	0.0022
Cobalt	mg/L	< 0.0005	< 0.0005	0	0.0005	< 0.0005	0	< 0.0005
Tin	mg/L	< 0.001	< 0.001	0	0.012	0.002	143	< 0.001
Iron	mg/L	0.71	0.46	43	0.1	0.12	-18	< 0.01
Lithium	mg/L	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005
Manganese	mg/L	0.0201	0.0202	0	0.0058	0.0058	0	< 0.0005
Molybdenum	mg/L	0.0005	< 0.0005	0	0.003	0.0022	31	< 0.0005
Selenium	mg/L	0.001	< 0.001	0	0.001	< 0.001	0	< 0.001
Strontium	mg/L	< 0.005	0.032	-146	0.067	0.064	5	< 0.005
Thallium	mg/L	< 0.005	< 0.005	0	< 0.005	< 0.005	0	< 0.005
Titanium	mg/L	0.02	0.02	0	0.02	0.02	0	< 0.01
Uranium	mg/L	< 0.001	< 0.001	0	0.001	0.001	0	< 0.001
Vanadium	mg/L	< 0.0005	< 0.0005	0	< 0.0005	< 0.0005	0	< 0.0005
Hydrocarbons C10-C50	mg/L	< 0.1000	< 0.1000	0	0.2000	0.5000	-86	0.2000

Footnotes:

RPD = Relative Percent Difference

RPD values in bold represent concentrations within 10x the MDL

Highlighted RPD values represent exceedences of QAQC objectives

Italic RPD values represent one of the result are within 10X the MDL and one exceed 10x the MDL

Table 8.33: 2014 Analite NEP 160 Turbidity Meter Calibration #2

Date	Standard	Initial reading NTU	Final reading NTU
2014-01-08	0.00	0.00	0.01
	10.00	9.99	10.01
	100.00	99.60	100.00
2014-01-14	0.00	0.02	0.00
	10.00	10.07	10.01
	100.00	106.10	100.20
2014-01-20	0.00	0.63	0.00
	10.00	19.81	9.98
	100.00	100.00	100.00
2014-01-27	0.00	0.00	0.00
	10.00	9.99	10.00
	100.00	100.00	100.00
2014-01-28	0.00	0.00	0.01
	10.00	9.98	10.00
	100.00	99.80	100.10
2014-01-29	0.00	0.01	-0.01
	10.00	10.06	9.99
	100.00	100.00	9.99
2014-02-04	0.00	0.12	-0.01
	10.00	10.01	10.00
	100.00	98.70	100.00
2014-02-10	0.00	-0.10	0.01
	10.00	10.01	9.99
	100.00	100.40	99.90
2014-02-18	0.00	0.08	0.01
	10.00	10.11	9.99
	100.00	99.70	100.00
2014-02-19	0.00	-0.11	-0.01
	10.00	9.89	9.96
	100.00	99.50	100.20
2014-02-20	0.00	-0.01	0.01
	10.00	9.86	9.94
	100.00	99.60	100.00
2014-02-23	0.00	0.40	-0.01
	10.00	11.41	10.01
	100.00	105.35	99.90
2014-02-25	0.00	0.22	-0.01
	10.00	10.66	10.02
	100.00	106.40	100.10
2014-02-27	0.00	-0.27	-0.01
	10.00	9.95	10.01
	100.00	100.10	99.90
2014-02-28	0.00	0.00	0.00
	10.00	10.03	9.99
	100.00	100.10	99.80
2014-03-01	0.00	0.09	-0.01
	10.00	10.04	10.01
	100.00	100.60	100.20
2014-03-02	0.00	0.01	0.00
	10.00	10.04	10.01
	100.00	100.80	100.40

Date	Standard	Initial reading NTU	Final reading NTU
2014-03-03	0.00	0.01	0.00
	10.00	10.00	10.00
	100.00	99.00	99.80
2014-03-04	0.00	0.01	0.01
	10.00	9.96	10.01
	100.00	99.40	99.90
2014-03-05	0.00	0.02	0.00
	10.00	10.00	10.00
	100.00	101.80	100.00
2014-03-06	0.00	-0.01	0.00
	10.00	9.94	10.01
	100.00	99.80	100.30
2014-03-07	0.00	-0.15	0.01
	10.00	9.98	9.97
	100.00	99.90	99.80
2014-03-08	0.00	0.01	0.00
	10.00	10.05	10.01
	100.00	98.70	100.10
2014-03-09	0.00	0.04	0.01
	10.00	10.03	10.00
	100.00	100.50	100.10
2014-03-10	0.00	-0.03	0.05
	10.00	10.06	9.97
	100.00	100.50	100.10
2014-03-11	0.00	0.03	0.00
	10.00	9.86	10.02
	100.00	99.80	100.10
2014-03-12	0.00	-0.02	0.00
	10.00	9.97	10.00
	100.00	99.90	99.90
2014-03-13	0.00	0.06	0.01
	10.00	9.98	10.03
	100.00	99.20	100.40
2014-03-14	0.00	0.01	-0.02
	10.00	9.95	10.05
	100.00	100.10	100.10
2014-03-15	0.00	-0.02	0.00
	10.00	10.82	9.97
	100.00	101.60	99.80
2014-03-16	0.00	-0.02	0.00
	10.00	9.96	10.00
	100.00	99.30	98.70
2014-03-17	0.00	0.04	0.00
	10.00	9.98	10.01
	100.00	98.80	99.90
2014-03-18	0.00	0.00	-0.02
	10.00	10.01	9.95
	100.00	100.60	100.00
2014-03-19	0.00	-0.03	0.05
	10.00	10.01	9.99
	100.00	98.90	100.00
2014-03-20	0.00	0.02	0.03
	10.00	10.03	10.03
	100.00	99.80	99.90

Date	Standard	Initial reading NTU	Final reading NTU
2014-03-21	0.00	0.01	0.00
	10.00	10.06	10.02
	100.00	100.10	100.00
2014-03-22	0.00	0.01	0.00
	10.00	10.03	10.01
	100.00	100.30	100.00
2014-03-23	0.00	0.02	0.00
	10.00	10.04	10.02
	100.00	100.10	100.00
2014-03-24	0.00	0.01	0.00
	10.00	9.98	10.01
	100.00	99.60	100.00
2014-03-25	0.00	0.02	0.01
	10.00	10.03	10.00
	100.00	99.90	100.00
2014-03-26	0.00	0.01	0.00
	10.00	10.02	10.00
	100.00	9.99	100.10
2014-03-27	0.00	0.07	0.01
	10.00	9.96	9.98
	100.00	98.90	100.10
2014-03-28	0.00	0.04	0.01
	10.00	9.94	10.01
	100.00	99.10	100.00
2014-03-29	0.00	0.03	0.01
	10.00	10.00	10.00
	100.00	100.00	100.00
2014-03-30	0.00	0.02	0.01
	10.00	10.00	10.00
	100.00	100.30	100.00
2014-03-31	0.00	0.05	0.01
	10.00	10.00	10.00
	100.00	100.20	100.00
2014-04-01	0.00	0.03	0.02
	10.00	9.87	9.98
	100.00	98.60	99.90
2014-04-02	0.00	0.04	0.00
	10.00	10.12	10.00
	100.00	100.60	100.00
2014-04-03	0.00	0.06	0.00
	10.00	10.04	10.00
	100.00	100.00	100.00
2014-04-04	0.00	0.01	0.00
	10.00	10.00	9.99
	100.00	99.80	100.00
2014-04-05	0.00	0.04	0.02
	10.00	10.08	10.01
	100.00	100.20	100.10
2014-04-06	0.00	0.09	-0.01
	10.00	10.04	9.97
	100.00	100.30	100.10
2014-04-07	0.00	-0.02	0.00
	10.00	9.94	10.00
	100.00	100.60	100.00

Date	Standard	Initial reading NTU	Final reading NTU
2014-04-08	0.00	-0.04	0.01
	10.00	9.94	10.01
	100.00	99.60	100.00
2014-04-09	0.00	0.01	0.02
	10.00	9.91	9.97
	100.00	99.40	99.80
2014-04-10	0.00	0.01	0.00
	10.00	9.99	10.01
	100.00	99.80	100.00
2014-04-12	0.00	-0.01	0.00
	10.00	9.98	10.01
	100.00	99.50	100.30
2014-04-13	0.00	0.00	0.01
	10.00	10.01	10.00
	100.00	99.90	100.00
2014-04-14	0.00	0.01	0.05
	10.00	10.03	9.97
	100.00	99.80	99.70
2014-04-15	0.00	-0.01	0.00
	10.00	10.03	10.00
	100.00	99.80	100.10
2014-04-16	0.00	-0.03	0.00
	10.00	10.04	10.00
	100.00	99.90	100.00
2014-04-17	0.00	-0.02	0.00
	10.00	10.01	10.00
	100.00	100.00	100.00
2014-04-18	0.00	-0.03	-0.01
	10.00	10.00	10.03
	100.00	100.00	100.00
2014-04-19	0.00	0.00	0.00
	10.00	10.00	10.00
	100.00	99.80	100.00
2014-04-20	0.00	0.00	0.00
	10.00	10.00	10.00
	100.00	99.70	100.10
2014-04-21	0.00	-0.01	0.01
	10.00	10.01	9.96
	100.00	99.80	100.00
2014-04-22	0.00	0.00	0.00
	10.00	9.98	9.99
	100.00	99.77	100.00
2014-04-23	0.00	0.00	0.02
	10.00	10.05	10.02
	100.00	100.10	100.00
2014-04-24	0.00	0.00	0.00
	10.00	10.08	9.95
	100.00	99.20	100.10
2014-04-26	0.00	0.01	0.00
	10.00	10.09	10.01
	100.00	100.00	100.00
2014-04-27	0.00	0.02	0.01
	10.00	10.03	10.02
	100.00	100.00	100.00

Date	Standard	Initial reading NTU	Final reading NTU
2014-04-28	0.00	0.03	0.00
	10.00	9.95	10.01
	100.00	99.70	100.00
2014-04-29	0.00	0.03	0.01
	10.00	9.97	10.00
	100.00	99.80	100.10
2014-04-30	0.00	0.02	0.02
	10.00	10.31	9.98
	100.00	100.00	100.00
2014-05-01	0.00	0.03	0.01
	10.00	10.03	10.02
	100.00	100.10	100.20
2014-05-02	0.00	0.03	0.01
	10.00	10.02	10.00
	100.00	99.80	100.20
2014-05-03	0.00	0.02	0.01
	10.00	10.03	10.00
	100.00	100.10	99.80
2014-05-04	0.00	0.33	0.01
	10.00	10.18	10.03
	100.00	11.05	100.30
2014-05-05	0.00	0.03	0.01
	10.00	10.28	10.10
	100.00	108.40	100.20
2014-05-06	0.00	0.06	0.01
	10.00	10.16	10.01
	100.00	111.30	100.20
2014-05-07	0.00	0.27	0.01
	10.00	11.43	10.00
	100.00	110.10	100.10
2014-05-08	0.00	0.05	0.00
	10.00	10.09	9.96
	100.00	100.30	100.10
2014-05-09	0.00	0.04	0.00
	10.00	10.06	10.03
	100.00	100.10	100.00
2014-05-10	0.00	-0.01	0.03
	10.00	10.04	10.03
	100.00	99.90	100.00
2014-05-11	0.00	0.01	0.03
	10.00	10.01	10.02
	100.00	100.30	100.00
2014-05-12	0.00	0.01	0.02
	10.00	10.01	10.05
	100.00	99.90	99.80
2014-05-13	0.00	0.03	-0.05
	10.00	10.04	10.05
	100.00	100.00	100.10
2014-05-14	0.00	0.00	0.02
	10.00	10.06	9.97
	100.00	100.10	100.00
2014-05-15	0.00	-0.01	0.00
	10.00	10.04	10.02
	100.00	99.80	100.20

Date	Standard	Initial reading NTU	Final reading NTU
2014-05-16	0.00	-0.32	0.03
	10.00	10.08	9.99
	100.00	100.10	100.00
2014-05-17	0.00	0.02	0.04
	10.00	10.06	10.05
	100.00	100.40	100.10
2014-05-18	0.00	0.00	-0.01
	10.00	10.00	10.00
	100.00	99.80	100.20
2014-05-19	0.00	0.00	0.01
	10.00	10.03	10.05
	100.00	100.10	100.20
2014-05-20	0.00	0.01	-0.01
	10.00	9.96	9.99
	100.00	99.00	100.00
2014-05-21	0.00	0.00	0.00
	10.00	10.01	10.05
	100.00	100.60	100.00
2014-05-22	0.00	0.01	0.01
	10.00	10.03	10.01
	100.00	99.70	100.00
2014-05-23	0.00	0.09	0.01
	10.00	10.04	9.99
	100.00	100.80	100.00
2014-05-24	0.00	0.03	0.01
	10.00	10.03	9.98
	100.00	100.60	100.00
2014-05-25	0.00	0.01	-0.01
	10.00	9.99	10.01
	100.00	100.30	100.00
2014-05-26	0.00	0.11	-0.03
	10.00	10.08	10.01
	100.00	100.40	100.00
2014-05-27	0.00	0.26	-0.05
	10.00	10.11	10.01
	100.00	100.40	100.00
2014-05-28	0.00	0.20	-0.01
	10.00	9.99	10.01
	100.00	98.40	100.00
2014-05-29	0.00	0.41	0.15
	10.00	11.26	9.84
	100.00	106.70	96.90
2014-05-30	0.00	0.37	0.04
	10.00	11.27	9.97
	100.00	107.00	101.00
2014-05-31	0.00	0.68	0.01
	10.00	11.12	10.06
	100.00	10.66	100.00
2014-06-01	0.00	0.40	0.02
	10.00	11.23	10.04
	100.00	107.10	100.10
2014-06-02	0.00	0.87	0.11
	10.00	11.42	9.89
	100.00	107.00	100.00

Date	Standard	Initial reading NTU	Final reading NTU
2014-06-03	0.00	0.82	0.00
	10.00	12.08	10.08
	100.00	107.80	100.10
2014-06-04	0.00	0.05	0.00
	10.00	9.98	9.96
	100.00	100.00	100.00
2014-06-06	0.00	-0.16	0.00
	10.00	9.97	10.01
	100.00	100.10	100.00
2014-06-07	0.00	0.01	0.00
	10.00	10.03	10.02
	100.00	100.60	100.10
2014-06-08	0.00	0.02	0.00
	10.00	10.01	10.01
	100.00	100.30	100.10
2014-06-09	0.00	0.02	0.02
	10.00	9.99	9.98
	100.00	100.60	99.90
2014-06-10	0.00	0.01	0.02
	10.00	10.08	10.02
	100.00	100.20	100.00
2014-06-11	0.00	0.01	0.02
	10.00	10.01	10.05
	100.00	99.30	100.00
2014-06-12	0.00	0.01	0.05
	10.00	10.03	9.97
	100.00	100.00	100.10
2014-06-13	0.00	0.00	0.01
	10.00	10.06	10.01
	100.00	100.10	100.20
2014-06-15	0.00	0.01	0.01
	10.00	10.03	10.01
	100.00	99.60	100.00
2014-06-16	0.00	0.02	136.66
	10.00	10.06	186.66
	100.00	100.10	236.65
2014-06-17	0.00	0.01	-0.04
	10.00	10.08	10.40
	100.00	99.70	99.80
2014-06-18	0.00	-0.96	0.05
	10.00	10.11	10.01
	100.00	99.90	100.10
2014-06-19	0.00	0.66	-0.02
	10.00	11.40	10.03
	100.00	107.50	100.01
2014-06-20	0.00	-0.10	-0.02
	10.00	10.02	9.92
	100.00	100.03	99.80
2014-06-21	0.00	0.75	-0.01
	10.00	11.43	9.99
	100.00	107.60	100.00
2014-06-22	0.00	1.86	-0.05
	10.00	13.81	10.18
	100.00	107.00	99.90

Date	Standard	Initial reading NTU	Final reading NTU
2014-06-23	0.00	0.77	-0.01
	10.00	11.45	10.01
	100.00	106.50	100.10
2014-06-24	0.00	0.79	-0.01
	10.00	11.54	9.99
	100.00	116.90	99.80
2014-06-25	0.00	0.77	0.03
	10.00	11.65	10.04
	100.00	107.80	100.00
2014-06-26	0.00	0.78	0.01
	10.00	11.59	9.99
	100.00	108.00	100.00
2014-06-27	0.00	0.76	0.04
	10.00	11.59	9.97
	100.00	107.80	100.00
2014-06-28	0.00	0.80	0.02
	10.00	11.64	10.00
	100.00	108.00	100.10
2014-06-29 No sampling due to training for all staff on-site			
2014-06-30	0.00	0.01	0.00
	10.00	10.01	10.02
	100.00	100.30	100.00
2014-07-01	0.00	-0.03	0.00
	10.00	9.99	10.00
	100.00	99.70	100.00
2014-07-02	0.00	0.00	0.00
	10.00	9.98	9.98
	100.00	99.90	100.20
2014-07-03	0.00	-0.04	0.00
	10.00	9.90	9.99
	100.00	99.60	100.00
2014-07-04	0.00	0.01	0.03
	10.00	10.06	10.03
	100.00	100.10	100.00
2014-07-05	0.00	0.02	-0.02
	10.00	9.97	10.00
	100.00	100.20	100.00
2014-07-06	0.00	-0.01	0.00
	10.00	10.02	10.00
	100.00	99.90	100.00
2014-07-07	0.00	0.01	0.01
	10.00	10.07	10.03
	100.00	100.20	100.10
2014-07-08	0.00	0.01	0.03
	10.00	10.06	9.95
	100.00	100.30	100.00
2014-07-09	0.00	0.81	0.01
	10.00	11.56	10.01
	100.00	107.30	100.10
2014-07-10	0.00	0.81	0.01
	10.00	11.63	10.00
	100.00	108.50	99.80

Date	Standard	Initial reading NTU	Final reading NTU
2014-07-11	0.00	0.63	0.00
	10.00	11.32	9.99
	100.00	106.30	100.10
2014-07-12	0.00	0.71	-0.01
	10.00	10.39	10.02
	100.00	106.40	99.70
2014-07-13	0.00	0.86	0.02
	10.00	11.61	9.99
	100.00	98.90	101.00
2014-07-14	0.00	1.44	-0.01
	10.00	11.70	10.02
	100.00	107.70	100.30
2014-07-15	0.00	1.22	0.02
	10.00	11.68	10.03
	100.00	107.40	100.60
2014-07-16	0.00	0.91	0.02
	10.00	11.81	10.01
	100.00	107.60	100.00
2014-07-17	0.00	0.94	0.02
	10.00	12.78	9.89
	100.00	107.30	100.10
2014-07-18	0.00	1.02	-0.01
	10.00	11.84	9.99
	100.00	107.20	100.00
2014-07-19	0.00	0.97	0.00
	10.00	11.89	10.02
	100.00	104.80	99.30
2014-07-20	0.00	0.36	0.00
	10.00	12.01	9.98
	100.00	107.00	100.00
2014-07-21	0.00	0.19	0.00
	10.00	11.95	9.97
	100.00	107.40	100.00
2014-07-22	0.00	0.17	0.01
	10.00	11.80	10.02
	100.00	106.40	100.10
2014-07-23	0.00	0.31	-0.03
	10.00	10.47	10.02
	100.00	101.10	100.10
2014-07-24	0.00	0.16	0.03
	10.00	10.11	9.98
	100.00	100.40	100.10
2014-07-25	0.00	0.32	-0.02
	10.00	11.34	10.02
	100.00	108.40	100.10
2014-07-26	0.00	0.46	0.04
	10.00	11.17	10.04
	100.00	110.40	100.30
2014-07-28	0.00	0.37	0.03
	10.00	11.01	10.01
	100.00	109.40	100.10
2014-07-29	0.00	-0.01	0.00
	10.00	10.25	10.00
	100.00	99.40	100.10

Date	Standard	Initial reading NTU	Final reading NTU
2014-07-30	0.00	0.06	0.00
	10.00	9.99	10.01
	100.00	99.80	100.20
2014-07-31	0.00	-0.02	0.00
	10.00	10.03	9.99
	100.00	100.40	100.00
2014-08-01	0.00	-0.18	-0.02
	10.00	10.06	10.02
	100.00	100.10	100.10
2014-08-02	0.00	-0.02	-0.01
	10.00	10.01	10.02
	100.00	100.30	100.10
2014-08-04	0.00	0.00	0.00
	10.00	10.14	10.00
	100.00	99.80	100.10
2014-08-05	0.00	0.02	0.00
	10.00	10.08	10.00
	100.00	102.30	100.00
2014-08-06	0.00	-0.06	0.00
	10.00	9.94	9.76
	100.00	100.00	100.00
2014-08-08	0.00	-0.01	0.01
	10.00	10.06	9.98
	100.00	100.10	100.10
2014-08-10	0.00	0.01	0.01
	10.00	10.03	10.03
	100.00	100.40	100.00
2014-08-11	0.00	0.02	0.01
	10.00	10.01	9.98
	100.00	100.70	99.80
2014-08-12	0.00	0.00	-0.02
	10.00	10.02	9.99
	100.00	99.60	100.00
2014-08-14	0.00	-0.01	0.00
	10.00	10.01	9.99
	100.00	99.70	100.00
2014-08-17	0.00	-0.03	0.02
	10.00	10.01	10.01
	100.00	103.20	100.10
2014-08-19	0.00	0.04	0.01
	10.00	10.04	10.00
	100.00	100.40	100.10
2014-08-20	0.00	0.02	0.02
	10.00	10.02	10.01
	100.00	100.30	100.10
2014-08-21	0.00	0.06	0.01
	10.00	10.04	10.02
	100.00	100.30	100.10
2014-08-24	0.00	1.00	0.00
	10.00	10.12	9.98
	100.00	100.40	100.00
2014-08-27	0.00	0.00	0.01
	10.00	10.03	10.00
	100.00	99.80	100.00

Date	Standard	Initial reading NTU	Final reading NTU
2014-08-28	0.00	-0.07	0.01
	10.00	9.94	10.00
	100.00	100.20	100.10
2014-08-30	0.00	0.00	0.02
	10.00	10.02	10.00
	100.00	99.90	100.00
2014-09-01	0.00	-0.02	0.00
	10.00	10.00	10.00
	100.00	99.70	100.00
2014-09-02	0.00	-0.02	0.00
	10.00	9.97	9.99
	100.00	100.10	100.00
2014-09-03	0.00	-0.08	0.00
	10.00	9.98	10.00
	100.00	99.90	99.90
2014-09-12	0.00	0.02	0.01
	10.00	9.95	9.98
	100.00	99.20	100.00
2014-10-21	0.00	-0.06	0.00
	10.00	9.89	10.04
	100.00	95.70	100.30
2014-10-22	0.00	0.06	0.01
	10.00	10.22	10.09
	100.00	96.10	99.80
2014-10-23	0.00	0.11	0.02
	10.00	10.36	10.01
	100.00	98.40	100.00
2014-11-30	0.00	-0.01	0.00
	10.00	9.97	10.01
	100.00	100.60	100.10
2014-12-01	0.00	0.11	-0.04
	10.00	10.02	10.50
	100.00	100.60	100.20
2014-12-02	0.00	0.12	-0.01
	10.00	10.06	10.01
	100.00	99.80	100.10
2014-12-03	0.00	0.02	-0.01
	10.00	10.06	10.00
	100.00	100.20	99.80
2014-12-04	0.00	0.00	-0.01
	10.00	10.04	99.90
	100.00	100.60	100.10
2014-12-05	0.00	0.31	0.00
	10.00	10.26	10.02
	100.00	100.10	100.10
2014-12-21	0.00	0.28	0.02
	10.00	10.25	10.06
	100.00	99.90	100.00
2014-12-22	0.00	0.53	-0.01
	10.00	10.81	10.02
	100.00	97.40	100.10
2014-12-23	0.00	0.55	0.01
	10.00	10.27	9.98
	100.00	98.60	100.00

Date	Standard	Initial reading NTU	Final reading NTU
2014-12-24	0.00	0.51	-0.02
	10.00	10.18	10.01
	100.00	99.20	100.00
2014-12-25	0.00	0.30	-0.01
	10.00	10.12	9.98
	100.00	99.30	100.12
2014-12-26	0.00	0.51	0.04
	10.00	11.20	10.08
	100.00	104.80	100.00
2014-12-27	0.00	0.42	-0.01
	10.00	11.12	10.03
	100.00	105.10	99.80
2014-12-30	0.00	0.06	-0.01
	10.00	10.06	10.03
	100.00	100.40	100.10

Table 8.34: 2014 Analite NEP 160 Turbidity Meter Calibration #5

Date	Standard	Initial reading NTU	Final reading NTU
2014-09-05	0.00	0.21	0.02
	10.00	10.18	10.02
	100.00	100.30	100.00
2014-09-07	0.00	0.03	-0.01
	10.00	10.13	10.06
	100.00	100.80	100.00
2014-09-09	0.00	0.07	0.02
	10.00	10.08	10.03
	100.00	100.10	100.10
2014-09-10	0.00	0.01	0.00
	10.00	10.04	10.02
	100.00	9.96	10.01
2014-09-12	0.00	0.02	0.01
	10.00	9.95	9.98
	100.00	99.20	100.00
2014-09-13	0.00	0.02	-0.01
	10.00	9.78	9.98
	100.00	96.70	99.40
2014-09-17	0.00	-0.05	0.00
	10.00	9.97	10.00
	100.00	100.50	100.00
2014-09-21	0.00	-0.06	0.00
	10.00	9.88	10.00
	100.00	99.10	100.10
2014-09-22	0.00	0.30	0.01
	10.00	9.97	10.00
	100.00	100.10	100.10
2014-09-24	0.00	0.24	0.00
	10.00	10.07	10.01
	100.00	100.00	100.00
2014-09-26	0.00	2.11	0.00
	10.00	9.94	10.00
	100.00	99.50	100.00
2014-09-27	0.00	-0.02	0.00
	10.00	10.03	10.01
	100.00	100.00	100.10
2014-09-28	0.00	0.04	0.01
	10.00	10.06	10.01
	100.00	100.10	100.00
2014-09-29	0.00	0.02	-0.01
	10.00	10.03	9.96
	100.00	100.60	100.00
2014-09-30	0.00	0.02	0.01
	10.00	0.04	10.05
	100.00	100.40	100.00
2014-10-01	0.00	0.00	0.01
	10.00	9.99	10.01
	100.00	99.70	100.00
2014-10-02	0.00	0.00	0.05
	10.00	9.99	9.98
	100.00	100.40	100.10

Date	Standard	Initial reading NTU	Final reading NTU
2014-10-03	0.00	-0.02	0.03
	10.00	10.01	10.05
	100.00	100.60	100.10
2014-10-04	0.00	0.01	0.01
	10.00	10.12	10.02
	100.00	100.00	100.00
2014-10-05	0.00	0.03	-0.03
	10.00	10.06	10.04
	100.00	100.10	100.10
2014-10-06	0.00	-0.03	0.00
	10.00	10.06	10.01
	100.00	100.40	100.00
2014-10-07	0.00	0.01	0.01
	10.00	9.95	9.99
	100.00	99.80	100.00
2014-10-08	0.00	0.04	-0.01
	10.00	10.06	10.00
	100.00	100.00	100.20
2014-10-09	0.00	-0.02	0.00
	10.00	9.98	10.00
	100.00	100.40	100.10
2014-10-11	0.00	0.03	0.00
	10.00	10.06	10.02
	100.00	100.20	99.90
2014-10-12	0.00	0.02	0.01
	10.00	9.98	10.01
	100.00	99.70	100.00
2014-10-13	0.00	0.03	0.01
	10.00	9.96	10.01
	100.00	99.40	99.80
2014-10-14	0.00	0.02	0.01
	10.00	10.01	10.00
	100.00	99.80	100.10
2014-10-15	0.00	-0.01	0.01
	10.00	9.96	10.02
	100.00	99.80	100.00
2014-10-16	0.00	-0.03	-0.01
	10.00	10.11	10.08
	100.00	99.60	100.10
2014-10-18	0.00	-0.03	-0.01
	10.00	10.04	10.12
	100.00	99.50	100.20
2014-10-19	0.00	0.23	0.00
	10.00	10.90	9.95
	100.00	96.60	100.10
2014-10-24	0.00	-0.01	-0.03
	10.00	10.58	10.05
	100.00	101.10	100.00
2014-10-25	0.00	-0.01	0.03
	10.00	10.06	9.99
	100.00	100.10	100.00
2014-10-26	0.00	-0.02	0.00
	10.00	10.01	9.95
	100.00	100.30	100.10

Date	Standard	Initial reading NTU	Final reading NTU
2014-10-27	0.00	-0.01	0.01
	10.00	10.05	10.01
	100.00	99.70	100.00
2014-10-28	0.00	0.04	-0.01
	10.00	10.00	10.03
	100.00	99.10	99.90
2014-10-29	0.00	0.00	0.01
	10.00	99.50	9.95
	100.00	100.60	100.10
2014-10-30	0.00	0.04	0.02
	10.00	10.00	10.01
	100.00	99.60	99.90
2014-10-31	0.00	0.04	-0.01
	10.00	9.98	10.00
	100.00	99.90	99.90
2014-11-01	0.00	-0.01	0.03
	10.00	10.01	9.98
	100.00	99.90	100.10
2014-11-02	0.00	0.01	0.01
	10.00	9.99	10.00
	100.00	99.60	99.80
2014-11-03	0.00	0.03	-0.02
	10.00	10.00	10.03
	100.00	100.20	99.90
2014-11-04	0.00	-0.04	0.03
	10.00	10.04	10.02
	100.00	99.50	99.50
2014-11-05	0.00	0.04	-0.50
	10.00	9.96	10.03
	100.00	100.10	100.20
2014-11-06	0.00	-0.03	0.00
	10.00	10.08	10.02
	100.00	99.70	99.90
2014-11-07	0.00	0.01	0.01
	10.00	10.06	10.01
	100.00	98.70	100.20
2014-11-08	0.00	0.02	0.01
	10.00	10.03	10.01
	100.00	99.60	100.00
2014-11-09	0.00	0.02	0.01
	10.00	9.97	10.01
	100.00	99.40	99.90
2014-11-10	0.00	0.06	-0.01
	10.00	10.00	10.20
	100.00	99.80	100.10
2014-11-11	0.00	0.05	0.01
	10.00	9.96	9.99
	100.00	99.90	100.00
2014-11-12	0.00	0.05	0.02
	10.00	10.04	10.01
	100.00	100.10	99.90
2014-11-13	0.00	0.01	0.01
	10.00	10.04	10.02
	100.00	100.10	100.00

Date	Standard	Initial reading NTU	Final reading NTU
2014-11-14	0.00	0.20	0.00
	10.00	11.36	99.90
	100.00	107.10	100.20
2014-11-15	0.00	0.23	0.02
	10.00	11.30	10.01
	100.00	106.30	100.10
2014-11-16	0.00	0.20	0.00
	10.00	11.21	10.40
	100.00	106.60	100.00
2014-11-17	0.00	0.23	0.01
	10.00	11.28	9.98
	100.00	104.30	100.10
2014-11-18	0.00	0.23	0.01
	10.00	11.28	9.98
	100.00	104.30	100.10
2014-11-19	0.00	0.25	0.10
	10.00	11.32	10.02
	100.00	106.70	100.10
2014-11-20	0.00	0.31	0.02
	10.00	11.24	10.30
	100.00	103.80	99.90
2014-11-21	0.00	0.02	0.01
	10.00	10.06	10.02
	100.00	99.70	100.00
2014-11-22	0.00	0.00	0.00
	10.00	10.02	10.05
	100.00	100.40	100.00
2014-11-23	0.00	0.02	-0.01
	10.00	9.96	10.03
	100.00	100.10	100.10
2014-11-24	0.00	-0.01	0.00
	10.00	9.98	10.01
	100.00	99.80	100.10
2014-11-25	0.00	0.01	-0.04
	10.00	10.07	10.05
	100.00	99.40	100.10
2014-11-26	0.00	0.00	-0.01
	10.00	10.00	10.03
	100.00	99.70	100.00
2014-11-27	0.00	-0.02	-0.01
	10.00	9.98	10.01
	100.00	100.30	99.80
2014-11-28	0.00	-0.02	0.02
	10.00	10.06	10.03
	100.00	99.60	100.00
2014-11-29	0.00	0.03	0.00
	10.00	9.96	9.95
	100.00	99.10	100.00
2014-12-06	0.00	0.01	0.02
	10.00	9.99	10.01
	100.00	100.30	100.00
2014-12-07	0.00	0.02	0.02
	10.00	10.08	9.99
	100.00	100.30	99.80

Date	Standard	Initial reading NTU	Final reading NTU
2014-12-08	0.00	-0.03	-0.01
	10.00	9.96	10.00
	100.00	99.70	99.90
2014-12-09	0.00	-0.06	-0.02
	10.00	10.03	9.98
	100.00	100.00	100.00
2014-12-10	0.00	-0.11	0.00
	10.00	9.97	10.01
	100.00	100.60	100.00
2014-12-11	0.00	0.00	0.00
	10.00	10.03	10.06
	100.00	100.20	100.10
2014-12-12	0.00	0.04	-0.01
	10.00	10.31	10.01
	100.00	100.60	100.00
2014-12-13	0.00	-0.03	-0.02
	10.00	10.18	10.02
	100.00	103.40	99.90
2014-12-14	0.00	0.06	-0.01
	10.00	10.59	10.03
	100.00	101.70	100.10
2014-12-15	0.00	0.02	0.00
	10.00	10.08	10.00
	100.00	100.30	100.40
2014-12-16	0.00	0.03	0.00
	10.00	10.13	99.80
	100.00	106.10	100.20
2014-12-20	0.00	0.02	0.00
	10.00	10.06	10.00
	100.00	99.40	100.00

Table 8.35: 2014 Oakton PCS35 Meter Calibration

Date	pH			Conductivity		
	Standard	Initial reading	Final reading	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
7-Jan-14	4.00	4.02	4.01	1413.00	1412	1412
	7.00	7.05	7.01			
14-Jan-14	4.00	4.04	4.01	1413.00	1412	1412
	7.00	7.05	7.02			
20-Jan-14	4.00	4.05	4.01	1413.00	1435	1402
	7.00	7.00	7			
27-Jan-14	4.00	3.99	4	1413.00	1406	1413
	7.00	7.02	7			
28-Jan-14	4.00	4.14	7	1413.00	1412	1413
	7.00	7.11	4.01			
29-Jan-14	4.00	3.98	3.98	1413.00	1440	1413
	7.00	6.92	6.99			
4-Feb-14	4.00	4.11	4.02	1413.00	1406	1415
	7.00	7.09	7.01			
10-Feb-14	4.00	4.14	3.98	1413.00	1548	1417
	7.00	7.20	7.01			
18-Feb-14	4.00	3.98	4.01	1413.00	1418	1414
	7.00	6.92	7			
27-Feb-14	4.00	4.08	3.99	1413.00	1376	1414
	7.00	7.08	6.96			
11-Mar-14	4.00	4.04	4	1413.00	1470	1414
	7.00	6.91	6.98			
13-Mar-14	4.01	4.04	3.99	1413.00	1574	1412
	7.00	6.99	7.02			
14-Mar-14				1413.00	1537	1415
15/03/2014	4.01	4.12	3.98	1413.00	1353	1416
	7.00	7.07	6.98			
16/03/2014				1413.00	1388	1426
17/03/2014	4.00	4.20	3.95	1413.00	1339	1419
	7.00	7.28	7			
18/03/2014				1413.00	1439	1414
19/03/2014				1413.00	1414	1412
20/03/2014				1413.00	1391	1414
21/03/2014				1413.00	1366	1415
22/03/2014				1413.00	1411	1413
23-Mar-14				1413.00	1352	1414
24-Mar-14				1413.00	1451	1412
25-Mar-14				1413.00	1367	1413

Date	pH			Conductivity		
	Standard	Initial reading	Final reading	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
26-Mar-14	4.00	4.08	4.01	1413.00	1392	1412
	7.00	6.97	7			
27-Mar-14				1413.00	1403	1414
28-Mar-14				1413.00	1392	1411
29-Mar-14				1413.00	1407	1413
30-Mar-14				1413.00	1406	1414
31-Mar-14				1413.00	1402	1411
1-Apr-14	4.00	4.06	4.02	1413.00	1401	1412
	7.00	7.13	7.04			
2-Apr-14	.			1413.00	1428	1411
3-Apr-14	4.00	4.04	3.99	1413.00	1416	1414
	7.00	6.91	7			
4-Apr-14				1413.00	1344	1414
5-Apr-14				1413.00	1391	1413
6-Apr-14				1413.00	1328	1412
7-Apr-14				1413.00	1375	1414
8-Apr-14	4.00	4.08	3.96	1413.00	1322	1411
	7.00	7.04	6.98			
9-Apr-14				1413.00	1240	1414
10-Apr-14				1413.00	1261	1415
12-Apr-14				1413.00	1471	1461
13-Apr-14				1413.00	1418	1465
14-Apr-14				1413.00	1050	1414
15-Apr-14	7.00	7.18	7	1413.00	1549	1413
	4.00	4.09	3.98			
16-Apr-14				1413.00	1211	1412
17-Apr-14				1413.00	1349	1415
18-Apr-14				1413.00	1354	1416
19-Apr-14	4.00	4.06	4.01	1413.00	1356	1414
	7.00	7.14	7.02			
20-Apr-14				1413.00	1359	1410

Date	pH			Conductivity		
	Standard	Initial reading	Final reading	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
21-Apr-14				1413.00	1388	1416
22-Apr-14				1413.00	1386	1415
23-Apr-14	4.00 7.00	4.28 7.47	3.98 7	1413.00	1356	1414
24-Apr-14				1413.00	1351	1416
26-Apr-14	4.00 7.00	4.04 6.87	4.02 6.96	1413.00	1423	1415
27-Apr-14	4.00 7.00	4.07 6.81	4.01 6.97	1413.00	1421	1414
28-Apr-14	4.00 7.00	4.06 6.79	4.01 6.99	1413.00	1420	1414
29-Apr-14	4.00 7.00	4.05	3.98	1413.00	1421	1415
30-Apr-14	4.00 7.00	4.06 6.81	4.01 6.99	1413.00	1397	1414
1-May-14	4.00 7.00	4.05 6.83	4.01 6.98	1413.00	1388	1413
2-May-14	4.00 7.00	4.04 6.86	4.01 7	1413.00	1422	1414
3-May-14				1413.00	1401	1413
4-May-14				1413.00	8.81 Mk	1412
5-May-14				1413.00	1430	1415
6-May-14	4.00 7.00	4.03 6.88	4 7.03	1413.00	1361	1414
10-May-14				1413.00	1387	1413
11-May-14				1413.00	1387	1413
12-May-14	4.00 7.00	3.98 7.42	3.98 7.04	1413.00	1389	1414
13-May-14				1413.00	1302	1415
14-May-14				1413.00	1397	1414
15-May-14				1413.00	1387	1414
16-May-14				1413.00	1444	1414
17-May-14				1413.00	1399	1412
18-May-14	4.00 7.00	4.25 6.95	3.98 6.96	1413.00	1427	1412
19-May-14	4.00 7.00	4.41 6.96	3.99 6.95	1413.00	1379	1415
20-May-14	4.00 7.00	4.32 6.94	3.99 6.97	1413.00	1374	1415
21-May-14				1413.00	1333	1415
22-May-14				1413.00	1350	1412
23-May-14				1413.00	1381	1410

Date	pH			Conductivity		
	Standard	Initial reading	Final reading	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
24-May-14				1413.00	1359	1416
25-May-14				1413.00	1364	1414
26-May-14	4.00	4.13	4.01	1413.00	1393	1416
	7.00	6.92	6.99			
27-May-14	4.00	4.12	4.02	1413.00	1451	1423
	7.00	7.11	7.01			
28-May-14				1413.00	1374	1412
29-May-14				1413.00	1423	1415
30-May-14				1413.00	1351	1414
31-May-14	4.00	3.98	4.01	1413.00	1421	1410
	7.00	6.87	7.01			
1-Jun-14				1413.00	1424	1411
2-Jun-14				1413.00	1263	1412
3-Jun-14	4.00	4.36	4.01	1413.00	1361	1409
	7.00	5.41	7.03			
4-Jun-14				1413.00	1407	1412
6-Jun-14				1413.00	1406	1413
7-Jun-14				1413.00	1277	1415
8-Jun-14				1413.00	1361	1417
9-Jun-14	4.00	4.12	3.97	1413.00	1524	1412
	7.00	7.46	6.95			
10-Jun-14	4.00	4.04	3.96	1413.00	1358	1411
	7.00	6.84	7.04			
11-Jun-14				1413.00	1424	1414
12-Jun-14				1413.00	1401	1412
13-Jun-14				1413.00	1451	1413
15-Jun-14				1413.00	1351	1414
16-Jun-14				1413.00	1503	1412
17-Jun-14				1413.00	1379	1414
18-Jun-14	4.00	4.02	3.94	1413.00	1395	1415
	7.00	6.63	7.02			
19-Jun-14	4.00	4.06	3.98	1413.00	1395	1415
	7.00	6.36	6.99			
20-Jun-14	4.00	4.14	4.03	1413.00	1417	1413
	7.00	7.11	7			
21-Jun-14	4.00	4.17	4.02	1413.00	1400	1410
	7.00	7.12	7.01			
22-Jun-14	4.00	4.19	4.01	1413.00	1418	1413
	7.00	6.82	7.03			
23-Jun-14	4.00	4.22	3.99	1413.00	1404	1411
	7.00	7.12	7.01			
24-Jun-14	4.00	4.51	3.99	1413.00	1410	1411
	7.00	6.79	7.01			
25-Jun-14	4.00	4.59	3.98	1413.00	1425	1412
	7.00	7.15	6.99			
26-Jun-14	4.00	4.47	4.01	1413.00	1413	1414
	7.00	6.89	7.01			
27-Jun-14	4.00	4.42	4.01	1413.00	1413	1411
	7.00	6.85	7.02			
3-Jul-14				1413.00	1385	1414

Date	pH			Conductivity		
	Standard	Initial reading	Final reading	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
4-Jul-14	4.00	4.14	3.99	1413.00	1413	1415
	7.00	7.14	6.95			
5-Jul-14	4.00	4.41	4	1413.00	1413	1413
	7.00	7.07	6.95			
7-Jun-14	4.00	4.08	3.98	1413.00	1463	1413
	7.00	7.06	6.95			
8-Jul-14	4.00	4.12	3.98	1413.00	1412	1413
	7.00	7.16	6.98			
9-Jul-14				1413.00	1395	1412
10-Jul-14				1413.00	1412	1413
11-Jul-14				1413.00	1416	1412
12-Jul-14	4.00	4.46	4.02	1413.00	1460	1414
	7.00	6.47	7.03			
13-Jul-14				1413.00	1427	1412
14-Jul-14				1413.00	1407	1413
15-Jul-14				1413.00	1402	1412
16-Jul-14				1413.00	1408	1413
17-Jul-14				1413.00	1418	1412
18-Jul-14				1413.00	1416	1413
19-Jul-14	4.00	4.12	3.98	1413.00	1416	1414
	7.00	7.06	7.01			
20-Jul-14	4.00	3.98	4.01	1413.00	1451	1411
	7.00	6.76	7			
21-Jul-14	4.00	3.98	4.01	1413.00	1408	1414
	7.00	6.81	7.02			
22-Jul-14	4.00	3.94	3.98			
	7.00	6.76	7.03			
25-Jul-14	4.00	4.18	3.99			
	7.00	7.28	6.95			
26-Jul-14	4.00	4.13	4.01			
	7.00	7.04	6.99			
28-Jul-14	4.00	4.09	4.01			
	7.00	7.06	7			
29-Jul-14	4.00	4.06	3.99			
	7.00	7.02	7.01			
30-Jul-14	4.00	3.98	4			
	7.00	7.00	7.02			
31-Jul-14	4.00	4.02	4			
	7.00	7.04	7.01			
2-Aug-14				1413.00	1133	1413
5-Aug-14	4.00	4.09	3.98	1413.00	1438	1419
	7.00	7.05	7.02			
6-Aug-14	4.00	4.09	3.98	1413.00	1450	1411
	7.00	7.06	7			
8-Aug-14				1413.00	1493	1413
10-Aug-14	4.00	4.21	4	1413.00	1416	1413
	7.00	7.14	6.97			
11-Aug-14	4.00	4.32	3.99	1413.00	1461	1415
	7.00	7.05	6.98			
12-Aug-14	4.00	4.18	3.98			

Date	pH			Conductivity		
	Standard	Initial reading	Final reading	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
12-Aug-14	7.00	7.07	6.99	1413.00	1486	1414
14-Aug-14	4.00 7.00			1413.00	1467	1410
17-Aug-14	4.00 7.00	4.17 7.04	3.99 6.98	1413.00	1477	1409
19-Aug-14	4.00 7.00	4.20 7.08	4.01 7	1413.00	1458	1412
20-Aug-14	4.00 7.00	4.21 7.06	3.98 6.97	1413.00	1461	1410
21-Aug-14	4.00 7.00	4.16 7.07	3.97 7	1413.00	1455	1411
24-Aug-14				1413.00	1448	1410
27-Aug-14				1413.00	1422	1417
28-Aug-14	4.00 7.00	4.04 6.98	4 7.03	1413.00	1486	1416
30-Aug-14				1413.00	1437	1415
1-Sep-14				1413.00	1474	1413
2-Sep-14	4.00 7.00	4.03 7.06	4.03 7	1413.00	1445	1410
4-Sep-14				1413.00	1393	1416
5-Sep-14				1413.00	1521	1415
7-Sep-14	4.00 7.00	4.28 7.31	4.04 7.01	1413.00	1481	1414
9-Sep-14	4.00 7.00	4.07 6.99	4.01 7.01	1413.00	1418	1413
10-Sep-14	4.00 7.00	4.11 7.14	4.02 6.99	1413.00	1380	1416
13-Sep-14	4.00 7.00	4.02 7.04	4 6.98	1413.00	1367	1414
17-Sep-14				1413.00	1438	1414
21-Sep-14	4.00 7.00	3.99 6.98	3.99 7.02	1413.00	1413	1414
24-Sep-14	4.00 7.00	4.08 7.08	3.99 7.01	1413.00	1423	1438
26-Sep-14				1413.00	1444	1411
27-Sep-14				1413.00	1444	1410
28-Sep-14	4.00 7.00	4.08 7.16	4 6.95	1413.00	1417	1415
29-Sep-14				1413.00	1407	1414
30-Sep-14	4.00 7.00	4.08 7.01	4 7.01	1413.00	1420	1410
1-Oct-14	4.00 7.00	4.07 7.10	3.99 6.98	1413.00	1427	1415
2-Oct-14				1413.00	1333	1413
3-Oct-14				1413.00	1402	1412
4-Oct-14				1413.00	1445	1413
5-Oct-14				1413.00	1445	1412
6-Oct-14	4.00 7.00	4.03 7.06	4.01 7.02	1413.00	1411	1413
7-Oct-14				1413.00	1407	1413

Date	pH			Conductivity		
	Standard	Initial reading	Final reading	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
8-Oct-14	4.00	4.04	3.99	1413.00	1412	1414
	7.00	7.02	7			
9-Oct-14				1413.00	1407	1413
13-Oct-14				1413.00	1402	1415
14-Oct-14				1413.00	1394	1416
15-Oct-14				1413.00	1397	1414
16-Oct-14				1413.00	1419	1412
19-Oct-14	4.00	4.09	3.99	1413.00	1462	1412
	7.00	6.78	7.02			
20-Oct-14	4.00	4.11	4	1413.00	1458	1411
	7.00	7.08	7.01			
21-Oct-14	4.00	3.98	3.99	1413.00	1392	1413
	7.00	6.99	6.99			
22-Oct-14	4.00	4.82	3.99	1413.00	1410	1413
	7.00	6.76	7.02			
23-Oct-14	4.00	4.31	4.03	1413.00	1423	1412
	7.00	6.74	7.02			
24-Oct-14				1413.00	1423	1414
3-Nov-14	4.00	4.28	3.99	1413.00	1473	1411
	7.00	7.29	6.99			
4-Nov-14	4.00	4.21	3.96	1413.00	1406	1413
	7.00	6.84	6.98			
5-Nov-14				1413.00	1499	1414
6-Nov-14				1413.00	1443	1410
7-Nov-14				1413.00	1438	1412
8-Nov-14	4.00	4.16	3.99	1413.00	1432	1414
	7.00	6.87	6.99			
9-Nov-14				1413.00	1432	1414
10-Nov-14				1413.00	1489	1415
11-Nov-14				1413.00	1414	1413
12-Nov-14				1413.00	1428	1414
13-Nov-14				1413.00	1409	1412
14-Nov-14	4.00	4.27	4.03	1413.00	1410	1414
	7.00	6.88	7.02			
15-Nov-14				1413.00	1422	1414
16-Nov-14				1413.00	1420	1412
17-Nov-14				1413.00	1432	1414
18-Nov-14	4.00	4.34	3.98	1413.00	1405	1411
	7.00	7.51	7.05			
19-Nov-14	4.00	4.38	3.99	1413.00	1681	1412
	7.00	7.18	7.02			
20-Nov-14	4.00	4.08	3.98	1413.00	1408	1413
	7.00	7.03	6.99			
21-Nov-14	4.00	4.11	3.98	1413.00	1404	1413
	7.00	7.08	6.99			
22-Nov-14				1413.00	1433	1413
23-Nov-14				1413.00	1453	1414
24-Nov-14	4.00	4.03	3.98	1413.00	1461	1414
	7.00	7.03	7.03			
25-Nov-14	4.00	4.11	3.97	1413.00	1397	1414

Date	pH			Conductivity		
	Standard	Initial reading	Final reading	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
	7.00	7.05	7			
26-Nov-14				1413.00	1439	1413
27-Nov-14				1413.00	1420	1413
28-Nov-14	4.00	4.14	3.99	1413.00	1388	1413
	7.00	7.17	6.98			
29-Nov-14	4.00	4.06	3.99	1413.00	1480	1412
	7.00	7.07	6.98			
30-Nov-14	4.00	4.11	3.99	1413.00	1405	1414
	7.00	7.17	7			
1-Dec-14	4.00	4.13	3.98	1413.00	1402	1414
	7.00	7.07	7			
2-Dec-14	4.00	4.13	3.99	1413.00	1389	1413
	7.00	7.23	6.97			
3-Dec-14	4.00	4.21	4.02	1413.00	1397	1412
	7.00	7.21	7.01			
4-Dec-14	4.00	4.33	3.98	1413.00	1438	1414
	7.00	7.17	6.98			
5-Dec-14	4.00	4.19	3.99	1413.00	1443	1412
	7.00	7.08	6.99			
6-Dec-14				1413.00	1413	1412
7-Dec-14				1413.00	1383	1412
8-Dec-14	4.00	3.92	3.95	1413.00	1374	1415
	7.00	6.89	7.02			
9-Dec-14				1413.00	1214	1413
10-Dec-14				1413.00	1380	1413
11-Dec-14				1413.00	1416	1413
12-Dec-14	4.00	3.99	4.01	1413.00	1416	1411
	7.00	7.21	6.98			
13/12/2014	4.00	3.99	4.01	1413.00	1384	1412
	7.00	7.16	6.99			
14-Dec-14				1413.00	1433	1411
15-Dec-14				1413.00	1390	1413
16-Dec-14				1413.00	1398	1411
20-Dec-14				1413.00	1390	1414
21-Dec-14	4.00	4.28	3.98	1413.00	1274	1410
	7.00	6.74	7			
22-Dec-14				1413.00	1343	1416
23-Dec-14				1413.00	1392	1414
24-Dec-14				1413.00	1356	1413
25-Dec-14				1413.00	1369	1411
26-Dec-14	4.00	4.68	3.97	1413.00	1378	1413
	7.00	6.75	7.03			
27-Dec-14	4.00	4.59	4.01	1413.00	1381	1412
	7.00	7.18	7.02			
30-Dec-14	4.00			1413.00	1396	1414
	7.00					

Table 8.36: 2014 Hanna Multi-Parameter #1 Meter Calibration

Date	pH			Dissolved Oxygen			Conductivity		
	Standard	Initial Reading	Final Reading	Standard	Initial Reading (%)	Final Reading (%)	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
27/01/2014				100.0%	99.6%	100.0%	1413	1517	1413
28/01/2014				100.0%	95.4%	100.0%	1413	1424	1413
06/05/2014				100.0%	121.4%	100.1%			
07/05/2014							1413	1423	1412
08/05/2014							1413	1369	1410
09/05/2014							1413	1433	1412
10/05/2014							1413	1528	1413
18/05/2014				100.0%	99.1%	100.0%	1413	1388	1415
28/06/2014							1413	1592	1413
30/06/2014							1413	1306	1409
01/07/2014							1413	1497	1411
02/07/2014							1413	1453	1413
03/07/2014							1413	1385	1414
4-Jul-14							1413	1395	1415
5-Jul-14							1413	1399	1413
6-Jul-14							1413	1463	1413
7-Jul-14				100.00%	99.7%	100.0%	1413	1405	1414
12-Jul-14				100%	114.0%	100.0%			
19-Jul-14				100%	96.2%	0/100%	1413	1416	1414
20-Jul-14	4.00 7.00	3.98 6.76	4.01 7				1413	1451	1411
21-Jul-14	4.00 7.00	3.96 6.81	4 7.02				1413	1408	1414
4-Aug-14							1413	1432	1412
12-Aug-14				100%	110.0%	0/100%			
28-Nov-14				100.0% 0	108.5% 0.0%	100.0% 0.0%	1413	1512	1412

29-Nov-14		100.0%	96.5%	98.6%	1413	1349	1411
		0	0.0%	0.0%			
30-Nov-14		100.0%	99.1%	100.1%	1413	1412	1412
		0	0.0%	0.0%			
21-Dec-14		100.0%	107.6%	98.1%	1413	1395	1413
		0.0%	0.0%	0.0%			

Table 8.37: 2014 Hanna Multi-Parameter #2 Meter Calibration

Date	pH			Dissolved Oxygen			Conductivity		
	Standard	Initial Reading	Final Reading	Standard	Initial Reading (%)	Final Reading (%)	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
22-Jul-14	4.00 7.00	3.94 6.76	3.98 7.03	100% 0.0%	102.6% 0.0%	99.9% 0.0%	1413	1367	1413
23-Jul-14							1413	1378	1414
24-Jul-14							1413	1448	1414
25-Jul-14	4.00 7.00	4.18 7.28	3.99 6.95	100.0% 0.0%	147.2% 0.0%	100.0% 0.0%	1413	1442	1412
28-Jul-14	4.00 7.00	4.13 7.04	4.01 6.99	100.0% 0.0%	121.4% 0.0%	100.3% 0.0%	1413	1377	1412
3-Sep-14				100% 0.00%	74.8% 0.0%	100.0% 0.0%	1413	1470	1417
9-Sep-14	4.00 7.00	4.22 7.21	4 6.96	100.0% 0.00%	100.4% 0.0%	100.0% 0.0%	1413	1436	1414
10-Sep-14	4.00 7.00	4 6.99	4.01 7.01	100.0% 0.00%	102.6% 0.0%	100.0% 0.0%	1413	1371	1416
12-Sep-14	4.00 7.00	4.02 6.97	3.99 7.01				1413	1420	1414
13-Sep-14	4.00 7.00	3.78 6.84	3.99 7.01	100.0% 0	115.0% 0.0%	100.0% 0.0%	1413	1367	1414
21-Sep-14	4.00 7.00	4.04 7.05	4 7.01	100.0% 0	94.7% 0.0%	99.5% 0.0%	1413	1438	1413
28-Sep-14	4.00 7.00	4.32 7.67	4 7.01	100.0% 0	97.2% 0.0%	99.1% 0.0%	1413	1437	1414
30-Sep-14	4.00 7.00	4.02 7.03	4.01 7.03	100.0% 0	99.9% 0.0%	100.5% 0.0%	1413	1422	1414
26-Oct-14							1413	1414	1414
27-Oct-14	4.00 7.00	4.32 7.52	3.99 7.03				1413	1447	1413
28-Oct-14							1413	1426	1414
29-Oct-14	4.00						1413	1463	1414
30-Oct-14	5.00						1413	1503	1414
31-Oct-14	6.00						1413	1375	1413
1-Nov-14	7.00						1413	1421	1413
2-Nov-14				100.0% 0	104.9% 0.0%	100.0% 0.0%	1413	1442	1415

Date	pH			Dissolved Oxygen			Conductivity		
	Standard	Initial Reading	Final Reading	Standard	Initial Reading (%)	Final Reading (%)	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
3-Nov-14				100.0% 0	84.1% 0.0%	99.8% 0.0%	1413	1386	1416
4-Nov-14				100.0% 0	122.1% 0.0%	100.5% 0.0%	1413	1406	1413
9-Jul-13	4.00 7.00	4.00 7.12	4.05 7.03	0.0%	0.2%	0.0%	1413	1412	1426
10-Jul-13	4.00 7.00	3.60 6.85	4.04 7.00						
16-Jul-13	4.00 7.00	3.87 7.01	3.93 6.98	100.0%	87.4%	100.0%	1413	1397	1420
18-Jul-13				100.0%	93.7%	100.0%	1413	1409	1419
19-Jul-13	4.00 7.00	4.06 7.06	3.97 7.06	100.0%	95.4%	100.0%	1413	1410	1416
21-Jul-13	4.00 7.00	4.11 7.08	4.01 7.00	100.0%	97.8%	100.0%	1413	1380	1414
22-Jul-13	4.00 7.00	4.07 6.99	4.02 7.01	100.0%	95.4%	100.0%	1413	1390	1420
30-Jul-13	4.00 7.00	4.16 7.26	3.97 6.98						
31-Jul-13	4.00 7.00	4.08 7.14	4.06 7.03						
4-Aug-13	4.00 7.00	4.27 7.20	4.07 7.23				1413	1372	1413
8-Aug-13	4.00 7.00	3.83 6.90	4.02 7.03	100.0%	92.0%	100.0%	1413	1374	1414
9-Aug-13	4.00 7.00	4.03 6.96	4.01 7.01				1413	1370	1413
10-Aug-13	4.00 7.00	4.01 7.06	4.00 7.01				1413	1372	1412
11-Aug-13	4.00 7.00	4.02 7.04	4.01 7.01				1413	1415	1413
12-Aug-13	4.00 7.00	4.02 6.99	4.01 7.01				1413	1415	1413
13-Aug-13	4.00 7.00	4.03 7.03	3.99 7.04				1413	1414	1413
14-Aug-13	4.00 7.00	4.06 7.02	4.00 7.01				1413	1427	1413
15-Aug-13	4.00 7.00	4.04 7.03	4.02 7.01				1413		1413
21-Aug-13	4.00 7.00	4.03 7.05	4.02 6.98						
22-Aug-13	4.00 7.00	4.11 7.03	4.00 7.02				1413	1389	1413
23-Aug-13	4.00 7.00	4.07 7.11	4.03 7.01				1413	1422	1412
26-Aug-13	4.00 7.00	4.06 7.02	4.02 7.02	0.0% 100.0%	0.0% 96.5%	0.0% 100.0%	1413	1420	1413
27-Aug-13	4.00 7.00	4.27 7.43	4.01 7.04				1413	1358	1413
28-Aug-13	4.00	3.89	4.02				1413	1370	1413

Date	pH			Dissolved Oxygen			Conductivity		
	Standard	Initial Reading	Final Reading	Standard	Initial Reading (%)	Final Reading (%)	Standard (µS/cm)	Initial Reading (µS/cm)	Final Reading (µS/cm)
	7.00	7.02	7.05						
29-Aug-13	4.00	4.35	4.01				1413	1408	1417
	7.00	7.17	7.00						
30-Aug-13	4.00	4.03	4.01				1413	1454	1421
	7.00	7.06	6.99						
2-Sep-13	4.00	4.05	4.00				1413	1438	1422
	7.00	7.04	6.99						
3-Sep-13	4.00	3.83	4.01				1413	1473	1411
	7.00	6.93	6.96						
4-Sep-13	4.00	4.06	4.00				1413	1392	1413
	7.00	7.00	7.02						
5-Sep-13	4.00	4.03	4.02				1413	1394	1413
	7.00	6.99	7.01						
6-Sep-13	4.00	4.04	4.01				1413	1396	1412
	7.00	6.98	7.02						
7-Sep-13	4.00	3.92	3.99				1413	1407	1414
	7.00	7.03	7.00						
8-Sep-13	4.00	4.11	3.99				1413	1470	1412
	7.00	7.10	7.02						
9-Sep-13	4.00	3.99	4.00				1413	1408	1414
	7.00	6.96	7.01						
10-Sep-13	4.00	4.02	4.01				1413	1414	1413
	7.00	7.03	7.01						
13-Sep-13	4.00	4.04	4.01				1413	1416	1413
	7.00	7.04	7.01						
18-Sep-13	4.00	4.02	4.00				1413	1415	1414
	7.00	7.04	7.03						
23-Sep-13	4.00	4.42	4.24				1413	1367	1416
	7.00	7.02	7.00						
24-Sep-13	4.00	4.20	3.99				1413	1407	1415
	7.00	6.96	6.97						
28-Sep-13	4.00	4.21	4.00	100.0%	103.0%	100.0%	1413	1512	1412
	7.00	7.06	7.05	0.0%	0.0%	0.0%			
30-Sep-13	4.00	4.11	4.00	100.0%	98.0%	100.0%	1413	1409	1413
	7.00	7.08	7.05	0.0%	0.0%	0.0%			
3-Oct-13	4.00	4.96	3.98						
	7.00	7.08	7.01						
6-Oct-13	4.00	4.08	4.00				1413	1425	1420
	7.00	7.11	7.02						
7-Oct-13	4.00	4.06	4.00				1413	1426	1413
	7.00	7.09	7.01						
23-Nov-13	4.00	4.08	3.99	100.0%	177.0%	100.0%	1413	1455	1412
	7.00	7.07	6.97	0.0%	0.0%	0.0%			
24-Nov-13	4.00	4.09	4.00	100.0%	98.2%	100.0%	1413	1444	1413
	7.00	7.11	7.03	0.0%	0.0%	0.0%			
26-Nov-13	4.00			100.0%	100.5%	100.0%	1413	1449	1413
	7.00			0.0%	0.0%	0.0%			
28-Nov-13	4.00			100.0%	109.1%	100.0%	1413	1397	1417
	7.00			0.0%	0.0%	0.0%			
30-Nov-13	4.00			100.0%	99.1%	100.0%	1413	1408	1413
	7.00			0.0%	0.0%	0.0%			

Table 8.38: 2014 Freshwater Usage

Water Location	Source Lake	Jan	Feb	Mar	Apr	May	Jun	Jul
Camp	Third Portage Lake	2,935	3,808	3,051	2,899	2,930	2,903	3,105
Mill (freshwater tank)	Third Portage Lake	52,613	74,105	142,585	166,774	165,069	58,589	46,235
Emulsion plant	No-name Lake	174	140	239	212	213	172	188
Water truck	Third Portage Lake	0	0	0	0	0	0	0
Total Freshwater Usage (m³)		55,722	78,053	145,875	169,885	168,212	61,664	49,528
Ore Water (m³)	Ore	3,381	2,533	1,763	2,723	2,908	3,151	2,504
Reclaim Water Usage (m³)	Tailings Pond	246,784	183,938	156,568	125,766	138,586	230,833	247,982

Water Location	Source Lake	Aug	Sep	Oct	Nov	Dec	Total
Camp	Third Portage Lake	3,068	2,867	3,107	2,892	2,998	36,563
Mill (freshwater tank)	Third Portage Lake	40,326	40,370	91,449	108,393	71,485	1,057,993
Emulsion plant	No-name Lake	154	158	193	264	166	2,273
Water truck	Third Portage Lake	0	0	0	0	0	0
Total Freshwater Usage (m³)		43,548	43,395	94,749	111,549	74,649	1,096,829
Ore Water (m³)	Ore	3,117	3,702	4,310	4,870	4,841	39,803
Reclaim Water Usage (m³)	Tailings Pond	235,750	249,265	175,331	207,800	261,304	2,459,907

Table 8.44: 2014 East Dike Seepage Discharge (ST-8)

Date		07/01/2014	04/02/2014	05/03/2014	11/03/2014	08/04/2014	31/07/2014	12/08/2014	02/09/2014	08/10/2014	04/11/2014	16/12/2014
Lab Identification	Units											
pH		6.78	6.74		8.47	6.62	7.4	7.51	7.29	7.45	7.04	7.64
Turbidity	NTU	1.47	3.41		2.48	3.68	1.06	0.76	0.8	3.13	0.95	1.49
CN	mg/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.088	< 0.005
Tss	mg/L	19	13	8	11	14	2	6	2	8	4	6
Ra	mg/L	< 0.002	0.005	0.009	0.002	0.003	< 0.002	< 0.002	0.003	< 0.002	< 0.002	< 0.002
Al	mg/L	0.135	0.073	< 0.006	0.023	0.123	0.077	0.081	0.067	0.105	< 0.006	0.056
As	mg/L	< 0.0005	< 0.0005	0.0005	< 0.0005	0.0038	0.0016	0.0019	0.0005	0.0009	< 0.0005	0.0007
Cu	mg/L	0.0066	< 0.0005	< 0.0005	< 0.0005	0.0014	0.0009	< 0.0005	0.0008	0.0008	0.001	0.0009
Ni	mg/L	0.0007	0.0013	0.0009	0.0008	0.0017	0.0018	0.001	0.0012	0.0012	< 0.0005	< 0.0005
Pb	mg/L	< 0.0003	< 0.0003	< 0.0003	0.0006	0.0087	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
SO4	mg/L	3.3	5.6	7.4	3.2	7.8	7.9	15.9	11.4	8	< 0.6	5.3
Zn	mg/L	0.012	0.003	< 0.001	< 0.001	0.003	0.005	< 0.001	0.003	< 0.001	0.002	< 0.001

Footnotes:

*Parameter measured in the field by environment department