NWB Annual Report **Year being reported:** 2012

License No: 2AM-DOH0713 **Issued Date:** September 19, 2007
Expiry Date: September 30, 2013

Project Name: Doris North Project

Licensee: Hope Bay Mining Ltd.

Mailing Address: 75 Con Road, Box 2000
Yellowknife, NT
X1A 2M1

Name of Company filing Annual Report (if different from Name of Licensee please clarify relationship between the two entities, if applicable):

In 2008 this licence was transferred from the previous owner Miramar Hope Bay Mining Ltd. to Hope Bay Mining Ltd.

General Background Information on the Project (*optional):

Doris North facilities have been used to support advanced exploration in the Hope Bay Greenstone Belt until early 2012 when the project was put into care and maintenance. The Doris North underground mine development began in October 2010 but was stopped in late 2011. The tailings impoundment facility has not been completed and the mill has not been constructed.

Licence Requirements: the licensee must provide the following information in accordance with

Part B | Item 3

A. A summary report of water use and waste disposal activities, including, but not limited to: methods of obtaining water; sewage and greywater management; drill waste management; solid and hazardous waste management. [See Schedule B]

Water Source(s): Doris Lake

Water Quantity: 480,000 cu.m/yr Quantity Allowable Domestic (cu.m)
114,373 cu.m/yr Actual Quantity Used Domestic (cu.m)

Waste Management and/or Disposal

- [x] Solid Waste Disposal
- [x] Sewage
- [x] Drill Waste
- [x] Greywater
- [x] Hazardous
- [x] Other: Fuel Farm Berm Effluent

Additional Details:

Water for domestic use at Doris Camp is obtained from Doris Lake via a 2 inch

diameter submerged pipe with a DFO compliant fish screen. This intake is located approximately 30 metres from shore and linked to a pumphouse on the shore of Doris Lake. Occasionally, water for domestic use is obtained from Windy Lake. This occurs if and when the water from Doris Lake is unsafe for consumption.

Waste produced on site is treated according to Part G of the licence.

-Food waste is burned in the incinerator as per Part G Item 5.
-Paper products, paperboard packing, and untreated wood waste is open burned as per Part G Item 8.
-HBML is authorized to dispose of all non-hazardous solid waste in a landfill on site as per Part G Item 10. At the request of the land owner, Kitikmeot Inuit Association, HBML has not constructed a landfill. Solid waste that cannot be burned is taken offsite for disposal at an approved site. In 2012, a total of 688,639.7 kg was removed from the Hope Bay Belt .
-Sewage and greywater produced onsite is processed in the sewage treatment plant as per Part G Item 3. Sludge produced by the treatment plant is burned in the incinerator.
-Hazardous materials such as waste oil, glycol, and contaminated soil are being shipped offsite for disposal at an approved site as per Part G Item 12.
-Fuel farm berm effluent is sampled for water quality against the discharge criteria of the licence. Effluent that meets the standards for discharge is released in accordance with the licence following a notification to the Inspector; effluent that does not meet the licence criteria is treated onsite until it is remediated to acceptable levels for discharge, or it is removed offsite for treatment/disposal.

B. A list of unauthorized discharges and a summary of follow-up actions taken. [See Schedule B Item 9]

Spill No.: (as reported to the Spill Hot-line)
Date of Spill:
Date of Notification to an Inspector:
Additional Details: (impacts to water, mitigation measures, short/long term monitoring, etc)

Please see Item 9 of attached supplement for a list, including details, of all unauthorized discharges that occurred in 2012 under licence 2AM-DOH0713.

C. Revisions to the Spill Contingency Plan [See Part I, Item 4 and Schedule B Item 8]

Other: (see additional details)

Additional Details:

The Spill Contingency Plan was approved by the NWB in October 2010 and has since been revised several times. This most recent revision includes details on changes made to reflect care and maintenance. Updates were made to roles and responsibilities, phone numbers, fuel storage, spill response procedures. Non-hydrocarbon chemicals were also added to this most recent revision. No changes have been made since this last version was submitted in October 2012.

D. Revisions to the Abandonment and Restoration Plan [See Part L, Item 5]

AR plan submitted and approved - no revision required or proposed

Additional Details:

A revised Closure Plan for this licence was submitted to the NWB in August 2012. The plan is under review by the NWB.

E. Progressive Reclamation Work Undertaken [See Schedule B, Item 15]

Additional Details (i.e., work completed and future works proposed)

No reclamation work was undertaken in 2012.

F. Results of the Monitoring Program including: [See Part J, Item 5 and Schedule B, Item 17]

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where sources of water are utilized;

Details attached

Additional Details:

The GPS Co-ordinates (in degrees, minutes and seconds of latitude and longitude) of each location where wastes associated with the licence are deposited;

Details attached

Additional Details:

Results of any additional sampling and/or analysis that was requested by an Inspector

Additional Details: (date of request, analysis of results, data attached, etc)

N/A

G Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported [See Schedule B Item 19]

Additional Details: (Attached or provided below)

N/A

H. Any responses or follow-up actions on inspection/compliance reports [See Schedule B Item 18]

Inspection Report received by the Licensee (Date):

Additional Details: (Dates of Report, Follow-up by the Licensee)

See Item 18 of attached supplement for details on inspection action items and how these were addressed.

I. Any additional comments or information for the Board to consider

Please see attached supplement for additional information requirements set out in Licence No. 2AM-DOH0713.

Date Submitted:	March 31, 2013	
Submitted/Prepared by:	Chris Hanks	
Contact Information:	**Tel:**	(720) 917-4489
	Fax:	
	email:	chris.hanks@newmont.com

GPS Coordinates for water sources utilized

Source Description	Latitude			Longitude		
	Deg °	Min '	Sec "	Deg °	Min '	Sec "
ST-7 Doris Freshwater Intake	68	8	17.04	106	36	52.68

GPS Locations of areas of waste disposal

Location Description (type)	Latitude			Longitude		
	Deg °	Min '	Sec "	Deg °	Min '	Sec "
ST-6 Roberts Bay Fuel Storage Discharge and Containment Sump	68	10	35.6	106	36	59.8
ST-8 STP Discharge	68	8	14.52	106	36	50.46
ST-9 STP Tundra Discharge	68	8	20.22	106	39	55.86

Source Description	UTM Easting	UTM Northing
TL-2	434053	7559507
TL-3	434204	7559985
TL-10	434914	7558239

2012 2AM-DOH0713 Type A Water Licence Annual Report Supplemental Document

Doris North Project

Nunavut Water Board

Prepared by
Hope Bay Mining Ltd.
North Vancouver, BC

Prepared for
Nunavut Water Board
Gjoa Haven, NU

March 2013

Executive Summary
2AM-DOH0713 Annual Report

Hope Bay Mining Ltd. ("HBML") has filed its Annual Report on its activities during 2012 under Water Licence No. 2AM-DOH0713 issued by the Nunavut Water Board on September 19, 2007. Note in 2008 this licence was transferred from the previous owner, Miramar Hope Bay Mining Ltd., to HBML. As set out in Schedule B, Item 1 of the Licence, the report includes information with respect to the following topics:

- summary of monthly monitoring data
- summary of the Construction Monitoring Report
- information with respect to geochemical monitoring and waste rock storage assessment
- summary of the results of monthly water balance and water quality model assessments
- update on current capacity of the Tailings Impoundment Area
- a comparison of flows at monitoring stations
- consideration of Management Plans and Emergency Response and Contingency Plan
- a list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up actions taken
- results of continuing baseline data collection
- consideration of adequacy of reclamation security
- a summary of modification and or major maintenance work carried out n the water supply and waste disposal facilities, including all associated structures and an outline of any work anticipated for the next year
- a summary of any closure and reclamation work undertaken and an outline of any work anticipated for next year
- GPS locations of areas of waste disposal
- a summary reporting consultation with public and participation with local organizations and residents of nearby communities
- a summary of actions taken to address concerns or deficiencies listed in the inspection reports filed by an Inspector

Aolapkaeyin Naetomik Okaohen
2AM-DOH0713 Ukeogoagaagan Unipkaak

Hope Bay Mining Ltd.-kon ("HBML") tonihihimaliktun Ukeotoagaagan Unipkamiknik havaamigun 2012-mi ukeommi ilagani Imaknik Atogeagani Laeseoyum Napaa 2AM-DOH0713 toniyaohimayok Nunavumi Imalikiyin katimayenin September 19-mi 2007-mi. Kaoyimalogo 2008-mi una laeseoyok nuhimayok hivoagun nanminikaktugaloamin, Miramar-konin Kapihiliktumi Oyagaktakvik-kunin ukunuga HBML-kunin. Okakhimayumi Naonaepkun B-mi, Ilikuktok 1 Laeseoyumi, unipkak ilakaktok hivunikhiyotikhanik ukununa:

- naenakhugin okaotaoyun tatkikheotini amigiyutinun naonaepkotin
- naenakhugin okaotaoyun Hanatilogin Amigiyutinun Unipkak
- hinonikiyutikhan nunami halomaelguvaloknik monagiyutin oyagaktaniklo atulimagitonik tukoktigivikmik ilitokhaenik
- naenakhugin okaotaoyun kanogilinigin tatkikheotini imakakniginik imaginigagulo ilitokhaenikmik
- kanogiliniga taya inikageakmaga Atagukveoyok Nunami
- naonaeyaknigin kuknigin amigiyutin inigiyani
- ihomaginigin Monagiyotinun Upalogaeyaotin Upaloknaktokakalo Upigeagutin Ihoakhaotikhanulo Upalogaeyaon
- titigakhimayomik okateakhimalotiklo tamaeta agiktaohimagitun kuvigaeyun kanogaaloklo, kuveyokakan hunaoniga nahaotagun naetomiklo okaoheoyonik upiyotinik kigoagun
- kanogilivaleanigin ilitokhaotikhanun naonaepkotinik katitiyiyutin
- ihomamilogo naamaniga nunanik utiktiyotikhak manik kolaknaeyaon
- naetomik okaoheoyonik notaguktitiyutinik ihoakhaotiniklunen imiktakvikon havaoheoyun ikagukvelo kanoginiginun, ukoalo tamaeta ilagiyaen napayun kanolo havaohikhan nahugiyaoyun atoktukhami ukeomi inmagaa
- naetomik okaoheoyonik umiktokaknikan nunalo utititaagani ilitkohenun havaagiyaolikmagaa kanoklo havaohikakneakmagaa aepaagu
- GPS-mi homenigin nunan ikagukveoyun
- naetomik okaoheoyonik okakatigegutinun inuknik ilaoniginiklo nunalikni timeoyuni inoelo haneanetun nunalikni
- naetomik okaoheoyonik upiyotinik ihoakhiyaagani ihomalutaoyun ihoeliyotilo titigakhimayun ilitokhaeyutinin makpigaagini Ilitokhaeyim tunihimayaeni

ᐱᒋᐊᕈᑎᖓ
2AM-DOH0713 ᐅᑭᐅᒧᑦ ᐅᓂᑳᓕᐅᕐᓯᒪᔪᖅ

Hope Bay Mining Ltd. ᐅᔾᕿᓯᐅᕐᑎᑦ ᐅᑭᐅᒧᑦ ᐊᑐᕐᑕᒥᓐᓂᒃ ᐅᓂᑳᓕᐅᕐᑐᑦ ᑐᓴᖓᒃᓴᓕᐅᕐᑐᑦ ᐱᓕᕆᐊᕆᔭᒥᓐᓄᑦ ᐅᑭᐅᒧᑦ 2012 ᐃᒪᕐᒧᑦ ᓚᐃᓴᖓᑕ ᓇᓴᐅᑖ 2AM-DOH0713 ᐊᖏᑕᐅᓚᐅᕐᑐᖅ ᓄᓇᕗᒥ ᐃᒪᓕᕆᔨᑦ ᑲᑎᒪᔨᖏᓐᓂᑦ ᓴᑕᐸ 19, 2007. ᑐᑭᓯᒋᐊᓕᒃ 2008-ᒧᑦ ᓚᐃᓴ ᑖᓐᓇ ᓄᒃᑎᕐᑕᐅᓚᐅᕐᑐᖅ ᓯᕗᑦᓕᐅᔪᓂᑦ ᑕᐃᑯᓇᖓᑦ ᓇᒃᒥᓂᖃᓚᐅᕐᑐᓂᑦ, Miramar Hope Bay Mining_ᑯᓐᓂᑦ, HBML_ᑯᓐᓄᑦ. ᐊᖏᑕᐅᓯᒪᔪᖅ ᒪᓕᒃᓱᒍ Schedule B, ᓇᓴᐅᑎᖃᕐᑐᖅ 1 ᓚᐃᓴᒥ, ᑐᓴᒃᓴᓕᐅᕐᓯᒪᔪᖅ ᐅᓂᑳᓕᐅᕐᓯᒪᔪᖅ ᑐᕋᖓᔪᖅ ᑕᑯᓄᖓ ᐊᑖᓂ ᑎᑎᕋᕐᓯᒪᔪᓄᑦ:

- ᓇᐃᓈᕐᓯᒪᐸᓗᑎᒃ ᑕᕿᒧᑦ ᖃᐅᔨᓴᕐᑕᐅᖃᑦᑕᖅᑐᑦ ᑎᑎᕋᕐᓯᒪᔪᑦ
- ᓇᐃᓈᕐᓯᒪᐸᓗᑎᒃ ᑎᑎᕋᕐᓯᒪᔪᑦ ᐃᒡᓗᕐᐸᒃᓂᒃ ᐊᓯᖏᓐᓂᒃᓗ ᓴᓇᔭᐅᓂᖏᓐᓄᑦ
- ᑐᓴᒃᓴᓕᐅᕐᓯᒪᔪᑦ ᑐᕋᖓᔪᖅ ᐅᔭᖃᓄᑦ ᖃᐅᔨᓴᕐᑕᐅᓂᖏᓐᓄᑦ ᐊᒻᒪᓗ ᐊᑐᕐᑕᐅᓂᐊᖏᑦᑐᑦ ᐅᔭᖃᑦ ᐊᒃᑰᕐᑕᐅᕙᑦᓕᐊᓂᖏᓐᓄᑦ
- ᓇᐃᓈᕐᓯᒪᐸᓗᑎᒃ ᑎᑎᕋᕐᓯᒪᔪᑦ ᑕᕿ ᑕᒫᑦ ᐃᒪᖅ ᖃᐅᔨᓴᕐᑕᐅᖃᑦᑕᕐᓂᖓᓄᑦ ᐊᒻᒪᓗ ᐃᒪᑦᑕᐅᔭᕆᐊᒃᓴᖓᓄᑦ ᖃᐅᔨᓴᕐᓃᑦ
- ᐅᖃᐅᓯᐅᔪᕐᑕᐅᖅ ᓴᓗᒪᐃᑦᑐᒧᑦ ᐅᔾᕿᓯᐅᕐᕕᒃᒥᑦ ᑯᕕᕿᕐᕕᐅᔪᖅ ᓄᓇ
- ᑰᒃᐸᑦᓕᐊᔪᖅ ᖃᐅᔨᓴᕐᑕᐅᓂᖓᓄᑦ ᐊᑐᕐᑐᑦ
- ᖃᐅᔨᓴᕐᑕᐅᕙᑦᓕᐊᔪᑦ ᐊᐅᓚᑦᑎᓂᕐᒧᑦ ᐊᑐᕐᑕᐅᔪᑦ ᐸᕐᓇᐅᑎᑦᓗ ᑐᐊᕕᕐᓇᕐᑐᖃᕿᔭᕐᐸᑦᓗ ᐊᑐᕐᑕᐅᓇᔭᕐᑐᑦ ᐊᒻᒪᓗ ᑯᕕᔪᖃᕐᐸᑦ
- ᑎᑎᕋᕐᓯᒪᔪᑦ ᐊᒻᒪᓗ ᓱᓇᐅᓂᖏᑦ ᐊᖏᑕᐅᓯᒪᖏᑦᑐᑦ ᓴᕿᐸᑦᓕᐊᔪᑦ ᖃᓄᖅᓗ ᐊᖏᓂᖏᑦ, ᑯᕕᔪᓄᑦ ᑐᓴᒃᓴᓕᐅᕐᓯᒪᔪᑦ ᓇᓴᐅᑎᖏᑦᓗ ᐊᒻᒪᓗ ᑐᑭᓕᐅᕐᓯᒪᔪᖅ ᖃᖓᑯᑦ ᖃᐅᔨᓴᕐᑕᐅᒋᐊᖃᕐᓂᖏᑦ
- ᖃᐅᔨᓴᕐᑕᐅᖃᑦᑕᖅᑐᖅ ᐃᒪᐅᑉ ᐃᒪᐃᕐᑎᐸᑦᓕᐊᓂᖓ ᓱᓐᓂᕐᐸᑦᓕᐊᖏᓐᓂᖓᓘᓐᓃᑦ
- ᐊᖏᐅᒪᑦᑎᐊᕋᓗᐊᕐᐸᑦ ᑕᒪᑯᐊᑦ ᓴᓇᕕᐅᕌᓂᒃᐸᑦ ᓴᓕᒍᑕᐅᓗᑎᒃ ᐊᑐᕐᑕᐅᓂᐊᕐᑐᑦ ᐸᕐᓇᐅᑎᑦ
- ᓇᐃᓈᕐᓯᒪᔪᑦ ᓄᑖᙳᕐᑎᕐᑕᐅᕙᑦᓕᐊᓂᖏᑦ ᐊᓯᖏᑦᓗ ᐊᖏᐅᒪᑎᑕᐅᔪᑦ ᓴᓇᔭᐅᖃᑦᑕᖅᑐᑦ ᐃᒥᖅᑕᕐᕕᒃᒧᑦᓗ ᐊᑐᕐᑕᐅᔪᑦ ᐊᒻᒪᓗ ᐊᒃᑰᕐᓂᕐᒧᑦ, ᐊᒻᒪᓗ ᑕᒪᑯᐊᑦ ᑕᐃᑲᓂ ᓇᐸᔪᑦ ᓴᓇᔭᐅᓯᒪᔪᑦ ᑕᒪᕐᒥᑦ ᓴᓇᔭᐅᕙᑦᓕᐊᕆᐊᖃᖃᑦᑐᑦ ᐊᕐᕿᒍᑦ ᑕᒪᑦ ᓱᓇᑦᓗ ᐊᕐᕿᒍ ᓴᓇᔭᐅᓂᐊᕐᓂᖏᑦ ᐸᕐᓇᒃᓯᒪᔪᑦ
- ᓱᓇᑦᓗ ᐊᕐᕿᒍ ᐊᑐᕈᐃᕐᐸᑕ ᐊᖏᓱᕐᑕᐅᓗᑎᒃ ᓴᓕᒃᑕᐅᓂᐊᕐᓂᖏᑦ ᓴᓕᒃᑕᐅᕙᑦᓕᐊᔪᑦᓗ ᐊᓯᖏᑦᓗ ᑕᒪᑯᐊᑦ ᐊᕐᕿᒎᒧᑦ ᓴᓇᔭᐅᑲᓐᓂᕐᓂᐊᕐᑐᑦ
- ᑕᒪᓃᑯᓪᒧᑦ ᐊᖏᑕᐅᓯᒪᔪᑦ ᐊᒃᑰᕐᕖᑦ ᓱᒥ ᐃᓕᔭᐅᓯᒪᒃᒪᑕ
- ᖃᖓᑯᑦᓗ ᑐᓴᕐᑎᑦᑎᖃᑦᑕᖅᓇᐊᖃᕐᒪᑕ ᐅᔾᕿᓯᐅᕐᑎᑦ ᓄᓇᓕᒃᓂᒃ ᐊᖏᓱᐃᖃᑎᖃᕐᓗᑎᒃᓗ ᓄᓇᓕᒃᓂ ᑲᑎᒪᔨᐅᕕᖃᕐᑐᓄᑦ ᐃᓄᖏᓐᓄᑦᓗ ᓄᓇᓕᒃᓂ ᖃᓂᓛᖑᔪᓂ
- ᑎᑎᕋᕐᓯᒪᔪᑦᓗ ᓱᓇᑐᐃᓐᓇᐃᑦ ᐃᓱᓖᓗᒋᔭᐅᔪᑦ ᖃᐅᔨᒋᐊᕐᑕᐅᒋᐊᓖᑦ ᐅᕙᓘᓐᓃᑦ ᐊᖏᐅᒪᖏᑦᑐᑦ ᖃᐅᓪᔭᐅᓚᐅᕐᑐᑦ ᐅᖃᐅᓯᐅᓚᐅᕐᑐᑦ ᖃᐅᔨᓴᕐᑐᓂᑦ ᑕᑯᔭᕐᑐᖅᑐᓂᑦ

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Figures

1. Summary of monthly monitoring reporting [see Part J Item 21]

During 2012, Hope Bay Mining Ltd. (HBML) collected data from the following active or seasonally active monitoring stations: ST-1, ST-2, ST-4, ST-5, ST-6a, ST-6b, ST-7, ST-8, and ST-9. Opportunistic sampling at ST-10 of site runoff from sediment control and water management infrastructure also occurred.

Monitoring station ST-3 (landfill) was not sampled as this facility was not constructed as of 2012.

Monitoring station ST-11 (reagent and cyanide storage facility sumps) was not sampled as this facility was not constructed as of 2012.

Construction of the North Dam on Tail Lake was completed in 2012 and dewatering of the Tailings Impoundment Area (TIA) occurred between June and September. Monitoring was undertaken at the following TIA stations: TL-1, TL-2, TL-3, TL-4, and TL-10. In 2012, the mill had not yet been constructed so no ore processing occurred and no tailings were produced. As described in the 2012 Interim Water Management Plan, the sedimentation pond (ST-1) was used as a collection pond for the water that accumulated in the pollution control pond (ST-2) and the two underflow sumps (ST2-S1 and ST2-S2). The water collected in ST-1 was then transferred to the TIA once enough water had accumulated. Sampling for criteria specified under 2AM-DOH0713 was conducted prior to and during all dewatering activities.

Doris Camp and all associated infrastructure was winterized and shut down October 12, 2012. Doris Camp will be re-opened in spring 2013.

HBML uses an external certified laboratory to carry out all analyses reported in the monthly and annual reports. The QA/QC data produced by ALS Canada Ltd. are used to determine the accuracy and precision of results in these reports. The following tables set out a summary of the data collected as part of the monthly monitoring program.

ST-1 Sedimentation Pond

This facility was constructed and first used in 2011. During 2012, discharges from the facility were made directly to the Tail Lake tailing impoundment area (TIA). All discharges from the facility were metered. Water quality samples were collected from a valve on the discharge pump at a depth of 0.25 m below the water surface. Samples were taken weekly during periods of discharge for internal monitoring purposes.

As described in the 2012 Interim Water Management Plan, the sedimentation pond (ST-1) was used as a collection pond for the water that accumulates in the pollution control pond (ST-2) and the two underflow sumps (ST2-S1 and ST2-S2). Once enough water is accumulated, the water in ST-1 is transferred to the Tailings Impoundment Area (TIA). As per Part G Items 1 and 21 (a, b, c) of water licence 2AM-DOH0713, HBML provided written notice to the Inspector May 10, 2012 prior to a planned discharge from ST-1. Water was transferred from ST-1 to the TIA beginning in June and continued until September. During October, water management prior to seasonal decommissioning involved draining all pumping and piping systems and draining pond residuals. This water was then transferred directly to the TIA.

Volumes transferred to the TIA from ST-1 are summarized in Table 1. These results include water transferred from ST-2, ST2-S1, and ST2-S2 to ST-1. Results of water quality samples, collected from ST-1 in accordance with Schedule J of 2AM-DOH0713, are summarized in Tables 2 and 3. The water was found to be elevated for several parameters, including TSS and ammonia, as well as aluminum, iron, and zinc, which are normally elevated background parameters within the Doris North project hydrological system. Because the water was discharged to the TIA and not to the tundra, the compliance criteria for ST-1 are not applicable; these parameters are highlighted red in the tables for information only.

Table 1 – Summary of Monthly Water Management Volumes for Monitoring Station ST-1, June to October 2012

Month	Monthly Volume (m^3)	Cumulative Volume(m^3)
January	-	-
February	-	-
March	-	-
April	-	-
May	-	-
June	5884	5,884
July	3223	9,107
August	2561	11,669
September	848	12,517
October	48	12,565
November	-	-
December	-	-
Total Volume of Water Transferred from ST-1 (includes water from ST-2, ST2-S1, and ST2-S2) to TIA in 2012		**12,565**

Table 2 – Water quality monitoring program results for ST-1, June 6 to July 29, 2012, in mg/L, unless specified otherwise

HBML ID		ST1-6JUN12	ST1-13JUN12	ST1-20JUN12	ST1-28JUN12	ST1-04JUL12	ST1-10JUL12	ST1-11JUL12	ST1-22JUL12	ST1-29JUL12	Part G Item 21(a)	
ALS ID		L1159717-8	L1163290-1	L1166912-1	L1170844-1	L1174452-1	L1178345-3	L1178348-1	L1182757-1	L1186288-1	Maximum Average Concentration (mg/L)	Max Conc in any Grab Sample (mg/L)
Sample Date/Time		6/6/2012 11:10 AM	6/13/2012 2:20 PM	6/20/2012 3:12 PM	6/28/2012 10:00 AM	7/4/2012 9:00 AM	7/10/2012 4:30 PM	7/11/2012 5:00 PM	7/22/2012 5:30 PM	7/29/2012 11:00 AM		
Parameters	**Units**	**Results**										
Conductivity (EC)	uS/cm	1260	6150	9470	7480	-	-	-	-	-		
Hardness (as $CaCO_3$)	mg/L	318	1760	2950	2260	2140	2010	2080	1600	-		
pH	pH	7.87	7.77	7.71	7.54	7.63	7.67	7.77	7.99	8.07	6.0 - 9.0	9
Total Suspended Solids	mg/L	186	16	32	16	22	<3.0	10	15	7	15	30
Alkalinity, Total (as $CaCO_3$)	mg/L	-	70.3	81.8	66.2	75.2	-	85.5	122	122		
Ammonia, Total (as N)	mg/L	4.98	39.6	46.9	37.5	38.1	30	29.1	22.7	30.7	2	4
Bicarbonate (HCO_3)	mg/L	-	85.8	99.8	80.8	91.7	-	104	148	148		
Carbonate (CO_3)	mg/L	-	<5.0	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0		
Chloride (Cl)	mg/L	-	1690	2790	2060	2250	-	2150	1480	1900		
Hardness (as $CaCO_3$)	mg/L	-	1630	2800	2170	8170	-	7860	5780	6780		
Hydroxide (OH)	mg/L	-	<5.0	<5.0	<5.0	2480	-	1980	1630	1750		
Ion Balance	%	-	93.3	90.4	101	<5.0	-	<5.0	<5.0	<5.0		
Nitrate and Nitrite (as N)	mg/L	-	95.2	129	107	122	-	120	86.9	109		
Nitrate (as N)	mg/L	12.2	95.2	129	105	122	122	120	86.9	109		
Nitrite (as N)	mg/L	0.259	<0.50	0.61	1.62	<0.50	0.55	0.51	<0.50	<0.50		
TDS (Calculated)	mg/L	-	3270	5190	4060	4610	-	4240	3310	3860		
Sulfate (SO_4)	mg/L	40.5	74.5	138	103	133	147	160	193	177		
Cyanide, Total	mg/L	<0.0050	0.0392	0.0274	0.0096	0.0057	<0.0050	<0.0050	0.0071	0.0198	1	2
Aluminum (Al)-Total	mg/L	4.62	0.587	0.868	0.707	0.816	0.386	0.35	0.483	0.224	1	2
Antimony (Sb)-Total	mg/L	<0.00040	<0.00080	<0.0016	<0.0016	<0.0016	<0.00080	<0.00080	<0.00080	0.0009		
Arsenic (As)-Total	mg/L	0.00141	0.00083	<0.0016	<0.0016	<0.0016	0.00114	0.00129	0.00162	0.0017	0.05	0.1
Barium (Ba)-Total	mg/L	0.0946	0.142	0.232	0.202	0.168	0.191	0.162	0.142	0.157		
Beryllium (Be)-Total	mg/L	<0.0010	<0.0020	<0.0040	<0.0040	<0.0040	<0.0020	<0.0020	<0.0020	<0.0020		
Boron (B)-Total	mg/L	0.153	0.29	0.29	0.31	0.43	0.51	0.46	0.44	0.4		
Cadmium (Cd)-Total	mg/L	0.000032	0.00009	0.00022	0.00006	0.000149	0.000095	0.000132	0.000127	0.000642		
Calcium (Ca)-Total	mg/L	102	607	1030	776	713	694	699	516	595		
Chromium (Cr)-Total	mg/L	0.0104	<0.0020	<0.0040	<0.0040	<0.0040	0.0029	0.0021	0.004	0.0023		
Cobalt (Co)-Total	mg/L	0.0042	0.0046	0.0091	<0.0080	<0.0080	0.0046	0.0044	0.0048	0.0061		
Copper (Cu)-Total	mg/L	0.0133	0.0078	0.0114	0.0078	0.0097	0.009	0.0091	0.0108	0.0094	0.02	0.3
Iron (Fe)-Total	mg/L	5.83	1.03	1.91	3.71	1.13	1.92	0.62	1.55	1.18	0.3	0.6
Lead (Pb)-Total	mg/L	0.00171	0.00027	0.00101	0.00086	<0.00040	0.00067	0.00023	0.00029	0.00079	0.01	0.02
Lithium (Li)-Total	mg/L	0.011	0.076	0.251	0.146	0.118	0.119	0.101	0.091	0.09		
Magnesium (Mg)-Total	mg/L	18.5	58.3	90	79.6	86.7	84.9	81.7	75.4	77.7		
Manganese (Mn)-Total	mg/L	0.324	0.683	2.23	1.23	0.687	0.481	0.447	0.739	1.17		
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000021	<0.000020	<0.000020	<0.000020		
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.010	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010		
Nickel (Ni)-Total	mg/L	0.0077	<0.0040	<0.0080	<0.0080	<0.0080	0.005	0.0043	0.007	0.0061	0.05	0.1
Potassium (K)-Total	mg/L	10.6	32.1	44.3	38.5	41	42.1	40.6	32.4	31.1		
Selenium (Se)-Total	mg/L	0.00099	0.0016	0.0024	0.002	0.0034	0.00332	0.00328	0.00422	0.00363		
Silver (Ag)-Total	mg/L	0.000025	<0.000040	<0.000080	<0.000080	<0.000080	<0.000040	<0.000040	<0.000040	0.000458		
Sodium (Na)-Total	mg/L	76.1	388	567	502	576	674	643	480	545		
Thallium (Tl)-Total	mg/L	<0.00010	<0.00020	<0.00040	<0.00040	<0.00040	<0.00020	<0.00020	<0.00020	0.00056		
Tin (Sn)-Total	mg/L	<0.050	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10		
Titanium (Ti)-Total	mg/L	0.242	0.0318	0.0424	0.0202	0.0357	0.0103	0.0139	0.0191	0.0139		
Uranium (U)-Total	mg/L	0.00069	0.00091	0.00163	0.00119	0.00149	0.00151	0.00157	0.00197	0.00207		

HBML ID		ST1-6JUN12	ST1-13JUN12	ST1-20JUN12	ST1-28JUN12	ST1-04JUL12	ST1-10JUL12	ST1-11JUL12	ST1-22JUL12	ST1-29JUL12	Part G Item 21(a)	
ALS ID		L1159717-8	L1163290-1	L1166912-1	L1170844-1	L1174452-1	L1178345-3	L1178348-1	L1182757-1	L1186288-1	Maximum Average Concentration (mg/L)	Max Conc in any Grab Sample (mg/L)
Sample Date/Time		6/6/2012 11:10 AM	6/13/2012 2:20 PM	6/20/2012 3:12 PM	6/28/2012 10:00 AM	7/4/2012 9:00 AM	7/10/2012 4:30 PM	7/11/2012 5:00 PM	7/22/2012 5:30 PM	7/29/2012 11:00 AM		
Parameters	**Units**	**Results**										
Vanadium (V)-Total	mg/L	0.0121	0.0021	<0.0040	<0.0040	<0.0040	<0.0020	<0.0020	<0.0020	<0.0020		
Zinc (Zn)-Total	mg/L	0.0818	0.0531	0.173	0.353	0.073	0.185	0.0939	0.064	0.173	0.01	0.02
Calcium (Ca)-Dissolved	mg/L	101	548	974	738	841	679	660	528	574		
Magnesium (Mg)-Dissolved	mg/L	16.2	64.4	89	80.3	92.4	77.1	80.9	75.2	76.9		
Potassium (K)-Dissolved	mg/L	-	32.5	41.9	37.8	45	-	38.1	34.6	31.1		
Sodium (Na)-Dissolved	mg/L	-	397	535	530	659	-	568	544	33.8		
Oil and Grease	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	5	10
Oil And Grease (Visible Sheen)		no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen

Note: Red text indicates that value is above the discharge criteria for discharge to the tundra. All water from ST-1 was discharged to the TIA in 2012.

Table 3 – Water quality monitoring program results for ST-1, August 12 to September 13, 2012, in mg/L, unless specified otherwise

HBML ID		ST1-12AUG12	ST1-18AUG12	ST1-26AUG12	ST1-06SEP12	ST1-13SEP12	Part G Item 21(a)	
ALS ID		L1192901-1	L1196629-1	L1200805-1	L1206071-1	L1209817-1	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Sample Date/Time		8/12/2012 1:35 PM	8/18/2012 3:45 PM	8/26/2012 1:50 PM	9/6/2012 1:05 PM	9/13/2012 3:00 PM		
Parameters	**Units**	**Results**						
Hardness (as $CaCO_3$)	mg/L	1710	2020	2010	2460	2460		
Total Suspended Solids	mg/L	5	6	<3.0	4	4	15	30
Alkalinity, Total (as $CaCO_3$)	mg/L	127	143	127	137	137		
Ammonia, Total (as N)	mg/L	28.6	33.9	35.5	40.3	40.3	2	4
Bicarbonate (HCO_3)	mg/L	155	175	155	168	168		
Carbonate (CO_3)	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0		
Chloride (Cl)	mg/L	1720	1910	2040	2340	2340		
Conductivity (EC)	uS/cm	6440	7080	7660	8550	8550		
Hardness (as $CaCO_3$)	mg/L	1680	1910	2260	2310	2310		
Hydroxide (OH)	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0		
Ion Balance	%	94.5	95.7	107	98.9	98.9		
Nitrate and Nitrite (as N)	mg/L	96.4	101	106	113	113		
Nitrate (as N)	mg/L	96.4	101	106	113	113		
Nitrite (as N)	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50		
pH	pH	7.78	7.81	7.84	7.82	7.82	6.0 - 9.0	9
TDS (Calculated)	mg/L	3580	3920	4300	5140	4700		
Sulfate (SO_4)	mg/L	191	194	189	204	190		
Cyanide, Total	mg/L	0.0053	0.0126	0.0116	0.0298	0.0099	1	2
Aluminum (Al)-Total	mg/L	0.315	0.083	0.0499	0.061	0.046		
Antimony (Sb)-Total	mg/L	<0.00080	<0.00080	0.00045	<0.0016	<0.0016		
Arsenic (As)-Total	mg/L	0.00116	0.00120	0.00097	<0.0016	<0.0016	0.05	0.1
Barium (Ba)-Total	mg/L	0.151	0.155	0.173	0.229	0.176		
Beryllium (Be)-Total	mg/L	<0.0020	<0.0020	<0.0010	<0.0040	<0.0040		
Boron (B)-Total	mg/L	0.45	0.41	0.398	0.45	0.53		
Cadmium (Cd)-Total	mg/L	0.000086	0.000160	0.000156	0.000319	0.000167		
Calcium (Ca)-Total	mg/L	555	661	678	918	808		
Chromium (Cr)-Total	mg/L	0.0021	<0.0020	<0.0010	<0.0040	<0.0040		
Cobalt (Co)-Total	mg/L	0.0043	0.0051	0.0056	<0.0080	<0.0080		
Copper (Cu) - Total	mg/L	0.0096	0.0095	0.0094	0.0140	0.0117	0.02	0.3
Iron (Fe)-Total	mg/L	2.26	1.05	0.739	0.885	0.92	0.3	0.6
Lead (Pb)-Total	mg/L	0.00075	0.00026	0.00018	<0.00040	<0.00040	0.01	0.02
Lithium (Li)-Total	mg/L	0.078	0.075	0.084	0.122	0.088		
Magnesium (Mg)-Total	mg/L	78.9	88.9	84.7	106	106		
Manganese (Mn)-Total	mg/L	0.836	1.13	1.11	1.52	1.30		
Mercury (Hg)-Total	mg/L	0.000196	<0.000020	<0.000020	<0.000020	<0.000020		
Molybdenum (Mo)-Total	mg/L	<0.010	<0.010	<0.0050	<0.020	<0.020		
Nickel (Ni)-Total	mg/L	0.0048	0.0060	0.0066	0.0086	<0.0080	0.05	0.1
Potassium (K)-Total	mg/L	33.9	37.7	40.3	48.6	43.6		
Selenium (Se)-Total	mg/L	0.00321	0.00336	0.00334	0.0035	0.0031		
Silver (Ag)-Total	mg/L	<0.000040	<0.000040	<0.000020	<0.000080	<0.000080		
Sodium (Na)-Total	mg/L	524	591	571	744	673		
Thallium (Tl)-Total	mg/L	<0.00020	<0.00020	0.0001	<0.00040	<0.00040		

HBML ID		ST1-12AUG12	ST1-18AUG12	ST1-26AUG12	ST1-06SEP12	ST1-13SEP12	Part G Item 21(a)	
ALS ID		L1192901-1	L1196629-1	L1200805-1	L1206071-1	L1209817-1	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Sample Date/Time		8/12/2012 1:35 PM	8/18/2012 3:45 PM	8/26/2012 1:50 PM	9/6/2012 1:05 PM	9/13/2012 3:00 PM		
Parameters	**Units**	**Results**						
Tin (Sn)-Total	mg/L	<0.10	<0.10	<0.050	<0.20	<0.20		
Titanium (Ti)-Total	mg/L	0.0026	<0.0020	0.0025	0.0150	<0.0040		
Uranium (U)-Total	mg/L	0.00179	0.00209	0.00228	0.00241	0.00224		
Vanadium (V)-Total	mg/L	<0.0020	<0.0020	<0.0010	<0.0040	<0.0040		
Zinc (Zn)-Total	mg/L	0.186	0.0891	0.0916	0.185	0.195	0.01	0.02
Calcium (Ca)-Dissolved	mg/L	546	628	745	878	762		
Magnesium (Mg)-Dissolved	mg/L	77.8	84.1	96.3	108	100		
Potassium (K)-Dissolved	mg/L	33.1	34.9	41.3	46.2	41.9		
Sodium (Na)-Dissolved	mg/L	505	540	643	674	683		
Oil and Grease	mg/L	<1.0	<1.0	9.9	<1.0	<1.0	5	10
Oil And Grease (Visible Sheen)		No visible sheen	No visible sheen	No visible sheen	No visible sheen	No visible sheen	No visible sheen	No visible sheen

Note: Red text indicates that value is above the discharge criteria for discharge to the tundra. All water from ST-1 was discharged to the TIA in 2012.

ST-2 Pollution Control Pond

This facility was constructed in 2011. In 2012, it was active between May and October 2012. Samples from ST-2 were collected from a depth of 0.25 m below the water surface. All water from the pollution control pond was directed to the sedimentation pond.

Monthly water quality monitoring sampling, as per Schedule J of the water licence, occurred from June to September 2012 at ST-2. Results of the sampling are presented in Table 4. For internal monitoring, samples were however collected weekly.

Table 4 – Monthly water quality monitoring program results for ST-2, June to September, in mg/L, unless specified otherwise

	HBML ID	ST2-6JUN12	ST2-04JUL12	ST2-12AUG12	ST2-06SEP12
	ALS ID	L1159717-5	L1174452-2	L1192901-2	L1206071-2
	Date/Time	6/6/2012 11:20:00 AM	7/4/2012 9:15:00 AM	8/12/2012 10:45:00 AM	9/6/2012 1:15:00 PM
Parameters	**Units**	**Results**			
Hardness (as $CaCO_3$)	mg/L	2220	2420	3370	1760
Total Suspended Solids	mg/L	4	8	9	<3.0
Alkalinity, Total (as $CaCO_3$)	mg/L	-*	101	115	189
Ammonia, Total (as N)	mg/L	64.4	72.5	75.2	29.4
Bicarbonate (HCO_3)	mg/L	-	123	140	231
Carbonate (CO_3)	mg/L	-	<5.0	<5.0	<5.0
Chloride (Cl)	mg/L	-*	2630	3540	1740
Conductivity (EC)	uS/cm	8280	9480	12400	6720
Hardness (as $CaCO_3$)	mg/L	-	2370	3570	1810
Hydroxide (OH)	mg/L	-	<5.0	<5.0	<5.0
Ion Balance	%	-	92.5	97	99.7
Nitrate and Nitrite (as N)	mg/L	-	148	192	86.9
Nitrate (as N)	mg/L	134	148	192	86.9
Nitrite (as N)	mg/L	0.59	<0.50	<1.0	<0.50
pH	pH	7.61	7.71	7.53	7.83
TDS (Calculated)	mg/L	-	5090	6920	3690
Sulfate (SO_4)	mg/L	70.9	140	194	202
Cyanide, Total	mg/L	<0.0040	0.0216	0.0182	0.011
Aluminum (Al)-Total	mg/L	0.254	0.041	0.13	0.0129
Antimony (Sb)-Total	mg/L	<0.0016	<0.0016	<0.0080	0.00049
Arsenic (As)-Total	mg/L	<0.0016	<0.0016	<0.0080	0.00144
Barium (Ba)-Total	mg/L	0.176	0.166	0.271	0.129
Beryllium (Be)-Total	mg/L	<0.0040	<0.0040	<0.020	<0.0010
Boron (B)-Total	mg/L	0.26	0.47	<1.0	0.432
Cadmium (Cd)-Total	mg/L	0.000162	0.000196	0.00048	0.000155
Calcium (Ca)-Total	mg/L	797	809	1110	576
Chromium (Cr)-Total	mg/L	<0.0040	<0.0040	<0.020	<0.0010
Cobalt (Co)-Total	mg/L	<0.0080	<0.0080	<0.040	0.005
Copper (Cu)-Total	mg/L	0.0049	<0.0040	<0.020	0.0133
Iron (Fe)-Total	mg/L	0.82	<0.30	0.55	0.325

HBML ID		ST2-6JUN12	ST2-04JUL12	ST2-12AUG12	ST2-06SEP12
ALS ID		L1159717-5	L1174452-2	L1192901-2	L1206071-2
Date/Time		6/6/2012 11:20:00 AM	7/4/2012 9:15:00 AM	8/12/2012 10:45:00 AM	9/6/2012 1:15:00 PM
Parameters	**Units**	**Results**			
Lead (Pb)-Total	mg/L	<0.00040	<0.00040	<0.0020	<0.00010
Lithium (Li)-Total	mg/L	0.109	0.093	<0.20	0.092
Magnesium (Mg)-Total	mg/L	79.9	97.6	147	77.9
Manganese (Mn)-Total	mg/L	1.07	0.827	1.77	1.02
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.020	<0.020	<0.10	0.0053
Nickel (Ni)-Total	mg/L	<0.0080	<0.0080	<0.040	0.0067
Potassium (K)-Total	mg/L	48.0	47.1	57.1	38.1
Selenium (Se)-Total	mg/L	<0.0016	0.0031	<0.0080	0.00335
Silver (Ag)-Total	mg/L	<0.000080	<0.000080	<0.00040	<0.000020
Sodium (Na)-Total	mg/L	597	724	867	570
Thallium (Tl)-Total	mg/L	<0.00040	<0.00040	<0.0020	<0.00010
Tin (Sn)-Total	mg/L	<0.20	<0.20	<1.0	<0.050
Titanium (Ti)-Total	mg/L	0.0120	<0.0040	<0.020	<0.0010
Uranium (U)-Total	mg/L	0.00085	0.00131	<0.0020	0.00236
Vanadium (V)-Total	mg/L	<0.0040	<0.0040	<0.020	<0.0010
Zinc (Zn)-Total	mg/L	<0.016	<0.016	0.087	<0.0040
Calcium (Ca)-Dissolved	mg/L	760	797	1180	579
Magnesium (Mg)-Dissolved	mg/L	78.9	92.3	152	89.0
Potassium (K)-Dissolved	mg/L	-	47.4	58.6	38.8
Sodium (Na)-Dissolved	mg/L	-	671	875	547
Oil and Grease	mg/L	<1.0	<1.0	<1.0	<1.0
Oil And Grease (Visible Sheen)		no visible sheen	no visible sheen	no visible sheen	no visible sheen

**Required parameters for sample not analyzed by lab*

ST-4 Landfarm

Construction of the landfarm facility was completed in 2011. Use of the facility commenced in 2012. The facility received potentially contaminated material from site snow clearing at vehicle ready-lines, equipment staging areas, or from accumulation of effluent inside fuel storage insta-berms. In addition, any contaminated snow or soil resulting from spill incidents of hydrocarbon products amenable to on-site oil-water separator treatment or landfarm remediation was contained in cells within the landfarm designated for those purposes.

Water from the landfarm (ST-4) was sampled on June 24, 2012. The results (Table 5) were compliant with the water licence discharge criteria of Part F Item 22(c). Following the Inspector notification submitted July 3, 2012, approximately 180 m^3 of compliant effluent was used for dust suppression on Doris North Project roads.

Table 5 – Water quality monitoring program results for ST-4, June 2012, in mg/L, unless specified otherwise

	HBML ID	ST4-24JUN12A	Part G Item 22(c)	
	ALS ID	L1167650-1	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Sample Date/Time		6/24/2012 2:30:00 PM		
Parameters	**Units**	**Results**		
Conductivity (EC)	uS/cm	719	-	-
pH	pH	8.22	6.0 - 9.0	9.0
Total Suspended Solids	mg/L	<3.0	15	30
Ammonia, Total (as N)	mg/L	0.427	2.0	4.0
Lead (Pb)-Total	mg/L	<0.00010	0.01	0.02
Oil and Grease	mg/L	<1.0	5	10.0
Oil And Grease (Visible Sheen)		no visible sheen	no visible sheen	no visible sheen
Benzene	mg/L	<0.00050	0.37	-
Ethylbenzene	mg/L	<0.00050	0.090	-
Toluene	mg/L	<0.00050	0.002	-

ST-5 Doris Plant Site Fuel Storage and Containment

The Doris tank farm (ST-5) was sampled on May 15, 2012 but a visible sheen was detected in the sample. The oil-water separator was set up to process the water in ST-5 and a compliant sample was collected on May 31, 2012. Results for both sampling events are shown in Table 6. A discharge notification was provided to the Inspector on May 24, 2012. Discharge began on June 8, 2012, via the oil-water separator, and 655 m^3 was discharged to the tundra in June. An additional 6 m^3 was discharged in July. Daily samples were collected during discharge and results of this sampling are presented in Tables 7 and 8.

Table 6 – Water quality monitoring program results for ST-5, pre-discharge and treated through Oil/Water Separator, in mg/L, unless specified otherwise

HBML ID		ST5-15MAY12	ST5-31MAY12 (treated with oil-water separator)	Part J Item 22 (e)	
ALS ID		L1150080-1	L1156113-2	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Sample Date/Time		5/15/2012 4:25:00 PM	5/31/2012 9:20:00 AM		
Parameters	**Units**	**Results**			
pH	pH	8.22	8.08	6.5 – 9.0	9.0
Total Suspended Solids	mg/L	18	<3.0	15	30
Lead (Pb)-Total	mg/L	0.00077	0.00024	0.01	0.02
Oil and Grease	mg/L	<1.0	<1.0	5	10
Oil And Grease (Visible Sheen)		visible sheen present	no visible sheen	-	-
Benzene	mg/L	<0.00050	<0.00050	0.37	-
Ethylbenzene	mg/L	0.00085	<0.00050	0.09	-
Toluene	mg/L	0.00075	<0.00050	0.002	-

Table 7 - Water quality monitoring program results for ST-5, daily during discharge June 2012, in mg/L, unless specified otherwise

HBML ID		ST5-08JUN12	ST5-09JUN12	ST5-10JUN12	ST5-11JUN12	ST5-12JUN12	ST5-13JUN12	ST5-14JUN12	ST5-15JUN12	ST5-16JUN12	Part J Item 22 (e)	
ALS ID		L1160620-1	L1160620-3	L1160620-2	L1160620-4	L1163285-1	L1163285-2	L1163285-3	L1164060-1	L1164060-2	Max Average Concentration (mg/L)	Max Concentration in any Grab Sample (mg/L)
Sample Date/Time		6/8/2012 7:15:00 PM	6/9/2012 4:45:00 PM	6/10/2012 5:40:00 PM	6/11/2012 9:00:00 AM	6/12/2012 5:40:00 PM	6/12/2012 3:30:00 PM	6/12/2012 4:05:00 PM	6/15/2012 6:00:00 PM	6/15/2012 7:15:00 PM		
Parameters	**Units**	**Results**										
Conductivity (EC)	uS/cm	265	272	279	287	301	314	332	346	368	-	-
pH	pH	8.31	8.14	8.11	8.21	8.2	8.24	8.25	8.17	8.19	6.0 - 9.0	9
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	15	30
Lead (Pb)-Total	mg/L	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.01	0.02
Oil and Grease	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5	10
Oil And Grease (Visible Sheen)		no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen
Benzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.37	-
Ethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.09	-
Styrene	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-
Toluene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.002	-
o-Xylene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-
m+p-Xylene	mg/L	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-
Xylenes	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	-	-

Table 8 - Water quality monitoring program results for ST-5, daily during discharge June and July 2012, in mg/L, unless specified otherwise

HBML ID		ST5-17JUN12	ST5-18JUN12	ST5-19JUN12	ST5-20JUN12	ST5-21JUN12	ST5-22JUN12	ST5-23JUN12	ST5- 01JUL 12	ST5-04JUL12	Part J Item 22 (e)	
ALS ID		L1164060-3	L1166916-1	L1166916-2	L1166916-3	L1166916-4	L1167649-1	L1167649-2	L1171257-1	L1174465-1	Max Average Concentration (mg/L)	Max Concentration in any Grab Sample (mg/L)
Sample Date/Time		6/15/2012 6:45:00 PM	6/18/2012 7:44:00 PM	6/19/2012 4:35:00 PM	6/20/2012 5:45:00 PM	6/21/2012 8:45:00 PM	6/22/2012 7:30:00 PM	6/23/2012 6:45:00 PM	7/1/2012 3:23:00 PM	7/4/2012 2:50:00 PM		
Parameters	Units	**Results**										
Conductivity (EC)	uS/cm	403	442	500	639	789	1070	1520	1380		-	-
pH	pH	8.22	8.17	8.2	8.28	8.26	8.18	8.2	8.23	8.29	6.0 - 9.0	9
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	15	30
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.01	0.02
Oil and Grease	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5	10
Oil And Grease (Visible Sheen)		no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen
Benzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.37	-
Ethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.09	-
Styrene	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	-
Toluene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.002	-
o-Xylene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	-
m+p-Xylene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00081	-	-
Xylenes	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	0.00081	-	-

ST-6a Roberts Bay Bulk Fuel Storage Facility

The Roberts Bay 5 million litre fuel tank berm sump (ST-6a) was sampled on May 25, 2012 and the results were compliant with the discharge criteria. Results are presented in Table 9. A discharge notification was provided to the Inspector on May 24, 2012. A total of 381 m^3 was removed from the berm during May and June. On May 31, 2012, 269 m^3 was discharged and a compliance sample was collected (Table 9). The remaining 112 m^3 was used for dust suppression.

Table 9 – Water quality monitoring program results for ST-6a, May 2012, in mg/L, unless specified otherwise

HBML ID		ST6A-25MAY12	ST6A-31MAY12	Part J Item 22 (e)	
ALS ID		L1152479-1	L1156113-3	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Sample Date/Time		5/25/2012 7:30:00 PM	5/31/2012 3:00:00 PM		
Paramaters	**Units**	**Results**			
pH	pH	8.09	8.26	6.0 - 9.0	9
Total Suspended Solids	mg/L	7	22	15	30
Lead (Pb)-Total	mg/L	0.00013	0.00028	0.01	0.02
Oil and Grease	mg/L	<1.0	<1.0	5	10
Oil And Grease (Visible Sheen)		No Visible Sheen	No Visible Sheen	-	-
Benzene	mg/L	<0.00050	<0.00050	0.37	-
Ethylbenzene	mg/L	<0.00050	<0.00050	0.09	-
Toluene	mg/L	<0.00050	<0.00050	0.002	-

ST-6b Roberts Bay Bulk Fuel Storage Facility

Water from the Roberts Bay Bulk Fuel Containment (ST-6b) was sampled on May 15, 2012. A visible sheen was detected in the sample so the water was circulated through the oil-water separator. The sample taken on May 28, 2012, after treatment, had an elevated pH, possibly attributed to fresh carbon media in the oil-water separator. The water was recirculated through the oil-water seperator, and on June 7, 2012, a compliant sample was obtained. See Table 10 for results. A discharge notification was submitted to the Inspector on May 24, 2012. A total of 971 m^3 of water was removed from the berm in June and a final 132 m^3 was removed in the beginning of July. The water was used for dust suppression on the roads.

Table 10 – Water quality monitoring program results for ST-6b, May 2012, in mg/L, unless specified otherwise

HBML ID		ST6B-15MAY12	ST6B-28MAY12	ST6B-07JUN12	ST6B-14JUN12A	Part J Item 22 (e)	
ALS ID		L1150080-3	L1156113-1	L1159708-1	L1163282-1	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
Sample Date/Time		5/15/2012 4:25:00 PM	5/28/12 4:17:00 PM	6/7/12 3:00:00 PM	6/14/2012 3:30:00 PM		
Parameters	**Units**	**Results**					
pH	pH	8.30	9.68	8.02	8.22	6.5 - 9.0	9
Total Suspended Solids	mg/L	9.0	<3.0	-	14	15	30
Lead (Pb)-Total	mg/L	0.00044	<0.00010	-	0.00027	0.01	0.02
Oil and Grease	mg/L	<1.0	<1.0	-	<1.0	5	10
Oil And Grease (Visible Sheen)		visible sheen	no visible sheen	-	no visible sheen	-	-
Benzene	mg/L	<0.00050	<0.00050	-	<0.00050	0.37	-
Ethylbenzene	mg/L	<0.00050	<0.00050	-	<0.00050	0.09	-
Toluene	mg/L	<0.00050	<0.00050	-	<0.00050	0.002	-
Styrene	mg/L	<0.010	<0.010	-	<0.010	-	-
o-Xylene	mg/L	<0.00050	<0.00050	-	<0.00050	-	-
m+p-Xylene	mg/L	<0.00050	<0.00050	-	0.00063	-	-
Xylenes	mg/L	<0.00071	<0.00071	-	<0.00071	-	-

ST-7 Freshwater pumped from Doris Lake

Table 11 provides the volumes of water usage at the Doris North project area as required under Part E Item 1 of water licence 2AM-DOH0713. The water extraction pump for Doris Camp is located off the northwest shoreline of Doris Lake and the sampling station ST-7 is located within the Doris Lake pump house. Water usage reported in Table 11 includes volumes used for domestic camp usage and dust suppression on the project road system.

Table 11 – Doris North water usage in 2012 measured at ST-7, in cubic metres (m3)*

Month	Water Source	Monthly Usage	Cumulative Usage
January	Doris Lake	2176	2176
February	Doris Lake	4592	6768
March	Doris Lake	2807	9575
April	Doris Lake	716	10291
May	Doris Lake	514	10805
June	Doris Lake	695	11500
July	Doris Lake	2691	14191
August	Doris Lake	1552	15743
September	Doris Lake	895	16638
October	Doris Lake	48	16686
November	Doris Lake	-	-
December	Doris Lake	-	-

**values rounded to nearest whole cubic meter*

Table 12 provides the results of water quality sampling for monitoring station ST-7. The results are intended to be compliant with the requirements set out in Schedule J of water licence 2AM-DOH0713. Water quality monitoring samples were taken from a valve on the discharge end of the freshwater pump once per month. Samples were also collected to test for blue-green algae as part of the routine camp potable water sampling program, and as requested by INAC in their comments of April 22, 2009, regarding modification to the licence to temporarily utilize domestic water from Windy Lake while improvements were being made to the Doris North drinking water treatment system.

Table 12 – Water sampling monitoring program results for 2012 taken from ST-7, in mg/L, unless otherwise specified

HBML ID		ST7-18JAN12	ST7-01FEB12	ST7-05MAR12	ST7-02APR12	ST7-11MAY12	ST7-4JUN12	ST7-09JUL12	ST7-17AUG12	ST7-07SEP12	ST7-01OCT12
ALS ID		L1106150-1	L1110919-1	L1120767-1	L1130505-1	L1146534-1	L1156713-1	L1174847-1	L1195962-1	L1206063-1	L1217547-1
Sample Date/Time		1/18/12 2:35 PM	2/2/2012 6:10 PM	3/5/2012 8:01 AM	4/2/2012 8:19 AM	5/11/2012 9:46 AM	6/4/2012 7:43 AM	7/9/2012 7:45 AM	8/17/2012 8:15 AM	9/7/2012 7:45 AM	10/1/2012 9:20 AM
Parameters	**Units**	**Results**									
Conductivity (EC)	uS/cm	300	310	315	326	332	326	243	276	271	274
Hardness (as $CaCO_3$)	mg/L	47.3	56.0	63.6	58.6 *	55.3	58.9	40.7	39.8	42.6	45.4
pH	pH	7.46	7.54	7.46	7.43	7.8	7.68	7.39	7.53	7.67	7.43
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	12	<3.0
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.071
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.050
Phosphorus (P)-Total	mg/L	0.037	<0.020	<0.020	0.025	0.026	<0.020	<0.020	<0.020	0.038	<0.0010
Cyanide, Total	mg/L	<0.0050	<0.0050 *	<0.0050	0.0057	<0.0050	<0.0050	<0.0050		<0.0050	<0.0050
Cyanide, Free	mg/L	<0.0050	<0.0050 *	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.0237	0.0136	0.0196	0.0295	0.0099	0.0104	0.0727	0.0381	0.219	<0.0050
Antimony (Sb)-Total	mg/L	<0.00040	<0.00050	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Arsenic (As)-Total	mg/L	<0.00040	<0.00050	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Barium (Ba)-Total	mg/L	0.0032	<0.020	0.0033	0.0031	0.0033	<0.0030	0.0032	0.0033	0.0056	<0.0030
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	<0.050	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010	0.000093	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	8.80	10.6	10.8	10.9	9.57	11.2	8.51	10.2	8.14	9.42
Chromium (Cr)-Total	mg/L	<0.0010	0.0047	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.00030	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Copper (Cu)-Total	mg/L	0.0026	0.0023	0.0031	0.0028	0.0022	0.003	0.007	0.0033	0.024	0.003
Iron (Fe)-Total	mg/L	0.031	0.531	<0.030	0.041	0.033	<0.030	0.193	0.203	1.12	<0.030
Lead (Pb)-Total	mg/L	0.00019	<0.00050	0.00019	0.00016	0.00014	0.00019	0.00063	0.00046	0.00027	<0.00010
Lithium (Li)-Total	mg/L	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Magnesium (Mg)-Total	mg/L	6.14	7.34	7.23	7.46	7.25	7.86	5.54	7.02	5.66	6.47
Manganese (Mn)-Total	mg/L	<0.0050	0.00975	<0.0050	<0.0050	<0.0050	<0.0050	0.0144	0.0412	0.0973	<0.0050
Mercury (Hg)-Total	mg/L	<0.000020	<0.000010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	0.0021	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020	0.0046	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Potassium (K)-Total	mg/L	2.03	2.5	2.53	2.69	2.41	2.7	2.05	2.35	2.11	2.36
Selenium (Se)-Total	mg/L	<0.00040	<0.0010	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	29.4	34.8	33.8	37.2	31.8	37.8	26.9	34.9	27.6	31.2
Thallium (Tl)-Total	mg/L	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	<0.050	<0.00050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	<0.0010	<0.010	<0.0010	0.001	<0.0010	<0.0010	0.0019	<0.0010	0.0087	<0.0010
Uranium (U)-Total	mg/L	<0.00010	<0.00020	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	0.0070	<0.0050	0.0075	0.0054	0.0075	0.0076	0.0285	0.0091	0.0106	0.0051
Calcium (Ca)-Dissolved	mg/L	-	10.4	12	11	10.4	11.3	7.56	7.45	7.8	8.75
Magnesium (Mg)-Dissolved	mg/L	-	7.33	8.2	7.56	7.14	7.46	5.29	5.14	5.61	5.72

HBML ID		ST7-18JAN12	ST7-01FEB12	ST7-05MAR12	ST7-02APR12	ST7-11MAY12	ST7-4JUN12	ST7-09JUL12	ST7-17AUG12	ST7-07SEP12	ST7-01OCT12
ALS ID		L1106150-1	L1110919-1	L1120767-1	L1130505-1	L1146534-1	L1156713-1	L1174847-1	L1195962-1	L1206063-1	L1217547-1
Sample Date/Time		1/18/12 2:35 PM	2/2/2012 6:10 PM	3/5/2012 8:01 AM	4/2/2012 8:19 AM	5/11/2012 9:46 AM	6/4/2012 7:43 AM	7/9/2012 7:45 AM	8/17/2012 8:15 AM	9/7/2012 7:45 AM	10/1/2012 9:20 AM
Parameters	**Units**	**Results**									
Biochemical Oxygen Demand	mg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.8
Oil and Grease	mg/L	1.0	<1.0	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Oil And Grease (Visible Sheen)		no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen
Fecal Coliforms	CFU/100mL	<1	<1	<1.0	<1	<1	<1	<1	8	271	<1
ALS ID		L1106156-1	L1110920-1	L1123168-1	L1130461-1	L1146547-1	L1160416-1	L1174847-1	L1192935-1	L1206100-1	L1217537-1
Sample Date/Time		1/18/12 2:35 PM	2/1/2012 6:10PM	3/12/12 7:30 AM	4/2/12 8:19 AM	5/11/12 9:48 AM	6/10/2012 5:50 PM	7/9/2012 7:45 AM	8/13/2012 7:35 AM	9/7/2012 7:00 AM	10/1/2012 7:50AM
Parameters	**Units**	**Results**									
Blue-green algae	Cells/100 mL	96,800	65,300	61,300	62,200	36,200	89,100	23,700	31,100	93,100	125,000

ST-8 Discharge from Sewage Treatment Plant Bio-Membrane

HBML operated tandem sewage treatment plants between January and October 2012 to support the Doris North camp facility. Depending on camp occupancy numbers, plant maintenance activities, and routine cleaning of the treatment system, either one or both of the plants were in use during any given time in the year. Treated effluent samples were collected from one or both sampling ports inside the plants to test the quality of the effluent to be discharged to the tundra. In-plant sampling facilitates year-round compliance evaluation of plant performance. Doris Camp was closed for the 2012 season on October 12, 2012.

The water quality data reported for 2012 in Table 13 at ST-8 was compliant for all parameters with the following exceptions:

- February 2, 2012: The plant pH at ST8A discharge was below the discharge criteria of 6. The STP operator was notified of the non-compliant pH and adjustments were made to the process to bring the pH back between 6 and 9.
- October 1, 2012: The sample collected in October just prior to camp seasonal shut down exceeded the discharge criteria for the maximum allowable grab sample concentration for oil and grease by 2.1 mg/L.

Table 13 – Water quality monitoring program results for ST-8 (Tandem Treatment Plants ST8A and ST8B), 2012, in mg/L, unless otherwise specified

HBML ID	ST8A-09JAN12	ST8A-02FEB12	ST8A-05MAR12	ST8A-02APR12/ ST8A16APR12	ST8A-11MAY12	ST8A-04JUN12	ST8B-09JUL12	ST8B-17AUG12	ST8B-07SEP12	ST8B-01OCT12	Part G Item 3 (b)	
ALS ID	L1102477-1	L1110919-2	L1120767-2	L1130505-2/ L1135060-1	L1146534-2	L1156713-2	L1174847-2	L1195962-2	L1206063-2	L1217547-2	Maximum Average Concentration	Maximum Allowable Grab Sample Concentration
Sample Date/Time	1/9/12 7:45 AM	2/2/12 7:00 PM	3/5/12 8:01 AM	4/2/12 8:19 AM/ 4/16/12 7:30 AM	5/11/12 9:30 AM	6/4/2012 8:10 AM	7/9/2012 9:05 AM	8/17/2012 8:10 AM	9/7/2012 7:30 AM	10/1/2012 9:30 AM		
Parameters	**Results**											
BOD_5	12.7	12.9	17.0	14.1	5.3	3.6	<2.0	<2.0	<2.0	2.4	80 mg/L	80 mg/L
TSS (mg/L)	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	100 mg/L	100 mg/L
Fecal Coliform	180	<1	<1	3	20	17	<1	<1	<1	<1	10,000 CFU/100mL	10,000 CFU/100mL
pH (pH unit)	6.43	**5.97**	6.34	6.35	7.37	6.59	7.19	6.87	7.62	6.83	6-9	9
Oil & Grease (Visible Sheen)	No Visible Sheen	No Visible Sheen	No Visible Sheen	No Visible Sheen*	No Visible Sheen	No Visible Sheen	No Visible Sheen	No Visible Sheen	No Visible Sheen	No Visible Sheen	No Visible Sheen	No Visible Sheen
Oil & Grease (mg/L)	<1.0	<1.0	2.6	<1.0*	<1.0	<1.0	<1.0	<1.0	2.3	**12.1**	5	10

**Samples were retaken for Oil and Grease April 16, 2012 due to broken sample bottle during shipment to lab*

Treated effluent volumes released from ST-8 are metered daily and summary volumes reported in the monthly monitoring reports. The volumes discharged in 2012 are presented in Table 14.

Table 14 – Treated effluent released from the Doris sewage treatment plant (ST-8), 2012, in cubic meters (m3)

Month	Monthly Volume	Cumulative Volume
January	609	609
February	642	1,251
March	728	1,979
April	544	2,523
May	441	2,964
June	460	3,424
July	505	3,929
August	453	4,382
September	458	4,840
October	58	4,898
November	-	-
December	-	-
Total Volume of Treated Effluent Released 2012		**4,898**

The sludge produced at the sewage treatment plant is pressed regularly to remove processed solids and to allow for proper functioning of the plant. Each press produces approximately 0.11328 m^3 of sludge. Pressed sludge is promptly sent to the incinerator to prevent attraction of wildlife. The volume of pressed sludge produced in 2012 is presented in Table 15.

Table 15 – Volume of pressed sludge removed from the Doris sewage treatment plant, 2012, in cubic meters (m3)

Month	Monthly Volume	Cumulative Volume
January	3.96	3.96
February	2.61	6.57
March	3.34	9.91
April	2.95	12.86
May	2.83	15.69
June	2.27	17.39
July	4.87	22.26
August	3.34	25.60
September	1.42	27.02
October	0.23	27.24
November	-	-
December	-	-
Total Volume of Sludge Removed and Incinerated 2012		**27.24**

ST-9 Runoff from Sewage Treatment Plant Discharge

In consultation with INAC during the 2009 inspection tour, the location of sampling point ST-9 was set at geographical coordinates 68°8’20” N, 106°39’55” W. This point is east of Glenn Lake and down slope from the ST-8 tundra discharge location. Monthly monitoring was conducted at ST-9 June through September 2012 in accordance with Schedule J of 2AM-DOH0713. The station is frozen during the remainder of the year. There is no water quality criteria specified in the licence for this monitoring station. Table 16 provides results of the 2012 seasonal monitoring.

Table 16 – Water quality monitoring program results for ST-9, June to September 2012, in mg/L, unless otherwise specified

HBML ID		**ST9-04JUN12**	**ST9-09JUL12**	**ST9-12AUG12**	**ST9-06SEP12**
ALS ID		**L1163247-1**	**L1174847-3**	**L1192919-1**	**L1206063-3**
Sample Date/Time		**6/14/2012 1:45 PM**	**7/9/2012 8:37 AM**	**8/12/2012 5:20 PM**	**9/6/2012 6:25 PM**
Parameters	**Units**	**Results**			
pH	pH	7.9	7.77	7.98	7.7
Total Suspended Solids	mg/L	<3.0	<3.0	30	6
Biochemical Oxygen Demand	mg/L	2.8	<2.0	<2.0	<2.0
Oil and Grease	mg/L	2.7	<1.0	<1.0	<1.0
Oil And Grease (Visible Sheen)		no visible sheen	no visible sheen	no visible sheen	no visible sheen
Fecal Coliform	CFU/100mL	<1	<1	2	<1

ST-10 Site Runoff from Sediment Controls

As part of the Waste Rock and Ore Management Plan and the Quarry Management and Monitoring Plan, surface runoff from construction areas that has the potential to directly or indirectly enter a waterbody is sampled. In 2012, this sampling was undertaken by SRK. The results of the SRK sampling program are included in the 2012 Waste Rock and Quarry Monitoring Report submitted to the NWB in January 2013.

Samples were collected at various seeps in construction areas during freshet and rainy periods during May and June 2012, to check for turbidity, and a subset of the seeps were sampled for laboratory analysis of total suspended solids (Table 17). Where turbidity or suspended solids were noted in run-off, immediate and effective measures were implemented to mitigate the transport of disturbed sediments. Impact to water bodies was not observed in relation to any site infrastructure runoff during 2012.

Table 17 – Construction Surface Runoff Sample Results for Turbidity and Total Suspended Solids, May and June 2012

HBML ID	ALS ID	Date Sampled	Total Suspended Solids (mg/L)*	Turbidity (in situ) (NTU)	Comments
ST10E-29MAY12	L1156106-2	29-May-12 @ 13:44	32	56.6	Above last coco mat (sump area)
ST10F-29MAY12	-	29-May-12 @ 13:46	-	60.4	Below last coco mat (sump area)
ST10G-29MAY12	-	29-May-12 @ 14:12	-	6.43	Below turnoff towards pump house
ST10E-30MAY12	L1156106-5	30-May-12 @ 16:00	30	58.3	Above last coco mat (sump area)
ST10C-1JUN12		1-Jun-12 @ 14:45		18.5	Pooling runoff at Windy Road branch from Doris Road
ST10C-2JUN12		2-Jun-12 @ 17:15		12.2	Pooling runoff at Windy Road branch from Doris Road
ST10C-03JUN12		3-Jun-12 @ 9:10		9.87	Pooling runoff at Windy Road branch from Doris Road
ST10C-4JUN12	L1159677-4	4-Jun-12 @ 17:50	<3.0	23.8	Pooling runoff at Windy Road branch from Doris Road
ST10C-05JUN12		5-Jun-12 @ 0:00		15.4	Pooling runoff at Windy Road branch from Doris Road
ST10C-06JUN12		6-Jun-12 @ 13:50		11.9	Pooling runoff at Windy Road branch from Doris Road
ST10C-09JUN12		9-Jun-12 @ 10:10		12.3	Pooling runoff at Windy Road branch from Doris Road
ST10C-12JUN12		12-Jun-12 @ 16:55		19.7	Runoff South of Doris Overburden stockpile
ST10D-1JUN12	L1156739-6	1-Jun-12 @ 14:50	<3.0	5.7	Pooling runoff at Windy Road branch from Doris Road
ST10D-2JUN12	L1156739-5	2-Jun-12 @ 17:35	<3.0	5.26	Pooling runoff at Windy Road branch from Doris Road
ST10D-3JUN12	L1156739-3	3-Jun-12 @ 9:22	7	8.78	Pooling runoff at Windy Road branch from Doris Road
ST10D-04JUN12		4-Jun-12 @ 17:10		1.81	Pooling runoff at Windy Road branch from Doris Road
ST10E-1JUN12		1-Jun-12 @ 15:00		28.3	Above last coco mat (sump area)
ST10E-02JUN12		2-Jun-12 @ 16:00		41.3	Above 3rd coco mat (sump area)
ST10E-03JUN12		3-Jun-12 @ 9:22		8.78	Above last coco mat (sump area)
ST10F-1JUN12	L1156739-8	1-Jun-12 @ 15:04	24	18.5	Above 3rd coco mat (sump area)
ST10F-2JUN12		2-Jun-12 @ 17:52		8	Above 3rd coco mat (sump area)
ST10F-03JUN12		3-Jun-12 @ 9:35		11.2	Above 3rd coco mat (sump area)
ST10G-1JUN12		1-Jun-12 @ 15:10		10.7	Below turnoff towards pump house
ST10G-2JUN12		2-Jun-12 @ 17:55		4.5	Below turnoff towards pump house
ST10G-03JUN12		3-Jun-12 @ 9:40		1.94	Below turnoff towards pump house
ST10I-1JUN12	L1156739-7	1-Jun-12 @ 13:30	<3.0	0.65	At toe of tail lake dam
ST10I-02JUN12		2-Jun-12 @ 18:07		20	At toe of tail lake dam
ST10I-03JUN12		3-Jun-12 @ 10:00		0.97	At toe of tail lake dam
ST10L-05JUN12		5-Jun-12 @ 0:00		8.27	Across the road from PCP
ST10M-05JUN12		5-Jun-12 @ 0:00		14	Across the road from SCP

**2AM-DOH0713 TSS maximum grab criteria is 100 mg/L and TSS maximum average criteria 50 mg/L for runoff that has the potential to enter a waterbody.*

Tail Lake Dewatering and Doris Creek Monitoring - TL-1, TL-2, TL-3, TL-4 and TL-10

This section presents the results of the dewatering monitoring of the Tail Lake Tailings Impoundment Area (TIA) as per the applicable sections of Part G (Conditions Applying to Waste Management and Waste Management Plans) and Part J (Conditions Applying to General and Aquatic Effects Monitoring) of the water licence. As much of the monitoring required by Schedule J was completed as was seasonally feasible (limitations due to ice safety on Tail Lake and Doris Creek) and taking into account that there was no mill and associated processing infrastructure at Doris North, ore processing was not occurring, and no tailings were deposited into Tail Lake.

- **TL-1 – TIA at the Reclaim Pump Barge:** The reclaim pump barge did not exist at the TIA during 2012 but representative monitoring was undertaken during May through ice at the location of the discharge intake at coordinates UTM 7558815 N, 434605 E and during discharge in open water season from monitoring station TL-4 at the discharge end of the dewatering pipeline to Doris Creek. The intake of the pipeline at the TIA is submerged to a depth of 1.5m below the surface.
- **TL-2 – Doris Outflow Creek Upstream at the Flow Monitoring Station:** Monitoring during 2012 was undertaken from a point on Doris Creek established at UTM 7559507 N, 434053 E
- **TL-3 – Doris Outflow Creek 80m Downstream of Base of Waterfall:** Monitoring during 2012 was undertaken from a point on Doris Creek established at UTM 7559985 N, 434204 E
- **TL-4 – TIA Discharge End-Of-Pipe:** Monitoring during 2012 was undertaken from a valve established in the dewatering discharge line to Doris Creek at end-of-pipe.
- **TL-10 – Water Column in Deepest Portion of Tail Lake and at a Location Away from the TIA Reclaim Water Floating Pump House, Sampled at Surface, Mid-depth and Near Bottom:** Monitoring was undertaken from a point established at UTM 7558239 N, 434914 E. During May, water quality samples were obtained through the ice on Tail Lake. Immediately prior to commencing seasonal discharge from Tail Lake (June), due to deteriorating ice conditions at the lake margins, samples cannot be safely collected until ice cover is completely gone and the location can be accessed by boat (July).

Water samples were collected from TL-1 every second day for 2 weeks in May, while sufficient ice cover was available on Tail Lake, to fulfill the sampling requirement for prior to commencing discharge; an additional sample was collected on June 10, 2012, one day prior to initiating the dewatering activities for the TIA. A discharge notification was provided to the Inspector on May 30, 2012. During the period June 11 to September 13, a total of 465,665 m^3 of water was pumped from Tail Lake into Doris Creek. Table 18 shows the monthly and annual volumes discharged.

Acute lethality samples were collected at TL-1 once prior to discharge in May, and monthly from June through September at TL-4. Water quality for all sampling was found to be non-acutely toxic to Rainbow Trout and Daphnia magna in compliance with the requirements of Part G Item 27 (Table 19).

During discharge, TL-1 and TL-4 represent opposite ends of the same intake/discharge Tail Lake dewatering pipeline to Doris Creek; therefore, samples collected at TL-4 during the dewatering program also meet the sampling requirements for TL-1. Sample results for TL-1/TL-4 are provided in Tables 20 to 23. As expected, discharged water was compliant with the discharge criteria in the water licence with the following exceptions:

- On May 22, 2012, a TSS result of 37 mg/L exceeded the discharge criteria of 30 mg/L for a maximum concentration for a grab sample. Sediment laden snow and rocks from construction of the North Dam had been placed on the ice of Tail Lake in winter 2011/12, which had the potential to increase the total suspended sediment concentrations for TIA discharges may have contributed to this temporarily elevated result. Subsequent sampling until the end of the discharge season indicated TSS was compliant with discharhe criteria for all sample events.
- During late August and September, a chemical preservation error meant that no results were provided for Radium-226. During the 2012 season, there were no exceedences for this parameter.

Water quality monitoring at TL-2 and TL-3 commenced June 10, 2012, the earliest date prior to TIA discharge that water was available in Doris Creek for sampling. A discharge notification was provided to the Inspector on June 4, 2012. This notification included a request to reduce the pre-discharge sampling period.

Sample results for TL-2 (Doris Creek upstream) are presented in Tables 26 and 27 and are compared to the discharge criteria for TL-3. Sample results for TL-3 (Doris Creek downstream) are presented in Tables 28 and 29. As expected, the TL-3 (downstream of discharge) water quality was similar to the TL-2 (upstream Doris Creek background) water quality. Water samples at TL-3 occasionally exceeded the discharge criteria for several parameters (TSS, aluminium, chromium, copper, iron – highlighted in the tables), but was below natural background levels for water quality at the Doris North project.

Samples were first collected at TL-10 on May 13, 2012, approximately two weeks prior to the start of TIA dewatering. Subsequent monthly sampling took place during the AEMP program from July to September. Water quality was not measured at station TL-10 in June due to unsafe ice conditions. A problem was identified with the YSI probe in May and inaccurate readings were obtained as a result. Readings could not be retaken while the unit was under repair. Tables 30 through 33 present the TL-10 sampling results but omit the inaccurate May results.

Table 18 – Monthly and annual volumes discharged from the Tailings Impoundment Area (TIA), at TL-1/TL-4, June to September 2012, in m3*

Month	Monthly Volume	Cumulative Volume
June	167,731	167,731
July	196,625	364,356
August	79,017	443,373
September	22,293	465,665
Total Volume Dewatered from Tail Lake 2012		**465,665**

**Volumes rounded to the nearest cubic meter*

Table 19 – Acute Toxicity Bioassay at sampling stations TL-1 (May) and TL-4 (June to September), 2012

HBML ID	**TL1-13MAY12**	**TL4-14JUN12**	**TL4-12JUL12**	**TL4-26AUG12**	**TL4-06SEP12**
ALS ID	**L1147173-1**	**L1163245-3**	**L1178343-3**	**L1200382-4 /-5**	**L1206012-3**
Sample Date/Time	**5/13/2012 2:10 PM**	**6/14/2012 11:15 AM**	**7/12/2012 5:20 PM**	**8/26/2012 2:15 PM**	**9/6/2012 2:00 PM**
Trout					
LC50	>100%	>100%	>100%	>100%	>100%
Analyst Comment	No effect occurred	No effect occurred	No effect occurred	No effect occurred	No effect occurred
Daphnia					
LC50	>100%	>100%	>100%	>100%	>100%
Analyst Comment	No effect occurred	No effect occurred	No effect occurred	No effect occurred	No effect occurred

Note: LC50 = lethal concentration that results in mortality of 50% of the test organisms; a result of 100% indicates all organisms survived

TL-1 TIA at the Reclaim Pump Barge and TL-4 TIA Discharge End-Of-Pipe

Table 20 – Water Quality from the Tailings Impoundment Area taken from Reclaim Pump Barge area* (TL-1), May 2012

	HBML ID	TL1-12MAY12	TL1-14MAY12	TL1-16MAY12	TL1-18MAY12	TL1-20MAY12	TL1-22MAY12	TL1-25MAY12	TL1-26MAY12	TL-1 Monthly Average	Part G Item 26	
	ALS ID	L1147171-1	L1147171-2	L1150245-1	L1150245-2	L1150249-1	L1152477-1	L1153356-2	L1153356-1		TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
	Sample Date/Time	5/12/12 @15:05	5/14/12 @8:56	5/16/12 @15:10	5/18/12 @8:05	5/20/12 @17:15	5/22/12 @14:20	5/25/12 @17:55	5/26/12 @15:10	May		
Parameter	**Units**	**Results**										
pH	pH	7.95	8.01	7.6	7.64	7.67	7.7	7.64	7.61	7.73	6.0 - 9.0	9.0
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<3.0	24	37*	4	<3.0	5.1	15.0	30.0
Total Dissolved Solids	mg/L	190	177	154	126	63	66	65	79	115		
Conductivity (EC)	uS/cm	298	289	255	224	84.6	98.9	102	111	183		
Hardness (as $CaCO_3$)	mg/L	76.8	65.5	59.6	52.9	30.8	38.1	34.2	38.5	49.6		
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	1.00	2.00
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Chloride (Cl)	mg/L	49.6	48.1	40.7	35.3	3.54	4.07	7.26	9.17	24.72		
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.076	0.054	<0.050	0.035	6	
Nitrate (as N)	mg/L	0.114	<0.050	<0.050	<0.050	0.143	0.179	0.127	<0.050	0.083		
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Phosphorus (P)-Total	mg/L	<0.020	<0.020	0.027	0.028	0.047	0.061	<0.020	<0.020	0.025		
Aluminum (Al)-Total	mg/L	0.0478	0.0122	0.0164	0.0197	1.5	1.78	0.19	0.177	0.468		
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040		
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00041	0.00047	<0.00040	<0.00040	0.00026	0.50	1.00
Barium (Ba)-Total	mg/L	0.0047	0.0034	0.0031	<0.0030	0.008	0.0088	0.0037	0.0047	0.0047		
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Cadmium (Cd)-Total	mg/L	0.000047	<0.000010	0.000033	<0.000010	0.000017	0.000013	0.000012	0.000014	0.00002		
Calcium (Ca)-Total	mg/L	13.7	11.7	12.2	10.6	10.1	11.9	10.4	12.0	11.6		
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0098	0.0113	<0.0010	0.0011	0.0031		
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020		
Copper (Cu)-Total	mg/L	0.004	0.002	0.002	0.0017	0.0074	0.0079	0.0019	0.0017	0.0036	0.30	0.60
Iron (Fe)-Total	mg/L	0.169	0.067	0.111	0.106	2.30	2.92	0.347	0.351	0.796		
Lead (Pb)-Total	mg/L	0.00024	<0.00010	<0.00010	<0.00010	0.00065	0.0007	0.00011	<0.00010	0.00024	0.20	0.40
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		
Magnesium (Mg)-Total	mg/L	9.27	8.00	8.27	6.91	2.39	2.99	2.26	2.74	5.35		
Manganese (Mn)-Total	mg/L	0.0052	<0.0050	<0.0050	<0.0050	0.0944	0.1090	0.1350	0.0990	0.0563		
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020		
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.006	0.0059	<0.0020	<0.0020	0.0022	0.50	1.00
Potassium (K)-Total	mg/L	3.28	2.67	2.53	2.03	1.02	1.16	1.07	1.18	1.87		
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040		
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020		
Sodium (Na)-Total	mg/L	27.9	23.7	25.9	20.8	3.5	4.0	4.5	5.4	14.5		
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Titanium (Ti)-Total	mg/L	0.0014	<0.0010	<0.0010	<0.0010	0.0544	0.056	0.0102	0.0084	0.0165		

HBML ID		TL1-12MAY12	TL1-14MAY12	TL1-16MAY12	TL1-18MAY12	TL1-20MAY12	TL1-22MAY12	TL1-25MAY12	TL1-26MAY12	TL-1 Monthly Average	Part G Item 26	
ALS ID		L1147171-1	L1147171-2	L1150245-1	L1150245-2	L1150249-1	L1152477-1	L1153356-2	L1153356-1		TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
Sample Date/Time		5/12/12 @15:05	5/14/12 @8:56	5/16/12 @15:10	5/18/12 @8:05	5/20/12 @17:15	5/22/12 @14:20	5/25/12 @17:55	5/26/12 @15:10	May		
Parameter	**Units**	**Results**										
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0055	0.0063	<0.0010	<0.0010	0.0019		
Zinc (Zn)-Total	mg/L	0.0205	<0.0040	<0.0040	<0.0040	0.0101	0.0085	0.0047	0.0051	0.0069	0.50	1.00
Calcium (Ca)-Dissolved	mg/L	14.7	12.5	11.3	10.3	10.3	12.6	10.6	11.8	11.8		
Magnesium (Mg)-Dissolved	mg/L	9.71	8.35	7.62	6.63	1.26	1.59	1.90	2.21	4.91		
Biochemical Oxygen Demand	mg/L	-	-	-	-	-	-	-	-	-	80	160
Dissolved Oxygen	mg/L											
Redox Potential	mV	-	103.6	-	-	-	-	-	-	-	-	-
Radium-226	Bq/L	-	-	-	-	-	-	-	-	-	0.37	1.11
Fecal Coliforms	CFU/100 mL	-	-	-	-	-	-	-	-	-	10,000	10,000

**Reclaim barge has not yet been constructed; water sample was taken from a valve on the discharge pump at Tail Lake (TL-1), or from a valve on the discharge line (TL-4) depending on seasonal safety considerations of accessing either site.*

Table 21 – Water Quality from the Tailings Impoundment Area taken from Reclaim Pump Barge area* (TL-1/TL-4), June 2012

	HBML ID	TL1-10JUN12	TL4-11JUN12	TL4-12JUN12	TL4-14JUN12	TL4-18JUN12	TL4-16JUN12	Part G Item 26	
	ALS ID	L1160661-1	L1162380-1	L1162380-4	L1163245-3	L1166892-3	L1164051-3	TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
	Sample Date/Time	6/10/2012 12:05PM	6/11/2012 12:00 AM	6/12/2012 12:00 AM	6/14/2012 11:15 AM	6/18/2012 1:35 PM	6/16/2012 1:30 PM		
Parameters	**Units**	**Results**							
Conductivity (EC)	uS/cm	224	237	237	261	231	291		
Hardness (as $CaCO_3$)	mg/L	56.1	58.6	59.5	61.8	57.6	82.2		
pH	pH	7.92	7.66	7.85	7.91	7.86	7.83	6.0 - 9.0	9
Total Suspended Solids	mg/L	<3.0	7	<3.0	<3.0	<3.0	<3.0	15	30
Total Dissolved Solids	mg/L	124	154	158	154	152	192		
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	0.124	0.12	6	-
Chloride (Cl)	mg/L	34.5	37.3	37.7	43.4	42.9	53.9		
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050	0.148	0.621	0.663		
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Orthophosphate-Dissolved (as P)	mg/L	0.0021	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Phosphorus (P)-Total	mg/L	0.022	<0.020	<0.020	<0.020	<0.020	<0.020		
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	1.0	2.0
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Aluminum (Al)-Total	mg/L	0.0971	0.078	0.11	0.12	0.0942	0.0904		
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040		
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.5	1
Barium (Ba)-Total	mg/L	0.0045	0.0043	0.0042	0.0043	0.0039	0.0049		
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Calcium (Ca)-Total	mg/L	11.6	11.5	12	12.9	13.5	15.1		
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020		
Copper (Cu)-Total	mg/L	0.002	0.0019	0.002	0.0021	0.0016	0.0019	0.3	0.6
Iron (Fe)-Total	mg/L	0.317	0.258	0.357	0.404	0.246	0.342		
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.2	0.4
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		
Magnesium (Mg)-Total	mg/L	5.84	6.88	7.32	7.16	4.74	6.66		
Manganese (Mn)-Total	mg/L	0.0185	0.016	0.0187	0.0228	0.014	0.0184		
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020		
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.5	1
Potassium (K)-Total	mg/L	1.82	2.14	2.2	2.21	1.86	1.92		
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040		
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020		
Sodium (Na)-Total	mg/L	15.8	20.7	20	20.3	16	18.9		
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Titanium (Ti)-Total	mg/L	0.0026	0.0024	0.0032	0.0041	0.0023	0.0025		
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Zinc (Zn)-Total	mg/L	0.0084	<0.0040	0.0528	<0.0040	0.0097	0.0193	0.5	1

HBML ID		TL1-10JUN12	TL4-11JUN12	TL4-12JUN12	TL4-14JUN12	TL4-18JUN12	TL4-16JUN12	Part G Item 26	
ALS ID		L1160661-1	L1162380-1	L1162380-4	L1163245-3	L1166892-3	L1164051-3	TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
Sample Date/Time		6/10/2012 12:05PM	6/11/2012 12:00 AM	6/12/2012 12:00 AM	6/14/2012 11:15 AM	6/18/2012 1:35 PM	6/16/2012 1:30 PM		
Parameters	**Units**	**Results**							
Calcium (Ca)-Dissolved	mg/L	12.4	11.6	11.9	-	14.7	19.1		
Magnesium (Mg)-Dissolved	mg/L	6.12	7.19	7.26	-	5.09	8.37		
Biochemical Oxygen Demand	mg/L	-	-	-	2.7	-	-	80	160
Dissolved Oxygen	mg/L	-	-	-	3.27	-	-		
Redox Potential	mV	-	-	6.55**	--	-	-		
Radium-226	Bq/L	-	<0.005	<0.005	-	-	-	0.37	1.11
Fecal Coliforms	CFU/100mL	-	-	_-	<1	-	-	10,000	10,000

**Reclaim barge has not yet been constructed; water sample was taken from a valve on the discharge pump at Tail Lake (TL-1), or from a valve on the discharge line (TL-4) depending on seasonal safety considerations of accessing either site.*
*** Field measurement*

Table 22 – Water Quality from the Tailings Impoundment Area taken from Reclaim Pump Barge area* (TL-1/TL-4), June 2012

	HBML ID	TL4-20JUN12	TL4-22JUN12	TL4-24JUN12	TL4-26JUN12	TL4-28JUN12	TL1/TL4 Monthly Average	Part G Item 26	
	ALS ID	L1166892-6	L1168943-3	L1168943-6	L1170838-3	L1170838-6		TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
	Sample Date/Time	6/20/2012 5:00 PM	6/22/2012 4:30 PM	6/22/2012 4:10 PM	6/26/2012 4:30 PM	6/26/2012 4:30 PM			
Parameter	**Units**	**Results**							
Conductivity (EC)	uS/cm	162	239	203	163	155	218		
Hardness (as $CaCO_3$)	mg/L	41	62.7	52.2	46	43.7	56.5		
pH	pH	7.84	7.82	7.83	7.81	7.81	7.83	6.0 - 9.0	9
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	2.0	15	30
Total Dissolved Solids	mg/L	106	164	135	95	94	139		
Ammonia, Total (as N)	mg/L	<0.050	0.134	<0.050	<0.050	<0.050	0.053	6	-
Chloride (Cl)	mg/L	26.9	44.7	36.4	27.5	25.9	37.4		
Nitrate (as N)	mg/L	<0.050	0.628	0.347	0.074	0.056	0.240		
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.025		
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0006		
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020	0.011		
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0025	1.0	2.0
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0025		
Aluminum (Al)-Total	mg/L	0.0533	0.152	0.099	0.0555	0.0634	0.0921		
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00020		
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00020	0.5	1
Barium (Ba)-Total	mg/L	<0.0030	0.0039	0.0034	<0.0030	<0.0030	0.0034		
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0005		
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.025		
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	0.000012	<0.000010	<0.000010	0.000006		
Calcium (Ca)-Total	mg/L	8.14	16.1	13.4	11.4	9.21	12.3		
Chromium (Cr)-Total	mg/L	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	0.0006		
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0010		
Copper (Cu)-Total	mg/L	0.0014	0.0019	0.0017	0.0015	0.0017	0.0018	0.3	0.6
Iron (Fe)-Total	mg/L	0.168	0.405	0.391	0.244	0.191	0.3021		
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00005	0.2	0.4
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	0.0050		
Magnesium (Mg)-Total	mg/L	3.93	5.92	5.3	4.95	4.05	5.70		
Manganese (Mn)-Total	mg/L	0.0082	0.0211	0.0135	0.0098	0.01	0.02		
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000010		
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0025		
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0010	0.5	1
Potassium (K)-Total	mg/L	1.49	2.01	1.73	1.71	1.38	1.86		
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00020		
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000010		
Sodium (Na)-Total	mg/L	11.7	18.5	16	14.6	11.9	16.8		
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00005		
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.025		
Titanium (Ti)-Total	mg/L	0.0013	0.0049	0.0031	0.0014	0.0011	0.0026		
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00005		
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0005		
Zinc (Zn)-Total	mg/L	0.0128	0.0096	0.0251	0.0161	0.0084	0.0151	0.5	1

HBML ID		TL4-20JUN12	TL4-22JUN12	TL4-24JUN12	TL4-26JUN12	TL4-28JUN12	TL1/TL4 Monthly Average	Part G Item 26	
ALS ID		L1166892-6	L1168943-3	L1168943-6	L1170838-3	L1170838-6		TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
Sample Date/Time		6/20/2012 5:00 PM	6/22/2012 4:30 PM	6/22/2012 4:10 PM	6/26/2012 4:30 PM	6/26/2012 4:30 PM			
Parameter	**Units**	**Results**							
Calcium (Ca)-Dissolved	mg/L	9.03	15.9	12.7	10.8	10.2	12.8		
Magnesium (Mg)-Dissolved	mg/L	4.48	5.61	4.97	4.61	4.4	5.8		
Biochemical Oxygen Demand	mg/L	-	-	-	-	<2.0	1.9	80	160
Dissolved Oxygen	mg/L	-	-	-	-	-	-		
Redox Potential	mV	-	-	-	-	-	-		
Radium-226	Bq/L	0.006	-	-	-	0.01	0.01	0.37	1.11
Fecal Coliforms	CFU/100mL	-	-	-	-	<1	0.005	10,000	10,000

Table 23 – Water Quality from the Tailings Impoundment Area taken from Reclaim Pump Barge area* (TL-1/TL-4), July 2012

	HBML ID	TL4-04JUL12	TL4-12JUL12	TL4-22JUL12	TL4-29JUL12	TL1/TL4 Monthly Average	Part G Item 26	
	ALS ID	L1174461-3	L1178343-3	L1182755-3	L1186283-3		TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
	Sample Date/Time	7/4/2012 11:00 AM	7/12/2012 5:20 PM	7/22/2012 4:40 PM	7/29/2012 2:30 PM			
Parameter	**Units**	**Results**						
Conductivity (EC)	uS/cm	-	165	189	195	183		
Hardness (as CaCO3)	mg/L	44.5	42.3	48.4	-	45.1		
pH	pH	-	7.87	8	7.96	7.94	6.0 - 9.0	9
Total Suspended Solids	mg/L	-	<3.0	<3.0	<3.0	<3.0	15	30
Total Dissolved Solids	mg/L	-	109	135	120	121		
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	6	-
Chloride (Cl)	mg/L	-	28.1	32.4	35	31.8		
Nitrate (as N)	mg/L	-	<0.050	<0.050	0.055	0.035		
Nitrite (as N)	mg/L	-	<0.050	<0.050	<0.050	<0.050		
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	0.0012	0.005	0.0018		
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020		
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0010	0.0135	0.0048	1	2
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Aluminum (Al)-Total	mg/L	0.0078	0.0338	0.0101	0.0073	0.0148		
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040		
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.5	1
Barium (Ba)-Total	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030		
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050		
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Calcium (Ca)-Total	mg/L	10.5	9.49	9.92	10.1	10.0		
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020		
Copper (Cu)-Total	mg/L	<0.0010	0.0012	0.0011	0.001	0.0010	0.3	0.6
Iron (Fe)-Total	mg/L	0.154	0.216	0.237	0.195	0.201		
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.2	0.4
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010		
Magnesium (Mg)-Total	mg/L	4.46	4.82	4.83	5.04	4.79		
Manganese (Mn)-Total	mg/L	0.0129	0.0195	0.0156	0.0075	0.0139		
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020		
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.5	1
Potassium (K)-Total	mg/L	1.49	1.55	1.59	1.68	1.58		
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040		
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020		
Sodium (Na)-Total	mg/L	13.8	14.8	13.7	15.5	14.5		
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050		
Titanium (Ti)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Zinc (Zn)-Total	mg/L	<0.0040	<0.0040	0.0079	<0.0040	0.0035	0.5	1

	HBML ID	TL4-04JUL12	TL4-12JUL12	TL4-22JUL12	TL4-29JUL12	TL1/TL4 Monthly Average	Part G Item 26	
	ALS ID	L1174461-3	L1178343-3	L1182755-3	L1186283-3		TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
	Sample Date/Time	7/4/2012 11:00 AM	7/12/2012 5:20 PM	7/22/2012 4:40 PM	7/29/2012 2:30 PM			
Parameter	**Units**	**Results**						
Calcium (Ca)-Dissolved	mg/L	-	8.92	10.7	10.1	9.9		
Magnesium (Mg)-Dissolved	mg/L	-	4.86	5.23	5.12	5.07		
Biochemical Oxygen Demand	mg/L		**exceeded hold time***	-	-	-	80	160
Dissolved Oxygen	mg/L			-	-	-		
Redox Potential	mV	-	-	155	-	155		
Radium-226	Bq/L	<0.005	<0.005	<0.005	<0.005	<0.005		
Fecal Coliforms	CFU/100mL	-	<1	-	-	<1	10,000	10,000

**hold time exceeded due to weather-related flight delay*

Table 24 – Water Quality from the Tailings Impoundment Area taken from Reclaim Pump Barge area* (TL-1/TL-4), August 2012

	HBML ID	TL4-12AUG12	TL4-19AUG12	TL4-26AUG12	TL1/TL4 Monthly Average	Part G Item 26	
	ALS ID	L1192921-3	L1196647-3	L1200382-3		TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
	Sample Date/Time	8/12/2012 2:30 PM	8/19/2012 12:00 AM	8/26/2012 2:15 PM			
Parameter	**Units**	**Results**					
Conductivity (EC)	uS/cm	205	210	208	207.6667		
Hardness (as $CaCO_3$)	mg/L	51.6	44.7	60.3	52.2		
pH	pH	7.74	7.65	7.76	7.716667	6.0 - 9.0	9
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<3.0	15	30
Total Dissolved Solids	mg/L	121	117	129	122.3333		
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	6	-
Chloride (Cl)	mg/L	34.4	35.5	33	34.3		
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050	<0.050		
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050		
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010		
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020	<0.020		
Cyanide, Total	mg/L	<0.0050	-	-	<0.0050	1	2
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050		
Aluminum (Al)-Total	mg/L	0.0071	0.0059	0.0115	0.0082		
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040		
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.5	1
Barium (Ba)-Total	mg/L	<0.0030	<0.0030	<0.0030	<0.0030		
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010		
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050		
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010		
Calcium (Ca)-Total	mg/L	12.1	12.9	11	12.0		
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010		
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020		
Copper (Cu)-Total	mg/L	0.001	<0.0010	0.001	0.001	0.3	0.6
Iron (Fe)-Total	mg/L	0.412	0.232	0.308	0.317		
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.2	0.4
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010		
Magnesium (Mg)-Total	mg/L	5.88	5.62	5.17	5.55		
Biochemical Oxygen Demand	mg/L	<2.0	-	2.0		80	160
Dissolved Oxygen	mg/L	-	-	9.18			
Redox Potential	mV	-	171	-	171		
Radium-226	Bq/L	0 +/- 0.0048	0.0005 +/- 0.0029	-	-	0.37	1.11
Fecal Coliforms	CFU/100mL	<1	-	1		10,000	10,000

Table 25 – Water Quality from the Tailings Impoundment Area taken from Reclaim Pump Barge area* (TL-1/TL-4), September 2012

	HBML ID	TL4-06SEP12	TL4-13SEP12	TL-1/TL-4 Sept. Monthly Average	Part G Item 26	
	ALS ID	L1206012-3	L1209794-3		TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
	Sample Date/Time	9/6/2012 2:00 PM	9/13/2012 2:00 PM			
Parameter	**Units**	**Results**				
Conductivity (EC)	uS/cm	226	229	227.5		
Hardness (as $CaCO_3$)	mg/L	50.3	48.8	49.55		
pH	pH	7.75	7.71	7.73	6.0 - 9.0	9
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	15	30
Total Dissolved Solids	mg/L	132	132	132		
Ammonia, Total (as N)	mg/L	0.063	<0.050	0.063	6	-
Chloride (Cl)	mg/L	40.4	39.3	39.85		
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050		
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050		
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010		
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020		
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	1	2
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050		
Aluminum (Al)-Total	mg/L	0.0122	0.011	0.0116		
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040		
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	0.5	1
Barium (Ba)-Total	mg/L	0.0117	0.012	0.01185		
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010		
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050		
Cadmium (Cd)-Total	mg/L	0.000016	<0.000010	0.000016		
Calcium (Ca)-Total	mg/L	13	13	13		
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010		
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020		
Copper (Cu)-Total	mg/L	0.0022	0.0024	0.0023	0.3	0.6
Iron (Fe)-Total	mg/L	0.296	0.267	0.2815		
Lead (Pb)-Total	mg/L	0.00086	0.00049	0.000675	0.2	0.4
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010		
Magnesium (Mg)-Total	mg/L	5.5	5.74	5.62		
Manganese (Mn)-Total	mg/L	0.0153	0.0215	0.0184		
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020		
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050		
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	0.5	1
Potassium (K)-Total	mg/L	1.97	1.93	1.95		
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040		
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020		
Sodium (Na)-Total	mg/L	17.2	17.5	17.35		
Thallium (Tl)-Total	mg/L	0.00012	<0.00010	0.00012		
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050		
Titanium (Ti)-Total	mg/L	<0.0010	<0.0010	<0.0010		
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010		
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010		
Zinc (Zn)-Total	mg/L	0.0069	0.0099	0.0084	0.5	1
Calcium (Ca)-Dissolved	mg/L	11.6	11.2	11.4		
Magnesium (Mg)-Dissolved	mg/L	5.17	5.05	5.11		
Biological Oxygen Demand (BOD)	mg/L	<2.0	-	<2.0	80	160
Dissolved Oxygen (DO)**	mg/L	-	-			
Redox Potential	mV	-	-	-		

HBML ID		TL4-06SEP12	TL4-13SEP12	TL-1/TL-4 Sept. Monthly Average	Part G Item 26	
ALS ID		L1206012-3	L1209794-3		TL-4 Max Average (mg/L)	TL-4 Max Grab (mg/L)
Sample Date/Time		9/6/2012 2:00 PM	9/13/2012 2:00 PM			
Parameter	**Units**	**Results**				
Radium-226	Bq/L	-	-	-	0.37	1.11
Fecal Coliforms	CFU/100mL	4	-	4	10,000	10,000

TL-2 Doris Outflow Creek Upstream at the Flow Monitoring Station

Table 26 – Water Quality Results of Station TL-2 (June)

HBML ID		TL2-10JUN12	TL2-12JUN12	TL2-14JUN12	TL2-16JUN12	TL2-18JUN12	TL2-22JUN12	TL2-24JUN12	TL2-26JUN12	TL2-28JUN12	TL2-20JUN12	Part G Item 28
ALS ID		L1160661-2	L1162380-2	L1163245-1	L1164051-1	L1166892-1	L1168943-1	L1168943-4	L1170838-1	L1170838-4	L1166892-4	Max Conc of Any Grab Sample (mg/L)
Sample Date/Time		6/10/2012 11:05 AM	6/12/2012 12:00 AM	6/14/2012 11:05 AM	6/16/2012 1:10 PM	6/18/2012 1:15 PM	6/22/2012 4:00 PM	6/22/2012 3:50 PM	6/26/2012 4:30 PM	6/26/2012 4:30 PM	6/20/2012 4:40 PM	
Parameter	**Units**	**Results**										
Conductivity (EC)	uS/cm	303	310	308	296	270	190	190	166	173	217	
Hardness (as $CaCO_3$)	mg/L	50.6	54.4	51.3	54.4	44.3	31.8	34.3	30	32.9	38.2	
pH	pH	7.7	7.66	7.72	7.74	7.71	7.58	7.57	7.51	7.58	7.65	6.0 - 9.0
Total Suspended Solids	mg/L	<3.0	5	<3.0	<3.0	<3.0	<3.0	<3.0	4	<3.0	<3.0	15
Total Dissolved Solids	mg/L	172	187	178	239	168	121	120	112	101	142	
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1.54*
Chloride (Cl)	mg/L	66.5	67.2	67.3	66.6	60.4	41.3	41.6	35.5	37.5	48.3	150
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2.9
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.06
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Phosphorus (P)-Total	mg/L	0.023	<0.020	<0.020	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.01
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Aluminum (Al)-Total	mg/L	0.0241	0.0188	0.0235	0.089	0.26	0.201	0.191	0.16	0.153	0.162	0.1
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.005
Barium (Ba)-Total	mg/L	<0.0030	<0.0030	<0.0030	0.0061	0.0057	0.0043	0.004	0.0041	0.0034	0.0044	
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017
Calcium (Ca)-Total	mg/L	9.66	9.78	9.6	9.19	7.21	5.85	6.2	4.66	5.33	5.95	
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Copper (Cu)-Total	mg/L	0.0016	0.0016	0.0016	0.0018	0.0018	0.0013	0.0013	0.0014	0.0015	0.0014	0.002
Iron (Fe)-Total	mg/L	0.042	0.044	0.057	0.157	0.532	0.491	0.437	0.316	0.343	0.349	0.3
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	0.00011	0.00016	0.00011	<0.00010	<0.00010	<0.00010	0.00011	0.001
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Magnesium (Mg)-Total	mg/L	6.48	6.62	6.64	6.63	5.16	4.54	4.61	3.49	4	4.02	
Manganese (Mn)-Total	mg/L	0.0061	0.0058	0.0096	0.0132	0.0285	0.0172	0.0145	0.0141	0.0115	0.0179	
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000026
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0073
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.025
Potassium (K)-Total	mg/L	2.14	2.22	2.25	2.08	2.1	1.82	1.84	1.48	1.7	1.67	
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.001
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.00001
Sodium (Na)-Total	mg/L	28.9	29.9	30.5	28.3	25.6	21.8	23.1	15.9	19.1	21	
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0008
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Titanium (Ti)-Total	mg/L	<0.0010	<0.0010	<0.0010	0.0029	0.0075	0.0069	0.0067	0.0036	0.0034	0.0046	
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Zinc (Zn)-Total	mg/L	<0.0040	<0.0040	<0.0040	0.0076	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.03
Calcium (Ca)-Dissolved	mg/L	9.67	9.97	-	10.7	8.04	5.66	6.23	5.36	5.98	7.01	
Magnesium (Mg)-Dissolved	mg/L	6.43	7.16	-	6.73	5.89	4.28	4.55	4.04	4.37	5.02	

Note: Ammonia maximum criteria based on pH 7 at 20°C. Red text indicates exceedence of TL-3 (downstream) criteria at TL-2 (upstream).

Table 27 – Water Quality Results of Station TL-2 (July to September)

HBML ID		TL2-04JUL12	TL2-12JUL12	TL2-22JUL12	TL2-29JUL12	TL2-12AUG12	TL2-19AUG12	TL2-26AUG12	TL2-06SEP12	TL2-13SEP12	Part G Item 28
ALS ID		L1174461-1	L1178343-1	L1182755-1	L1186283-1	L1192921-1	L1196647-1	L1200382-1	L1206012-1	L1209794-1	Max Conc Any Grab Sample (mg/L)
Sample Date/Time		7/4/2012 10:45 AM	7/12/2012 5:05 PM	7/22/2012 11:24 AM	7/29/2012 2:30 PM	8/12/2012 2:15 PM	8/19/2012 12:00 AM	8/26/2012 2:15 PM	9/6/2012 1:50 PM	9/13/2012 2:10 PM	
Parameter	**Units**	**Results**									
Conductivity (EC)	uS/cm	-	274	269	279	282	273	279	273	281	
Hardness (as $CaCO_3$)	mg/L	28.7	48.7	46.1	44.7	47.7	40.5	50.5	43.9	44.8	
pH	pH	-	7.77	7.99	7.82	7.65	7.75	7.59	7.24	7.57	6.0 - 9.0
Total Suspended Solids	mg/L	-	<3.0	<3.0	<3.0	4	<3.0	<3.0	58	3	15
Total Dissolved Solids	mg/L	-	176	171	163	156	177	25	165	164	
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1.54*
Chloride (Cl)	mg/L	-	61.2	59.4	63.1	61.5	59.8	62.3	61.4	60.8	150
Nitrate (as N)	mg/L	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2.9
Nitrite (as N)	mg/L	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.06
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Phosphorus (P)-Total	mg/L	<0.020	0.02	<0.020	0.028	<0.020	<0.020	<0.020	0.067	<0.020	
Cyanide, Total	mg/L	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050	0.01
Cyanide, Free	mg/L	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Aluminum (Al)-Total	mg/L	0.0928	0.083	0.105	0.0363	0.0418	0.0457	0.0362	1.73	0.0548	0.1
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00056	<0.00040	0.005
Barium (Ba)-Total	mg/L	<0.0030	0.0035	0.0043	0.0032	0.0031	<0.0030	<0.0030	0.0181	0.0031	
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017
Calcium (Ca)-Total	mg/L	5.28	9.52	7.16	8.62	9.42	7.78	7.99	9.12	7.82	
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0032	<0.0010	0.001
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Copper (Cu)-Total	mg/L	0.0011	0.0014	0.0015	0.0013	0.0029	0.0013	0.0013	0.0089	0.0015	0.002
Iron (Fe)-Total	mg/L	0.198	0.367	0.125	0.165	0.141	0.105	0.083	2.07	0.089	0.3
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00056	<0.00010	0.001
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Magnesium (Mg)-Total	mg/L	3.78	6.07	5.42	6.15	6.78	5.11	5.46	6.6	5.52	
Manganese (Mn)-Total	mg/L	0.011	0.0568	0.013	0.0264	0.0252	0.0237	0.0152	0.0848	0.0165	
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000026
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0073
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0027	<0.0020	0.025
Potassium (K)-Total	mg/L	1.2	2.21	1.79	2.28	1.2	2.21	1.79	2.63	1.84	
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.001
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.00001
Sodium (Na)-Total	mg/L	17.2	30.8	466	30.1	17.2	30.8	466	29.6	28	
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0008
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Titanium (Ti)-Total	mg/L	0.0024	0.0027	0.0033	0.0018	0.0024	0.0027	0.0033	0.0816	0.0017	
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0001	<0.00010	
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0036	<0.0010	
Zinc (Zn)-Total	mg/L	0.0044	0.002	0.002	0.002	0.0044	0.002	0.002	0.0057	<0.0040	0.03
Calcium (Ca)-Dissolved	mg/L	-	8.84	8.38	8.2	-	8.84	8.38	7.97	8.36	
Magnesium (Mg)-Dissolved	mg/L	-	6.45	6.11	5.88	-	6.45	6.11	5.82	5.82	

Note: Ammonia maximum criteria based on pH 7 at 20°C. Red text indicates exceedence of TL-3 (downstream) criteria at TL-2 (upstream).

TL-3 Doris Outflow Creek 80m Downstream of Base of Waterfall

Table 28 – Water Quality Results of Station TL-3 (June)

HBML ID		TL3-10JUN12	TL3-12JUN12	TL3-14JUN12	TL3-16JUN12	TL3-18JUN12	TL3-20JUN12	TL3-22JUN12	TL3-24JUN12	TL3-26JUN12	TL3-28JUN12	Part
ALS ID		L1160661-3	L1162380-3	L1163245-2	L1164051-2	L1166892-2	L1166892-5	L1168943-2	L1168943-5	L1170838-2	L1170838-5	Max Conc of Any Grab Sample (mg/L)
Sample Date/Time		6/10/2012 11:25:00 AM	6/12/2012 12:00:00 AM	6/14/2012 11:20:00 AM	6/16/2012 1:20:00 PM	6/18/2012 1:25:00 PM	6/20/2012 4:50:00 PM	6/22/2012 4:10:00 PM	6/22/2012 4:00:00 PM	6/26/2012 4:30:00 PM	6/26/2012 4:30:00 PM	
Parameters	**Units**	**Results**										
Conductivity (EC)	uS/cm	309	309	306	286	258	223	194	175	163	170	
Hardness (as $CaCO_3$)	mg/L	51.5	54.3	50.3	46.6	44.1	38.5	32.7	31.7	31	32.4	
pH	pH	7.74	7.74	7.79	7.67	7.71	7.68	7.59	7.57	7.57	7.6	6.0 - 9.0
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	15
Total Dissolved Solids	mg/L	175	192	177	184	157	140	125	111	100	97	
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1.54*
Chloride (Cl)	mg/L	67.6	66.5	66.8	63.7	58	49.4	42.2	37.9	34.7	36.5	150
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2.9
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.06
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.01
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Aluminum (Al)-Total	mg/L	0.0655	0.034	0.0376	0.0989	0.284*	0.15*	0.198*	0.173*	0.157*	0.158*	0.1
Antimony (Sb)-Total	mg/L	<0.00040	0.00047	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	
Arsenic (As)-Total	mg/L	<0.00040	0.00068	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.005
Barium (Ba)-Total	mg/L	0.0035	0.0032	<0.0030	0.0036	0.0059	0.0041	0.0045	0.0036	0.006	0.004	
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Cadmium (Cd)-Total	mg/L	<0.000010	0.000047	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017
Calcium (Ca)-Total	mg/L	12.2	10.4	9.57	9.5	7.22	6.52	6.48	5.94	4.79	5.58	
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Copper (Cu)-Total	mg/L	0.0016	0.0017	0.0016	0.0015	0.0016	0.0015	0.0014	0.0012	0.0015	0.0013	0.002
Iron (Fe)-Total	mg/L	0.117	0.068	0.079	0.166	0.542*	0.341*	0.469*	0.406*	0.334*	0.331*	0.3
Lead (Pb)-Total	mg/L	<0.00010	0.00023	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010	0.00041	<0.00010	0.001
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Magnesium (Mg)-Total	mg/L	7.8	7.18	6.42	6.61	5.19	4.14	4.67	4.24	3.49	3.98	
Manganese (Mn)-Total	mg/L	0.0107	0.0071	0.0098	0.0134	0.027	0.0168	0.0166	0.0128	0.0124	0.0109	
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000026
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0073
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.025
Potassium (K)-Total	mg/L	2.89	2.43	2.21	2.17	2.24	1.63	1.8	1.76	1.45	1.69	
Selenium (Se)-Total	mg/L	<0.00040	0.00047	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.001
Silver (Ag)-Total	mg/L	<0.000020	0.000041	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.00001
Sodium (Na)-Total	mg/L	37.3	32	29.5	28.3	24.9	20.6	22.8	19.6	15.7	18.9	
Thallium (Tl)-Total	mg/L	<0.00010	0.00044	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0008
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Titanium (Ti)-Total	mg/L	0.0029	0.0013	0.0017	0.0031	0.0088	0.0047	0.0066	0.0062	0.0032	0.0048	

HBML ID		TL3-10JUN12	TL3-12JUN12	TL3-14JUN12	TL3-16JUN12	TL3-18JUN12	TL3-20JUN12	TL3-22JUN12	TL3-24JUN12	TL3-26JUN12	TL3-28JUN12	Part
ALS ID		L1160661-3	L1162380-3	L1163245-2	L1164051-2	L1166892-2	L1166892-5	L1168943-2	L1168943-5	L1170838-2	L1170838-5	Max Conc of Any Grab Sample (mg/L)
Sample Date/Time		6/10/2012 11:25:00 AM	6/12/2012 12:00:00 AM	6/14/2012 11:20:00 AM	6/16/2012 1:20:00 PM	6/18/2012 1:25:00 PM	6/20/2012 4:50:00 PM	6/22/2012 4:10:00 PM	6/22/2012 4:00:00 PM	6/26/2012 4:30:00 PM	6/26/2012 4:30:00 PM	
Parameters	**Units**	**Results**										
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Zinc (Zn)-Total	mg/L	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0678	<0.0040	0.03
Calcium (Ca)-Dissolved	mg/L	9.75	10.1	-	9.31	7.96	7.35	6.02	5.96	5.65	6.03	
Magnesium (Mg)-Dissolved	mg/L	6.61	7.06	-	5.66	5.87	4.88	4.3	4.09	4.11	4.21	
Oil and Grease	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5
Oil And Grease (Visible Sheen)		-	no visible sheen	no visible sheen	No Visible Sheen Present	-	-	no visible sheen	no visible sheen	no visible sheen	no visible sheen	

*Notes: Ammonia maximum criteria based on pH 7 at 20°C. Red text indicates over licence discharge criteria. Red text with a * indicates TL-2 and TL-3 were above the licence discharge criteria on that date. Black text with a * indicates that value is above licence criteria but below TL-2 on that date.*

Table 29 – Water Quality Results of Station TL-3 (July to September)

HBML ID		TL3-04JUL12	TL3-12JUL12	TL3-22JUL12	TL3-29JUL12	TL3-12AUG12	TL3-19AUG12	TL3-26AUG12	TL3-06SEP12	TL3-13SEP12	Part G Item 28
ALS ID		L1174461-2	L1178343-2	L1182755-2	L1186283-2	L1192921-2	L1196647-2	L1200382-2	L1206012-2	L1209794-2	Max Conc of Any Grab Sample (mg/L)
Sample Date/Time		7/4/2012 11:20 AM	7/12/2012 5:40 PM	7/22/2012 4:45 PM	7/29/2012 2:30 PM	8/12/2012 2:50 PM	8/19/2012 12:00 AM	8/26/2012 2:15 PM	9/6/2012 6:35 PM	9/13/2012 5:45 PM	
Parameters	**Units**	**Results**									
Conductivity (EC)	uS/cm	-	267	265	271	270	266	262	282	295	
Hardness (as $CaCO_3$)	mg/L	31	46.8	47.4	-	48.3	41.5	50.1	45.1	46.5	
pH	pH	-	7.8	7.75	7.71	7.69	7.7	7.72	7.57	7.6	6.0 - 9.0
Total Suspended Solids	mg/L	-	<3.0	<3.0	<3.0	3	31	<3.0	21*	<3.0	15
Total Dissolved Solids	mg/L	-	169	166	168	156	177	146	167	167	
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1.54
Chloride (Cl)	mg/L	-	58.6	57.4	61.2	57.5	57.7	53.6	64.5	65.1	150
Nitrate (as N)	mg/L	-	<0.0050	<0.050	<0.050	<0.050	<0.050	<0.050	0.09	0.073	2.9
Nitrite (as N)	mg/L	-	<0.0010	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.06
Orthophosphate-Dissolved (as P)	mg/L	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020	0.02	<0.020	0.033	0.021	0.036	<0.020	
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0010	<0.0050	<0.0050	-	<0.0050	<0.0050	<0.0050	0.01
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Aluminum (Al)-Total	mg/L	0.119	0.0623	0.0985	0.0303	0.039	0.0454	0.036	1.12*	0.0566	0.1
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.005
Barium (Ba)-Total	mg/L	<0.0030	0.0036	0.0035	0.003	0.0031	0.0032	0.003	0.013	0.0031	
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000017
Calcium (Ca)-Total	mg/L	5.88	9.53	7.58	8.7	9.65	8.52	9.62	9.47	7.6	
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0021*	<0.0010	0.001
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Copper (Cu)-Total	mg/L	0.0011	0.0015	0.0015	0.0013	0.0015	0.0014	0.0013	0.0028*	0.0014	0.002
Iron (Fe)-Total	mg/L	0.209	0.327*	0.125	0.162	0.177	0.141	0.159	1.2*	0.1	0.3
Lead (Pb)-Total	mg/L	0.00014	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	0.00037	<0.00010	0.001
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Magnesium (Mg)-Total	mg/L	3.97	6.23	5.31	6.09	6.7	5.32	6.05	6.59	5.37	
Manganese (Mn)-Total	mg/L	0.0109	0.0429	0.0131	0.0238	0.0222	0.0239	0.0186	0.0452	0.0195	
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000026
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0073
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.025
Potassium (K)-Total	mg/L	1.4	2.18	1.87	2.14	2.43	1.94	2.04	2.44	1.96	
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.001
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.00001
Sodium (Na)-Total	mg/L	19	30.2	25.3	28.1	30.6	26.4	30	29	30.7	
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.0008
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Titanium (Ti)-Total	mg/L	0.0024	0.0016	0.0037	0.0013	0.001	<0.0010	<0.0010	0.0557	0.0025	
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0023	<0.0010	
Zinc (Zn)-Total	mg/L	0.0171	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0046	0.0081	0.03

HBML ID		TL3-04JUL12	TL3-12JUL12	TL3-22JUL12	TL3-29JUL12	TL3-12AUG12	TL3-19AUG12	TL3-26AUG12	TL3-06SEP12	TL3-13SEP12	Part G Item 28
ALS ID		L1174461-2	L1178343-2	L1182755-2	L1186283-2	L1192921-2	L1196647-2	L1200382-2	L1206012-2	L1209794-2	Max Conc of Any Grab Sample (mg/L)
Sample Date/Time		7/4/2012 11:20 AM	7/12/2012 5:40 PM	7/22/2012 4:45 PM	7/29/2012 2:30 PM	8/12/2012 2:50 PM	8/19/2012 12:00 AM	8/26/2012 2:15 PM	9/6/2012 6:35 PM	9/13/2012 5:45 PM	
Parameters	**Units**	**Results**									
Magnesium (Mg)-Dissolved	mg/L	-	6.1	6.2	6.09	6.17	5.13	6.32	8.32	8.95	
Hexavalent Chromium	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5.91	5.87	
Oil and Grease	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0	1	<1.0	<0.0010	<0.0010	5
Oil And Grease (Visible Sheen)		no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	no visible sheen	<1.0	<1.0	

*Notes: Ammonia maximum criteria based on pH 7 at 20°C. Red text indicates result is over licence discharge criteria. Red text with a * indicates TL-2 and TL-3 were above the licence discharge criteria on that date. Black text with a * indicates that value is above licence criteria but below TL-2 on that date.*

TL-10 Water Column in Deepest Portion of Tail Lake and at a Location Away from the TIA Reclaim Water Floating Pump House, Sampled at Surface, Mid-depth and Near Bottom

Table 30 – Water Column Sampling at TL-10 (May, 2012)

HBML ID		TL10-13MAY12A (Top)	TL10-13MAY12B (Mid)	TL10-13MAY12C (Bottom)
ALS ID		L1147168-1	L1147168-2	L1147168-3
Sample Date/Time		5/13/12 15:52	5/13/12 16:10	5/13/12 16:22
Parameters	**Units**	**Results**		
Conductivity (EC)	uS/cm	263	263	272
Hardness (as $CaCO_3$)	mg/L	60.3	59.9	67.7
pH	pH	7.83	7.79	7.72
Redox Potential	mV	-	-	-
Dissolved Oxygen	mg/L	-	-	-
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	162	158	168
Ammonia, Total (as N)	mg/L	0.055	<0.050	<0.050
Chloride (Cl)	mg/L	43	43.3	45.2
Nitrate (as N)	mg/L	<0.050	<0.050	0.06
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.0227	0.0135	0.0127
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040
Barium (Ba)-Total	mg/L	0.0066	0.0067	0.0197
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	12.2	11.8	10.7
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020
Copper (Cu)-Total	mg/L	0.0048	0.0019	0.0017
Iron (Fe)-Total	mg/L	0.158	0.127	0.126
Lead (Pb)-Total	mg/L	0.00016	<0.00010	<0.00010
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010
Magnesium (Mg)-Total	mg/L	8.13	8.06	7.31
Manganese (Mn)-Total	mg/L	<0.0050	<0.0050	<0.0050
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020
Potassium (K)-Total	mg/L	2.52	2.43	2.52
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020

HBML ID		TL10-13MAY12A (Top)	TL10-13MAY12B (Mid)	TL10-13MAY12C (Bottom)
ALS ID		L1147168-1	L1147168-2	L1147168-3
Sample Date/Time		5/13/12 15:52	5/13/12 16:10	5/13/12 16:22
Parameters	**Units**	**Results**		
Sodium (Na)-Total	mg/L	23.7	23.2	21.9
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	<0.0010	<0.0010	<0.0010
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	0.0134	0.0053	0.021
Calcium (Ca)-Dissolved	mg/L	11.4	11.2	12.8
Magnesium (Mg)-Dissolved	mg/L	7.73	7.74	8.69

Table 31 – Water Column Sampling at TL-10 (July, 2012)

	HBML ID	TL10-24JUL12A	TL10-24JUL12B	TL10-24JUL12C
	ALS ID	L1185478-4	L1185478-5	L1185478-6
	Sample Date/Time	7/24/2012 9:00 AM	7/24/2012 9:00 AM	7/24/2012 9:00 AM
Parameters	**Units**	**Results**		
Conductivity (EC)	uS/cm	175	175	175
Hardness (as $CaCO_3$)	mg/L	41.9	41.8	42.1
pH	pH	8	7.82	7.77
Redox Potential	mV	140	145	139
Dissolved Oxygen	mg/L	10.45	10.23	10.29
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	103	100	99
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	29.7	29.9	29.8
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.0109	0.0156	0.0153
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040
Barium (Ba)-Total	mg/L	<0.0030	<0.0030	<0.0030
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	8.2	8.42	8.6
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020
Copper (Cu)-Total	mg/L	0.0011	0.0012	0.0011
Iron (Fe)-Total	mg/L	0.127	0.141	0.145
Lead (Pb)-Total	mg/L	<0.00010	<0.00010	<0.00010
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010
Magnesium (Mg)-Total	mg/L	4.68	4.68	4.85
Manganese (Mn)-Total	mg/L	0.0158	0.0156	0.0161
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020
Potassium (K)-Total	mg/L	1.58	1.3	1.41
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	14.2	13.5	13.7
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	<0.0010	<0.0010	<0.0010
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010

HBML ID		TL10-24JUL12A	TL10-24JUL12B	TL10-24JUL12C
ALS ID		L1185478-4	L1185478-5	L1185478-6
Sample Date/Time		7/24/2012 9:00 AM	7/24/2012 9:00 AM	7/24/2012 9:00 AM
Parameters	**Units**	**Results**		
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	<0.0040	<0.0040	<0.0040
Calcium (Ca)-Dissolved	mg/L	8.83	8.79	8.84
Magnesium (Mg)-Dissolved	mg/L	4.83	4.83	4.87

Table 32 – Water Column Sampling at TL-10 (August, 2012)

HBML ID		TL10-19AUG12S	TL10-19AUG12M	TL10-19AUG12D
ALS ID		L1196647-4	L1196647-5	L1196647-6
Sample Date/Time		8/19/2012 12:00 AM	8/19/2012 12:00 AM	8/19/2012 12:00 AM
Parameters	**Units**	**Results**		
Conductivity (EC)	uS/cm	182	182	182
Hardness (as $CaCO_3$)	mg/L	38.6	41.4	39.0
pH	pH	7.78	7.78	7.78
Redox Potential	mV	150	148	135
Dissolved Oxygen	mg/L	8.84	8.81	8.78
Total Suspended Solids	mg/L	<3.0	<3.0	<3.0
Total Dissolved Solids	mg/L	130	124	123
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	31.7	31.5	31.4
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	<0.020	<0.020	<0.020
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.0151	0.0132	0.0143
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040
Barium (Ba)-Total	mg/L	<0.0030	<0.0030	<0.0030
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	8.39	8.29	8.38
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020
Copper (Cu)-Total	mg/L	0.0011	0.001	0.0013
Iron (Fe)-Total	mg/L	0.073	0.069	0.072
Lead (Pb)-Total	mg/L	0.00016	<0.00010	<0.00010
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010
Magnesium (Mg)-Total	mg/L	4.37	4.27	4.36
Manganese (Mn)-Total	mg/L	0.0078	0.0077	0.0076
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020
Potassium (K)-Total	mg/L	1.49	1.47	1.47
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	13.5	13.2	13.1
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	<0.0010	<0.0010	<0.0010
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010

HBML ID		TL10-19AUG12S	TL10-19AUG12M	TL10-19AUG12D
ALS ID		L1196647-4	L1196647-5	L1196647-6
Sample Date/Time		8/19/2012 12:00 AM	8/19/2012 12:00 AM	8/19/2012 12:00 AM
Parameters	**Units**	**Results**		
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	<0.0040	<0.0040	<0.0040
Calcium (Ca)-Dissolved	mg/L	8.34	8.85	8.38
Magnesium (Mg)-Dissolved	mg/L	4.32	4.69	4.4

Table 33 – Water Column Sampling at TL-10 (September, 2012)

	HBML ID	TL10-16SEP12A	TL10-16SEP12B	TL10-16SEP12C
	ALS ID	L1210492-1	L1210492-2	L1210492-3
	Sample Date/Time	9/16/2012 11:38 AM	9/16/2012 11:38 AM	9/16/2012 11:38 AM
Parameters	**Units**	**Results**		
Conductivity (EC)	uS/cm	193	192	193
Hardness (as $CaCO_3$)	mg/L	45.7	41.6	42.0
pH	pH	7.72	7.79	7.81
Redox Potential	mV	148	143	141
Dissolved Oxygen	mg/L	12.01	11.98	11.89
Total Suspended Solids	mg/L	4	<3.0	<3.0
Total Dissolved Solids	mg/L	110	116	112
Ammonia, Total (as N)	mg/L	<0.050	<0.050	<0.050
Chloride (Cl)	mg/L	33.4	33.4	33.5
Nitrate (as N)	mg/L	<0.050	<0.050	<0.050
Nitrite (as N)	mg/L	<0.050	<0.050	<0.050
Orthophosphate-Dissolved (as P)	mg/L	<0.0010	<0.0010	<0.0010
Phosphorus (P)-Total	mg/L	<0.020	0.069	<0.020
Cyanide, Total	mg/L	<0.0050	<0.0050	<0.0050
Cyanide, Free	mg/L	<0.0050	<0.0050	<0.0050
Aluminum (Al)-Total	mg/L	0.0209	0.024	0.024
Antimony (Sb)-Total	mg/L	<0.00040	<0.00040	<0.00040
Arsenic (As)-Total	mg/L	<0.00040	<0.00040	<0.00040
Barium (Ba)-Total	mg/L	<0.0030	<0.0030	<0.0030
Beryllium (Be)-Total	mg/L	<0.0010	<0.0010	<0.0010
Boron (B)-Total	mg/L	<0.050	<0.050	<0.050
Cadmium (Cd)-Total	mg/L	<0.000010	<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	9.2	9.02	9.19
Chromium (Cr)-Total	mg/L	<0.0010	<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	<0.0020	<0.0020	<0.0020
Copper (Cu)-Total	mg/L	0.001	0.0012	<0.0010
Iron (Fe)-Total	mg/L	0.082	0.08	0.085
Lead (Pb)-Total	mg/L	0.0002	<0.00010	<0.00010
Lithium (Li)-Total	mg/L	<0.010	<0.010	<0.010
Magnesium (Mg)-Total	mg/L	5.07	4.83	5.03
Manganese (Mn)-Total	mg/L	<0.0050	0.0052	<0.0050
Mercury (Hg)-Total	mg/L	<0.000020	<0.000020	<0.000020
Molybdenum (Mo)-Total	mg/L	<0.0050	<0.0050	<0.0050
Nickel (Ni)-Total	mg/L	<0.0020	<0.0020	<0.0020
Potassium (K)-Total	mg/L	1.32	1.32	1.34
Selenium (Se)-Total	mg/L	<0.00040	<0.00040	<0.00040
Silver (Ag)-Total	mg/L	<0.000020	<0.000020	<0.000020
Sodium (Na)-Total	mg/L	14.7	14.3	14.2
Thallium (Tl)-Total	mg/L	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	<0.050	<0.050	<0.050
Titanium (Ti)-Total	mg/L	<0.0010	<0.0010	<0.0010
Uranium (U)-Total	mg/L	<0.00010	<0.00010	<0.00010

HBML ID		TL10-16SEP12A	TL10-16SEP12B	TL10-16SEP12C
ALS ID		L1210492-1	L1210492-2	L1210492-3
Sample Date/Time		9/16/2012 11:38 AM	9/16/2012 11:38 AM	9/16/2012 11:38 AM
Parameters	**Units**	**Results**		
Vanadium (V)-Total	mg/L	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Total	mg/L	<0.0040	<0.0040	<0.0040
Calcium (Ca)-Dissolved	mg/L	9.76	8.87	8.89
Magnesium (Mg)-Dissolved	mg/L	5.18	4.73	4.8

As per Part J Item 12g of the licence, Table 34 presents the ice thickness of Tail Lake in 2012.

Table 34 - Monthly Tail Lake Ice Thickness, 2012

Date	Ice Thickness Tail Lake (cm)
January 23, 2012	132
February 1, 2012	136
March 3, 2012	177
April 8, 2012	202
May	205
June	Not measured – ice unsafe
July	Not measured – ice unsafe
August	No ice cover
September	No ice cover
October	Camp Closed
November	Camp Closed
December	Camp Closed

2. Summary of the Construction Monitoring Report [see Part D, Item 8 and outlined in Schedule D]

SRK provided on site engineering services between January 6, 2012 and May 6, 2012. Daily construction reports, 122 in total, were prepared by SRK during this period and are provided in Appendix A of the 2012 SRK Construction Support Report (submitted with the 2012 Construction Monitoring Report). Construction activities focused on the following infrastructure:

- Continued construction on the Doris-Windy Road by placing ROQ near Windy but no surfacing material
- Completion of the North Dam and instrumentation
- Installation of ground temperature cables at Windy Road bridges
- Installation of two of the Doris Camp power generators and commissioning of one of these
- Doris North water diversion berm
- Ground temperature cables along perimeter of pollution control pond
- Construction of Sumps 1 and 2
- Completion of Doris vent raise
- Operation of a winter ice strip on Doris Lake
- Disposal, by detonation, of explosives in Quarry B
- Highwall remediation at large Roberts Bay fuel tank farm
- Installation of piping to Tail Lake from the Sedimentation Control Pond
- Upgrade in capacity of the water discharge pipe from Tail Lake to Doris Creek

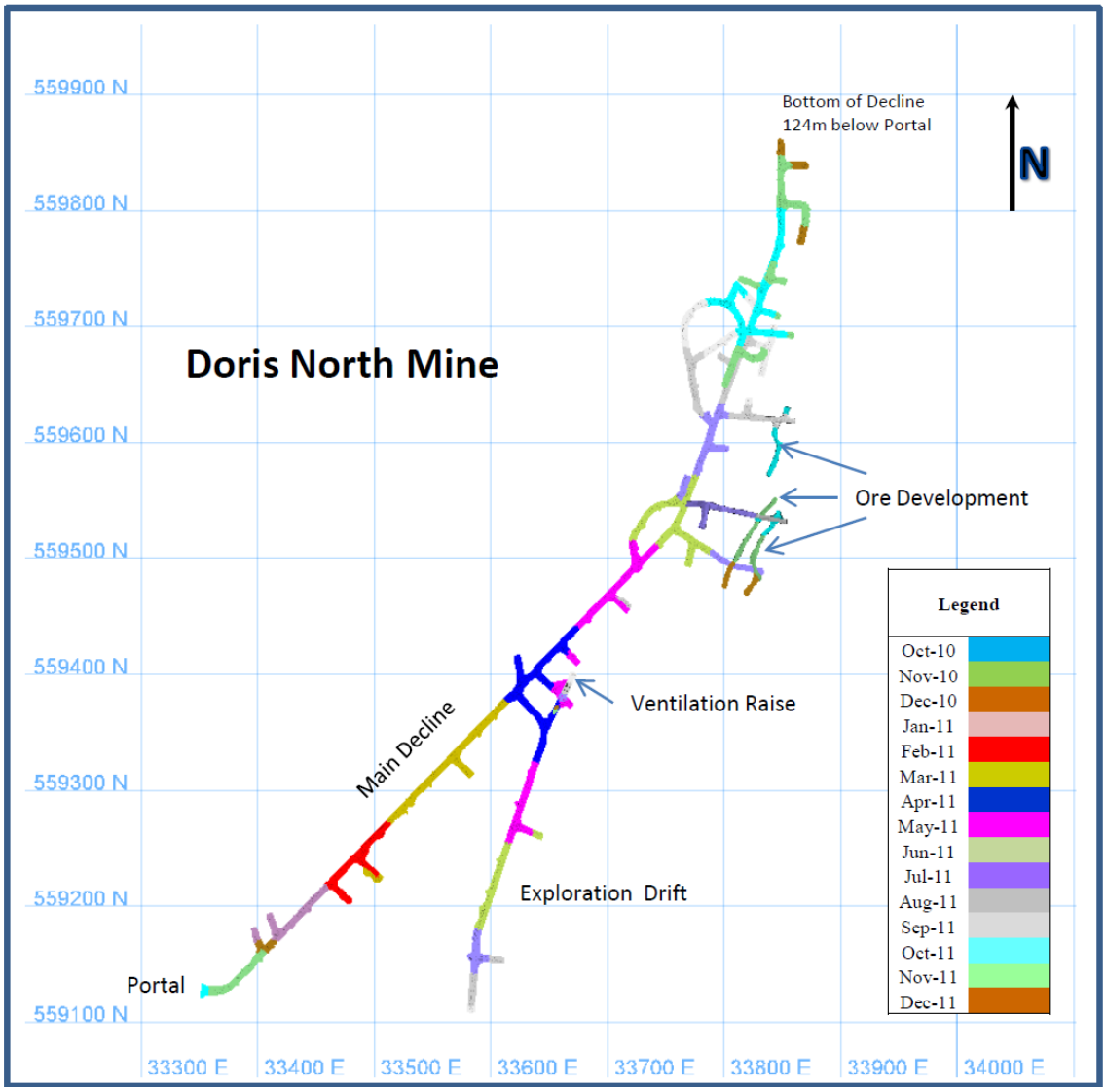
3. Summary of Geochemical Monitoring and Waste Rock Storage Assessment [see Schedule B Item 3]

There was no underground development in 2012. The status remained the same as at the end of 2011. To summarize, at the end of 2011, underground development had advanced a total of 3,073 metres, of which 329 metres was in mineralized zones. At the end of 2011, the main decline elevation was at 124 metres below the portal elevation. Total unmineralized material added to the waste stockpile on surface in 2011 was 182,716 tonnes and total mineralized material added to the mineralized stockpile was 9,411 tonnes. Table 35 shows the volume, in bank cubic metres (BCM), and mass, in tonnes, of waste rock produced from the Doris North decline from October 2010 to the end of 2011. The volume, in BCM, represents the volume of rock in situ underground. Once blasted and moved to either the waste rock or ore pads, the rock volume increases by about 30%. Therefore, the volume of rock stored on the waste rock pad at the end of 2011 (including 2010) was approximately 86,487.7 m^3. Figure 1 shows the progress made by month.

Table 35 – Volume and mass of waste rock produced from Doris North decline, 2010-2011

Year	Month	Waste (BCM)	Ore (BCM)	Total (BCM)	Waste (Tonnes)	Ore (Tonnes)	Total (Tonnes)	Advance in Waste (m)	Advance in Ore (m)
2010	October	277	-	277	789	-	789	5	-
	November	1,656	-	1,656	4,720	-	4,720	62	-
	December	485	-	485	1,382	-	1,382	22	-
	Total	**2,418**	**-**	**2,418**	**6,891**	**-**	**6,891**	**89**	**-**
2011	January	2,514	-	2,514	7,165	-	7,165	103	-
	February	3,114	-	3,114	8,875	-	8,875	132	-
	March	4,640	-	4,640	13,224	-	13,224	181	-
	April	6,044	-	6,044	17,225	-	17,225	253	-
	May	7,290	-	7,290	20,777	-	20,777	282	-
	June	6,966	-	6,966	19,853	-	19,853	289	-
	July	7,127	42	7,169	20,312	114	20,426	323	4
	August	7,119	84	7,203	20,289	228	20,518	331	8
	September	6,093	149.1	6,242	17,365	406	17,770	247	14
	October	6,233	1131	7,364	17,764	3,076	20,840	287	108
	November	5,312	1537	6,849	15,139	4,181	19,320	249	146
	December	1,659	517	2,176	4,728	1,406	6,134	68	49
	Total	**64,111**	**3,460**	**67,571**	**182,716**	**9,411**	**192,128**	**2,744**	**329**

Figure 1 – Plan view of Doris North mining completed in 2011, showing monthly advance



Geochemical monitoring was begun at the same time as underground work began on the Doris North decline in October 2010. Geological inspections were made at least once per day when the mining was in diabase and alteration zone, and once per shift in other rock units. Where possible, both the working face and the muck pile were inspected to identify the rock type, quantity of sulphide minerals, quartz veining, carbonate mineralization and the presence of fibrous minerals. This data was recorded in geological inspection logs.

Of the 182,716 tonnes of waste rock brought to surface, approximately 86% was non-mineralized and 14% was mineralized. Approximately 55% of the waste rock was diabase, while the remainder was basalt. A total of 9,411 tonnes of ore was brought to surface consisting mainly of a mixture of basalt with quartz veins. Basalt within approximately 15 metres of the diabase,

including most of the basalt along the main decline was altered by contact metamorphism (heat) from the diabase.

The survey of the waste rock from the underground decline indicated that the diabase, which comprised approximately 55% of the waste rock, had a consistently low sulphide content and was classified as non-PAG. Basalt had a lower than expected TIC and NP content, resulting in a small proportion of samples being classified as PAG based on TIC/AP ratios. Given the relatively low sulphur content of this material, the presence of silicate NP, alkalinity contributed by other rock in the pile, and the relatively coarse grain size of this rock, it is considered unlikely that acidic conditions would develop in this material. More information can be obtained from the 2011 Waste Rock and Quarry Monitoring Report produced by SRK and submitted to the NWB in March 2011.

Additional monitoring was undertaken in 2012 and results are presented in the 2012 Waste Rock and Quarry Monitoring Report, submitted to the NWB in January 2013. The results from the waste rock stockpile inspection indicate that the waste has been segregated with the mineralized waste situated in the south east corner of the pile, sulphide content in the remainder of the pile was observed to be negligible. Results from the sampling of the ore stockpile indicate that the majority of samples are not potentially acid generating, with two samples classified as uncertain. Elemental analysis indicates some enrichment in gold, silver, sulphur, and arsenic in a portion of the samples.

4. Summary of the results of the monthly water balance and water quality model assessments referred to in Part G, Item 31 and any re-calibrations that have been carried out [see Schedule B, Item 4]

The TIA has not yet been commissioned and as a result detailed operational information regarding the water balance is not available to update the water quality model.

5. Summary of the Geotechnical Inspection Report referred to in Part J, Item 18 [see Schedule B, Item 5]

HBML contracted SRK Consulting (Canada) Inc. (SRK) to conduct the annual geotechnical site inspection of the Doris North Project in accordance with the stipulated license conditions. This investigation was carried out from September 7 to 10, 2012. Table 36 below provides a summary of the inspection components and the primary recommendations stemming from the inspection. HBML is currently in the process of preparing an implementation plan for the 2012 geotechnical recommendations and will submit this to the NWB upon completion.

Table 36 – Geotechnical Inspection Recommendations

Inspection Item	2012 Recommendations
Thermistors	• Re-evaluate thermistor requirements taking into considering the surface infrastructure elements currently on site • Continue formal monitoring once a year in July or August

Inspection Item	2012 Recommendations
	• North Dam thermistors must be monitored in accordance with recommendations provided in the As-built Report (SRK 2012b)
Old Lay Down Area	• Relocate the last two explosives magazines and the 11 sea cans from the tundra vegetation onto the beach • Remove any remaining debris
Roberts Bay Jetty	• Continue formal monitoring once a year in July or August • Remind operational staff annually about the operational limitations of the jetty
Shoreline Lay Down Area	• Inspect pad perimeter during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion
5ML Roberts Bay Tank Farm	• Backfill test pits excavated to confirm liner elevation • Should the facility be re-commissioned, consider installation of settlement beacons along the fuel transfer station and on sections of the secondary containment facility not constructed on bedrock
20ML Roberts Bay Tank Farm	• Areas within the bunded area along the berm's incline that have experienced disturbance should be evaluated for integrity of the liner system and repairs made, if required, by a qualified person • Reconstruct pedestals prior to re-commissioning tank farm
Roberts Bay Lay Down Area	• Inspect pad perimeter during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion • Monitor flow from drainage channels beneath pad. If flow stops, the blockage must be traced to prevent onset of thermal erosion • Monitor areas where rock was relocated from the tundra for signs of thermal erosion
Quarry #1 Overburden Dump	• Monitor surface runoff and consider requirement for alternate sedimentation control measures • If the surface is used as a laydown area implement appropriate management protocols to account for sinkhole and differential settlement risk
Airstrip	• Monitor areas where rock was relocated from the tundra for signs of thermal erosion • Maintain practice of inspecting the runway toe line during freshet and after significant or prolonged rainfall events. Pump ponded water to prevent onset of thermal erosion • Conduct daily inspections of the airstrip shoulder to monitor the tension cracks
All Weather Roads (Doris Site)	• Inspect road toe lines during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion • Monitor areas where rock was relocated from the tundra for signs of thermal erosion • Implement a monitoring protocol and erect warning signs at the site of the slope failure until the buttress have been installed
Doris Creek Bridge	• Monitor thermistor strings in accordance with the recommendations set out in Section 3.2 • Monitor and ultimately replace the rock gabions
Wash Bay/Explosives Mixing Plant	• Inspect pad perimeter during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion
Upper and Lower Reagent Pads	• Inspect pad perimeter during freshet and immediately following significant or prolonged rainfall events. Ponded water should be pumped to prevent onset of thermal erosion
Quarry #2 and Crusher Area	• No action required
Batch Plant Pad (previously Crusher Pad)	• No action required
Landfarm	• HBML to continue to follow the designated Landfarm Management Plan • Conduct regular visual inspections to monitor for signs of settlement
Sewage Treatment Plant Outfall	• Continue to monitor old sewage outfall location for signs of permafrost degradation
Quarry #2 Overburden Dump	• No action required

Inspection Item	2012 Recommendations
Doris North Camp	• Inspect pad perimeter during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion • Construct a catch berm at the toe of the high wall and install appropriate signage and barricades to warn people and equipment of the danger • High wall stabilization measures designed for the tank farm and mill pad should be installed as planned • Develop and implement a differential settlement monitoring protocol for heated buildings constructed directly onto the thermal rock fill pads
7.5 ML Doris North Camp Tank Farm	• Remove crushed rock pedestal supports for the piping and replace with fabricated supports that do not reduce containment capacity (if the facility is to be re-commissioned) • High wall stabilization measures designed for the mill pad should be installed as planned
Power Generation Station (Pad B)	• Install a monitoring system for tracking, and advance notice of any deformations of Pad B
Other Site Wide Fuel Storage	• No action required
Sedimentation and Pollution Control Ponds	• Pump out ponded water to prevent onset of thermal erosion • Carefully track thermistors and sump water quality and flow data
Sumps #1 and #2	• Pump out standing water to prevent thermal erosion • Inspect sump perimeter during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion
Doris North Portal	• No action required
Waste Rock Pile	• HBML to continue to follow the designated Waste Rock Management Plan
Temporary Pond	• Conduct daily visual inspections to check for obvious signs of distress (at times when it contains water)
Doris Freshwater Intake	• Inspect pad perimeter during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion
Doris Primary Vent Raise Pad	• Inspect pad perimeter during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion
Frozen Core Plant Pad	• Inspect pad perimeter during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion
North Dam	• Continue with monitoring program for dam instrumentation in accordance with recommendations by the Engineer-of-Record • Conduct thorough review of the dam performance monitoring data during the 2013 geotechnical inspection
Shoreline Erosion	• Implement measures to maintain the water level in Tail Lake at 28.3 masl to prevent onset of permafrost degradation
Doris-Windy All Weather Road	• Inspect road toe lines during freshet and immediately following significant or prolonged rainfall events. Pump out ponded water to prevent onset of thermal erosion • Monitor areas where rock was relocated from the tundra for signs of thermal erosion • Implement inspection protocol to monitor shoulder cracks and potholes
Doris-Windy All Weather Road Stream Crossings	• Monitor thermistor strings in accordance with recommendations in Section 3.2
Quarry A	• Continue to follow the Quarry Management Plan
Quarry B	• Continue to follow the Quarry Management Plan
Quarry D	• Continue to follow the Quarry Management Plan

6. An update on the current capacity of the Tailings Impoundment Area [See Schedule B, Item 6]

The North Dam which ensures containment of TIA was completed in early 2012 but no tailings have been deposited to date. The available capacity is 100%.

7. A comparison of the flows (m^3/day) at monitoring stations TL-1, TL-2, TL-3, and TL-4 [See Schedule B, Item 7]

TL-1 is the intake for the pump used to dewater Tail Lake and TL-4 is the discharge end of the same pipe (measured from the v-notch weir box constructed to minimize erosion risk in Doris Creek). TL-2 is the background Doris Creek flow (upstream of TL-4), and TL-3 is the flow measured just downstream of TL-4 in Doris Creek. Table 37 presents a flow comparison between the four monitoring stations. The total volume of water discharged from Tail Lake to Doris Creek in 2012 was 465,665 m^3.

Table 37 – Comparison of flows between monitoring stations TL-1, TL-2, TL-3, and TL-4, in cubic metres (m^3) for 2012, when discharge occurred.

Date	TL-1 Flows	TL-4 Flows	TL-2 Flows	TL-3 Flows
6/11/2011	1,682	2,768	290,512	293,874
6/12/2011	1,704	5,843	301,959	312,664
6/13/2011	6,013	10,068	307,214	323,643
6/14/2011	5,166	8,832	307,751	326,561
6/15/2011	5,071	8,690	307,323	325,139
6/16/2011	5,044	8,663	304,810	323,460
6/17/2011	6,371	8,693	301,630	325,436
6/18/2011	8,261	8,327	300,143	322,813
6/19/2011	8,777	8,842	295,085	317,792
6/20/2011	8,681	8,539	290,466	308,211
6/21/2011	8,434	8,745	283,699	303,481
6/22/2011	8,743	8,831	275,893	294,438
6/23/2011	8,591	8,698	267,910	284,410
6/24/2011	8,503	8,615	262,268	274,945
6/25/2011	8,785	8,837	254,607	264,168
6/26/2011	12,753	10,321	246,846	254,115
6/27/2011	8,176	8,370	238,646	240,886
6/28/2011	8,542	8,768	230,699	227,388
6/29/2011	8,461	8,686	224,025	212,841
6/30/2011	8,338	8,595	215,097	198,252
7/1/2011	8,632	8,907	199,504	184,049
7/2/2011	8,339	8,733	185,987	172,082
7/3/2011	8,499	8,814	174,685	159,979
7/4/2011	8,302	8,701	161,803	149,022
7/5/2011	8,361	8,837	149,872	138,856
7/6/2011	6,983	7,445	137,500	129,934
7/7/2011	8,244	8,745	126,346	120,653
7/8/2011	8,397	8,800	114,903	114,443
7/9/2011	6,786	7,295	107,629	108,063

Date	TL-1 Flows	TL-4 Flows	TL-2 Flows	TL-3 Flows
7/10/2011	7,984	8,542	93,793	104,716
7/11/2011	7,797	8,338	84,074	98,431
7/12/2011	7,913	8,471	80,116	95,290
7/13/2011	8,609	9,146	77,514	92,935
7/14/2011	6,771	7,269	74,539	90,628
7/15/2011	8,810	8,756	72,265	88,237
7/16/2011	8,504	8,545	70,591	86,447
7/17/2011	7,949	7,963	68,422	84,152
7/18/2011	6,441	6,428	65,110	82,167
7/19/2011	6,874	6,928	62,212	78,636
7/20/2011	5,205	5,225	59,746	76,051
7/21/2011	4,727	4,836	58,514	73,299
7/22/2011	4,424	4,613	56,060	71,979
7/23/2011	36	21	55,523	69,959
7/24/2011	0	0	54,795	67,482
7/25/2011	0	0	52,333	65,952
7/26/2011	4,627	4,764	51,144	63,165
7/27/2011	3,720	3,983	49,123	63,229
7/28/2011	3,695	4,001	48,320	63,437
7/29/2011	3,873	4,106	46,627	62,092
7/30/2011	4,055	4,239	45,259	60,504
7/31/2011	3,972	4,173	43,795	59,486
8/1/2011	3,964	4,172	42,368	57,821
8/2/2011	3,839	4,059	41,013	56,188
8/3/2011	3,367	3,527	39,810	54,664
8/4/2011	3,330	3,525	38,437	53,119
8/5/2011	3,346	3,537	36,738	51,397
8/6/2011	3,437	3,540	35,977	49,592
8/7/2011	3,384	3,557	34,747	48,979
8/8/2011	2,939	3,079	33,732	47,750
8/9/2011	2,130	2,254	32,681	46,283
8/10/2011	3,237	3,380	32,005	42,387
8/11/2011	3,568	3,675	30,747	42,473
8/12/2011	3,354	3,505	29,598	38,783
8/13/2011	3,363	3,581	29,114	38,053
8/14/2011	3,049	3,215	27,764	37,128
8/15/2011	3,174	3,345	26,981	33,842
8/16/2011	2,697	2,951	25,906	31,966
8/17/2011	2,739	2,910	25,154	29,304
8/18/2011	2,532	2,715	24,353	27,960
8/19/2011	2,906	3,121	23,777	26,932
8/20/2011	2,790	3,001	21,859	26,303
8/21/2011	2,715	3,034	20,821	23,418
8/22/2011	2,715	2,813	21,670	22,177
8/23/2011	2,500	2,715	21,432	23,391
8/24/2011	2,313	2,508	20,925	23,192
8/25/2011	522	559	20,783	22,631
8/26/2011	710	739	20,063	21,911
8/27/2011	0	0	20,960	20,855
8/28/2011	0	0	19,621	20,943
8/29/2011	0	0	19,271	19,367
8/30/2011	0	0	18,973	19,096

Date	TL-1 Flows	TL-4 Flows	TL-2 Flows	TL-3 Flows
8/31/2011	0	0	19,319	18,751
9/1/2011	0	0	17,754	19,179
9/2/2011	0	0	18,302	17,347
9/3/2011	0	0	17,285	17,985
9/4/2011	1,889	1,941	15,830	16,869
9/5/2011	2,680	2,774	15,941	17,748
9/6/2011	2,584	2,676	17,188	19,100
9/7/2011	2,302	2,376	14,302	20,514
9/8/2011	2,356	2,440	14,253	16,263
9/9/2011	2,312	2,395	13,564	16,448
9/10/2011	2,146	2,217	12,879	15,493
9/11/2011	1,865	1,931	11,910	15,071
9/12/2011	1,852	1,918	11,932	14,057
9/13/2011	1,568	1,626	12,377	13,634

8. Annual review and any revisions submitted in the form of addendums to the Management Plans or Emergency Response and Contingency Plan [See Schedule B, Item 8]

In early 2012, HBML revised and submitted the following plans:

- Hazardous Waste Management Plan
- Incinerator Management Plan

Previous revisions to the Hazardous Waste Management Plan and the Incinerator Management Plan were submitted to the NWB in September 2009 and July 2009, respectively. The revisions reflect the numerous changes to waste management that have been implemented by HBML since 2009.

In August 2012, HBML revised and submitted the following plan:

- Closure Plan

This plan had not been updated since the water licence application. This version takes into account all infrastructure on site to date. It is still under review with the NWB.

In October 2012, HBML revised and submitted the following plans:

- Spill Contingency Plan
- Emergency Response Plan
- Waste Water Treatment Management Plan

The Spill Contingency Plan was approved by the NWB in October 2010 and has since been revised several times. This most recent revision includes details on changes made to reflect care and maintenance. Updates were made to roles and responsibilities, phone numbers, fuel storage,

spill response procedures. Non-hydrocarbon chemicals were also added to this most recent revision. No changes have been made since this last version was submitted. The Emergency Response Plan has also been revised several times since it was first submitted to the NWB. The most recent revised version was updated to include care and maintenance. The Waste Water Treatment Management Plan was first submitted in 2008 and was updated once prior to the October 2012 revision. This most recent revision was updated to include the use of the old discharge point and the discharge of greywater to the overburden pile as per the approvals received from AANDC.

In December 2012, HBML revised and submitted the following plans:

- Interim Water Management Plan
- QA/QC Plan
- Monitoring and Follow-Up Plan

The Interim Water Management Plan was first submitted to the NWB in December 2010 and has since gone through several revisions. The latest revision addresses care and maintenance and newly completed construction activities. The QA/QC Plan was first approved by the NWB in 2009 and has since been updated several times. This most recent revision had minor edits to update licence numbers. The Monitoring and Follow-Up Plan was submitted to the NWB in May 2011. This revision was the first revision since the May 2011 submission and includes the monitoring and follow-up requirements for care and maintenance.

HBML submitted the following plan for the first time in 2012:

- Interim Non-Hazardous Waste Management Plan

This plan was developed because HBML has not constructed a landfill, and therefore, a landfill management plan has not been implemented at this time. The Interim Non-Hazardous Waste Management Plan was submitted to complete the series of waste management plans prepared by HBML to cover the various types of waste managed on site.

9. A list and description of all unauthorized discharges including volumes, spill report line identification number and summaries of follow-up action taken [See Schedule B, Item 9]

Date of Spill: January 2, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze
Details of Spill: A spill of approximately 0.6 L of premix antifreeze occurred at the waste management facility drum storage area at Roberts Bay as a result of a leaking valve on a container that was almost empty. The contaminated snow was shoveled up and the container was completely emptied.

Date of Spill: January 21, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Motor Oil
Details of Spill: A spill of <1 L of motor oil occurred at the Doris Camp generators. The cause of the spill was due to the vent tube on the engine freezing up, resulting in oil being forced up the dip stick. The vent tube was cleared of ice and snow.

Date of Spill: January 21, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Hydraulic Oil
Details of Spill: A spill of approximately 20 L of hydraulic oil occurred at the Tail Lake north dam area as a result of a crack in the swing motor gear box on a Cat 330 excavator that was working there. The contaminated snow and gravel was cleaned up and brought to waste management facility.

Date of Spill: January 25, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze
Details of Spill: A spill of approximately 15 L of premix antifreeze occurred at the north end of the Doris North airstrip as a result of a leaking radiator hose on a D-9 dozer. The contaminated snow was cleaned up and sent to the waste management facility. The dozer was brought to the shop for repairs.

Date of Spill: January 26, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze
Details of Spill: A spill of approximately 10 L of premix antifreeze was discovered on the parking lot at the Doris administration building. The source of this spill was undetermined. The contaminated snow was shoveled up and brought to the waste management facility.

Date of Spill: January 29, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze
Details of Spill: A spill of approximately 4 L of premix antifreeze occurred on the parking lot at Roberts Bay from under a parked Cat 988 loader. The cause of the spill was attributed to the expansion/contraction of hose fittings as a result of the extreme cold weather.

Date of Spill: January 30, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze

Details of Spill: A spill of approximately 2 L of premix antifreeze occurred at the Roberts Bay parking lot from under a parked Cat 285 excavator. The cause of the spill has been identified as being attributed to expansion/contraction of hose fittings as a result of the extreme cold weather.

Date of Spill: February 3, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze
Details of Spill: <2 L of antifreeze leaked from a parked pickup at a contractor office area at the Doris pad. Contaminated snow was cleaned up and removed to the waste management facility.

Date of Spill: February 5, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze
Details of Spill: <1 L of antifreeze spilled immediately outside a contractor shop as a result of a worker placing a bucket on uneven ground. Contaminated snow was cleaned up and removed to the waste management facility.

Date of Spill: February 6, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze
Details of Spill: <2 L of antifreeze spilled near the frozen core plant as a result of a broken fan belt on a pipe fusing machine. The fan belt was repaired prior to resuming operation. Contaminated snow was cleaned up and removed to the waste management facility.

Date of Spill: February 12, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze
Details of Spill: ~2 L of antifreeze spilled from the top of a 1000 L container near the Doris powerhouse while the container was being moved. It was determined that the container had a loose cap. Contaminated snow was cleaned up and removed to the waste management facility.

Date of Spill: February 13, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Antifreeze
Details of Spill: <1 L of antifreeze spilled from a parked 230 ton crane at the Roberts Bay jetty area. Contaminated snow was cleaned up and removed to the waste management facility.

Date of Spill: February 14, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Transmission Oil

Details of Spill: <1 L of transmission oil leaked from a parked flat deck truck outside a contractor's office at the Doris pad area. Contaminated snow was cleaned up and removed to the waste management facility.

Date of Spill: February 24, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Motor Oil
Details of Spill: 1 L of motor oil spilled from a 330 Cat excavator at the frozen core dam area at Tail Lake as a result of an engine malfunction. The engine was repaired and the excavator was put back into service. Contaminated snow was cleaned up and removed to the waste management facility.

Date of Spill: February 26, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Hydraulic Oil
Details of Spill: <1 L of hydraulic oil leaked from a reach stacker that was moving 20' sea cans near a contractor shop on the Doris lower pad. The reach stacker was repaired and put back into service. Contaminated snow was cleaned up and removed to the waste management facility.

Date of Spill: March 5, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Motor Oil
Details of Spill: Motor Oil spill (approximately 250 ml) was spilled from a Magnum Light plant when started up in the frozen core plant. Contaminated material was cleaned and removed.

Date of Spill: March 8, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Hydraulic Oil
Details of Spill: A spill of <1 L of hydraulic oil occurred at the lower reagent pad as a result of a leak on a reach stacker due to cold conditions. The spill was cleaned up and contaminated material taken to waste management for disposal. The reach stacker was repaired and returned to service.

Date of Spill: March 15, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Gasoline
Details of Spill: A spill of <0.5 L of gasoline occurred on the crushed gravel floor at the warehouse from a small portable generator due to fuel expansion in the fuel tank as a result of the generator being brought inside a heated area. Spill was cleaned up and contaminated material taken to the waste management facility for disposal.

Date of Spill: March 17, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Uncontrolled Waste
Details of Spill: Approximately 1 m^3 of unsorted waste was abandoned at the Doris burn pan area. The uncontrolled waste contained materials inappropriate for burning (hard hats, work gloves, plastic materials) and contained wildlife attractants (food waste and food packaging such as apple cores, banana peels, styrofoam, pop cans, candy product packaging). Waste Management was contacted to clean up and the materials were taken to the waste management facility for proper disposal. Locked gates were installed on the roads into the burn pan area in April 2012 to prevent unauthorized access.

Date of Spill: March 20, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Hydraulic Oil
Details of Spill: A spill of <1 L of hydraulic oil occurred on the Tail Lake north dam ramp road as a result of a leak from a vibratory packer. The spill was cleaned up and contaminated material taken to the waste management facility for disposal. The packer was repaired and returned to service.

Date of Spill: March 20, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Uncontrolled Waste
Details of Spill: During an AANDC inspection, it was noted that inappropriate substances were being burned in the Doris burn pan. This had been noted on other occasions as evidenced by the residues of metals. The burn pan was voluntarily shut down by Newmont pending a complete review of the burning procedures and implementation of mitigation measures. Locked gates were installed on the roads into the burn pan area in April 2012 to prevent unauthorized access.

Date of Spill: April 1, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Diesel Fuel
Details of Spill: A diesel fuel overflow occurred in the day tank generator containment berm from the main camp powerhouse generator tank farm due to a faulty valve on the automated filling system. Approximately 5,000 L of fuel overflowed the day tank through the vent, but there was no release to the environment. The fuel was removed for re-use and any residue was cleaned with sorbent pads. Additional, precautionary, valves were installed and the manual bypass valve locked out to prevent future overflows due to mechanical failure of human error.

Date of Spill: April 15, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Diesel

Details of Spill: While fuelling a truck at the dispensing module within the lined containment area, a minor overflow of <0.5 L diesel occurred and missed the catchment container. Contaminated ground was shoveled up and removed for disposal.

Date of Spill: April 21, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Hydraulic Oil
Details of Spill: A snow cat working on the access to the frozen core dam at Tail Lake leaked approximately 2 L of hydraulic fluid from a broken hose. Spill pads were placed under the machine, the leaking hose was replaced, and contaminated snow was cleaned up and taken to the waste management facility.

Date of Spill: April 30, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Hydraulic Oil
Details of Spill: A broken fitting on the 330 Excavator working at the frozen core dam at Tail Lake leaked approximately 3 L of hydraulic fluid on to the ground. A bucket was placed under the leak, and the contaminated ground was immediately shoveled up, contained, and taken to the waste management facility for disposal.

Date of Spill: May 5
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Calcium Chloride
Details of Spill: During transport of calcium chloride to the Doris Lake ice strip, two torn bags spilled approximately 35 kg of salt on to the road north of Doris Camp. The salt was shoveled up and contained in a garbage can and delivered for disposal to the waste management facility.

Date of Spill: June 5
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Oil
Details of Spill: An oil and grease spill was found outside of the Doris Portal. The spill is attributed to a compressor that used to be located outside the portal. The compressor had been removed during the winter after the Portal was shut down. The contaminated material was removed and was taken to the waste management facility for offsite disposal.

Date of Spill: June 9
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Engine Oil
Details of Spill: A megabag of waste materials being transported from a drill contractor shop to the waste management area at Roberts Bay contained an unsealed pail of oil which leaked inside the bag and subsequently dripped out onto the gravel laydown. A trail of drips estimated at 10L

leaked on to the ground. The materials were properly contained and the contaminated gravel was cleaned up and removed for disposal. Proper waste management, storage of fluid products, and handling protocols were reviewed with contractor.

Date of Spill: June 10
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Diesel
Details of Spill: The gravity feed overflow of an auxiliary tank on the oil/water separator spilled approximately 2 L of diesel inside the berm into effluent water being treated for discharge. A sorbent boom was deployed to contain the product and sorbent pads were used to absorb the remainder. The oil/water separator unit was moved to an area of the berm without water and placed on a spill tray. The auxiliary tank on the oil/water separator was swapped out for a different model without a gravity feed mechanism.

Date of Spill: July 1
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Diesel
Details of Spill: Fuel in one of the tanks on the Rimpull expanded and came out of the tank around the fill cap. An estimated 0.5 L of fuel was spilled onto the gravel pad beneath the Rimpull. The area was cleaned up and some of the fuel in the tank was sucked out to prevent future overfill expansion related spills. Contaminated materials were taken to the waste management facility for offsite disposal.

Date of Spill: July 2
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Waste Oil
Details of Spill: A palletized drum of waste oil was punctured by the tracks of a skid steer which was working in the area. Approximately 30 L of oil was spilled out of the barrel into the berm. The punctured drum was noticed soon after the puncture occurred, and the oil was collected in a bucket until the drum was plugged. The hole in the barrel was plugged, the barrel was removed and drained, and all spilled oil and contaminated gravel from the berm surface was removed by waste management staff for off-site disposal. Other nearby drums that had also been scraped by the skid steer tracks (but not punctured) were drained and the oil transferred to new, undamaged, drums.

Date of Spill: August 30, 2012
Spill No: 12-359
Date of Notification to an Inspector: August 31, 2012
Product Spilled: Diesel
Details of Spill: While fueling a diesel tanker truck within the fuel dispensing area at the Doris Camp Bulk Fuel Storage Facility (fully lined within the facility containment berm), one compartment was overfilled by the operators spilling an estimated 430 L of diesel onto the dispensing area surface. Sorbents were deployed to absorb most of the product, and the

remaining contaminated gravel was removed by machine, and contained in lined megabags for treatment. Contaminated sorbents were delivered to the waste management facility for proper disposal. The accident was attributed to operator error and a procedural review and re-training took place to ensure spotters are used during fueling operations to prevent tank overfills.

Date of Spill: September 10, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled: Diesel
Details of Spill: A spill was detected by site environmental personnel as a stained area in the crush laydown outside an auxiliary building to the Doris Camp Geology Coreshack. From a nearby container the product was identified as diesel and the amount of the spill estimated to be several liters. The date and time is unknown. The affected area material was removed and contained for disposal as part of the seasonal site-wide reclamation activities.

Date of Spill: September 11, 2012
Spill No: N/A
Date of Notification to an Inspector: N/A
Product Spilled:
Details of Spill: During staging of drill contractor sea-cans at the Roberts Bay laydown area for removal on the sea-lift, it was noted by equipment operators that fluid was leaking from a sealed sea-can. The can was opened to reveal hydraulic fluid leaking from an improperly drained hydraulic control panel. An estimated 10-15 L of fluid leaked on the crush of the laydown. The fluid in the catchment tray inside the seacan was soaked up with sorbents and the reservoir tank drained. Contaminated gravel outside the can was scraped up and contained for offsite disposal. All remaining drill contractor sea-cans (70+) were opened to identify additional fuel product management, packaging, and DG labelling insufficiencies. Any remaining fluid tanks located were drained to prevent further incidents and cans were re-packed in accordance with proper IMDG shipping requirements.

Date of Spill: September 14, 2012
Spill No: 12-376
Date of Notification to an Inspector: September 15, 2012
Product Spilled: Cement Additive
Details of Spill: During staging of product totes for removal on the sea-lift, the forklift operator pinched the bottom corner of a plastic tote containing approximately 900 L of fluid cement additive. A quantity of fluid leaked on the ground at the Roberts Bay Laydown; the estimated loss to the environment was 150 L. The operator reacted quickly to the incident and deposited the leaking tote in a nearby portable berm. The product volume recovered from the berm and contained in drums was 750 L. All contaminated gravel from the area of the spill was collected and contained for proper disposal and there was no risk of the product entering any water body. The manufacturer's Safety Data Sheet indicates the product is non-toxic.

Date of Spill: September 16, 2012
Spill No: 12-377
Date of Notification to an Inspector: September 17, 2012

Product Spilled: Diesel
Details of Spill: Site services personnel detected evidence of a diesel leak inside the containment berm at the Roberts Bay Bulk Fuel Storage Facility (ST-6b). A stained area was observed in the gravel of the berm near the pump and hose system utilized for transferring fuel into/between the tanks. It is thought that during the overnight re-positioning of the pumping system apparatus two days prior some residual fuel in the system leaked onto the floor of the berm before the hoses and pump were reconnected. No further leaking was detected upon investigation of the spill. The actual volume leaked is not known, but is estimated to be 100 L. The leak of diesel fuel was fully contained by the lined gravel berm structure and no fuel was released to the environment. The contaminated gravel was removed by machine and contained for disposal.

10. The results of continued aquatic effects baseline data collection, and the results of the Aquatic Effects Monitoring Program in accordance with Part K, Item 4 [See Schedule B, Item 10]

The executive summary of the 2012 Aquatic Effects Monitoring Program Report is presented below. The complete report will be submitted to the NWB this spring.

This report presents the results from the third year of the AEMP. As outlined in the Plan, three streams, four lakes, and two marine exposure sites were monitored along with two reference streams, two reference lakes, and one marine reference site. Aquatic components evaluated in 2012 included: lake and marine under-ice dissolved oxygen levels; lake Secchi depth; stream, lake, and marine water and sediment quality; stream periphyton biomass; lake and marine phytoplankton biomass; and stream, lake, and marine benthic invertebrate community descriptors (total density, taxa richness, evenness, diversity, and the Bray-Curtis Index). Lake and marine fish communities were surveyed in 2010 (Rescan 2011) and were not scheduled to be resurveyed in 2012.

Streams

There were no apparent Project-related effects in 2012 on water or sediment quality parameters, periphyton biomass levels, or benthic invertebrate communities in the AEMP streams.

There was evidence of an increase in alkalinity, hardness, and concentrations of total molybdenum in Doris Outflow and total arsenic in Roberts Outflow in 2012 compared to baseline concentrations. However, the Before-After/Control-Impact (BACI) analysis indicated that parallel increases from baseline means also occurred at the reference streams. Thus, there was no evidence that these increases were due to Project activities. There was evidence of increases in the 2012 concentrations of Radium226 (Roberts Outflow) and nitrate (Roberts and Little Roberts Outflow). However, these results should be interpreted carefully because a high proportion of the data were below analytical detection limits. Furthermore, there were corresponding increases in the reference outflows, therefore the observed increases in the exposure streams were due to natural variability and not related to Project activities.

Lakes

There were no apparent Project-related effects on under-ice dissolved oxygen concentrations, Secchi depths, water or sediment quality parameters, phytoplankton biomass levels, or benthic invertebrate communities in the AEMP lakes.

There was evidence of an increase in Doris Lake North 2012 total aluminum and molybdenum concentrations compared to baseline concentrations. However, in these instances, the BACI analysis indicated that parallel increases from baseline means also occurred at the reference lake. Thus, there was no evidence that these increases were due to Project activities. There was also evidence of a slight increase in pH and total molybdenum concentrations in Little Roberts Lake in 2012 compared to baseline concentrations. No BACI was possible because of a lack of reference data; however, the change in pH and molybdenum concentrations were likely due natural variably as similar changes were also observed in other lakes. Therefore there was no apparent effect of 2012 Project activities on either pH levels or total molybdenum concentrations in Little Roberts Lake.

Total arsenic concentrations in the sediments from Little Roberts Lake increased in 2012 compared to baseline concentrations. No BACI was possible due a lack to reference data; however, there was a generally increasing trend in the concentration of total arsenic in the sediments collected from the corresponding reference lake. Therefore, there was no evidence that 2012 Project activities increased total arsenic concentrations in the sediments from Little Roberts Lake.

There were differences in 2010 to 2012 trends for some benthic community descriptors between exposure and reference lakes; however, these differences in trends were unlikely Project-related, and probably reflected natural annual variability or patchiness in the composition and distribution of the benthos community within lakes.

Marine

There were no apparent Project-related effects on winter dissolved oxygen levels, water and sediment quality parameters, phytoplankton biomass levels, or benthic invertebrate communities in AEMP marine sites.

All dissolved oxygen concentrations and water quality parameters measured at the marine exposure sites during 2012 remained similar to baseline conditions, indicating that 2012 Project activities had no effect on the water chemistry in the surrounding marine habitat.

The concentrations of several metals increased in RBW sediments between 2002 and 2012. However, these increases are related to the significant increase of silt in the 2012 sediment samples, since silt has a high affinity for metals. Increased metal concentrations were also observed in the sediments from the reference site. This suggests that the increase in metal concentrations that occurred in sediments from RBW in 2012 was unrelated to 2012 Project activities. All measured sediment quality parameters in marine exposure sites were below CCME ISQGs and PELs, except total copper concentrations at RWB which were above the ISQG, but well below the PEL.

Similar to lake benthos communities, there were differences in 2010 to 2012 trends for some benthic community descriptors between marine exposure and reference sites; however, these differences in trends are unlikely Project-related, and probably reflected natural annual variability or patchiness in the composition and distribution of the benthos community within marine sites.

The mitigation measures to reduce the potential for adverse effects to stream, lake, and marine habitats in the Doris North area included surface water runoff management, dust abatement measures, site water compliance monitoring, tailings and site geotechnical monitoring, quarry and waste rock monitoring and management, and waste management. The 2012 results indicate that these mitigation measures were successful in preventing adverse effects to dissolved oxygen levels, Secchi depths, water and sediment quality parameters, periphyton and phytoplankton biomass levels, and benthic invertebrate communities in Project area waterbodies.

11. Annual adjustments to reclamation security including any additional security that may be required [See Schedule B, Item 11]

In January 2013, HBML submitted a revised securities estimate to the NWB for review. The revised closure cost estimate for Doris is $13,090,000. This submission is still under consideration with the NWB since the Closure Plan submitted in August 2012 is still under review with the NWB.

12. Annual Incineration stack testing results [See Schedule B, Item 12]

An incinerator stack emissions testing program was implemented in 2009 to collect samples for dioxin, furans, and mercury. At that time, the results showed that the emissions were in compliance with Canada Wide Standards (CWS) for mercury but were not for dioxin and furans. In response to these results, HBML decided to carry out changes to the waste management system at site and to implement incinerator best management practices prior to re-sampling stack emissions.

Waste management and incinerator improvements undertaken between August 2009 and August 2011 include:

- Construction of a building around the incinerator to help maintain optimum chamber and stack temperatures
- Waste sorting station incorporated into the incinerator building
- Waste sorting stations throughout camp for domestic waste
- Implementation of a site-wide waste management standard operating procedure
- Dining room renovation to incorporate a station for cleaning re-usable lunch kits
- Dining room renovation to enable the use of bulk condiments
- Removal of all disposable lunch packaging

Incinerator stack testing was conducted on the Doris incinerator stack in late August and early September 2011. The results showed that the emission sampling results were in compliance with CWS for mercury, but not for dioxins/furans. Nevertheless, there was an order of magnitude reduction in dioxin/furan levels after the implementation of incinerator and waste management improvements. With further improvements to the waste management at Doris, the stack test conducted July 17-19, 2012 was successful. Results were below the threshold of the CWS standards for mercury, dioxins, and furans. Table 38 presents the data from 2009, 2011, and 2012 to show the improvement over time.

Table 38 – Comparison of stack emissions test results for 2009 and 2011

Parameter	CWS Standard	2009	2011	2012
Mercury (ug/Rm^3 @ 11% O_2)	20	1.0	0.61	1.2
Dioxin/Furan (pg/Rm^3 TEQ @ 11% O_2)	80	**2,170***	**128***	29

**bold indicates results are non-compliant*

13. Annual Landfill Management Report [See Schedule B, Item 13]

HBML is authorized to dispose of all non-hazardous solid waste in a landfill on site as per Part G Item 10. At the request of the land owner, Kitikmeot Inuit Association, HBML has not constructed a landfill. All waste that cannot be incinerated on site is backhauled to an approved facility off site. Because HBML has not constructed a landfill, no landfill management report has been prepared. Nevertheless, HBML has been managing waste produced in Hope Bay according to three waste management plans:

- Interim Non-Hazardous Waste Management Plan
- Hazardous Waste Management Plan
- Incinerator Management Plan

These plans describe how various streams of waste are managed. See Item 8 of this supplement for details on revisions to these plans.

14. A summary of modifications and/or maintenance work carried out on the Water Supply and the Waste Disposal Facilities, including all associated structures, and an outline of any work anticipated for the next year [See Schedule B, Item 14]

In 2012, the following water supply and waste disposal facilities were constructed or upgraded:

- The capacity was increased on the piping used to discharge water from Tail Lake to Doris Creek
- Sumps ST2-S1 and ST2-S2 were constructed
- The construction of the Sediment Control Pond and the Pollution Control Pond was completed, which includes the piping to transfer water from the Sediment Control Pond to Tail Lake

- Construction of the Diversion Berm was completed
- The original location for the discharge of treated waste water from the waste water treatment plant was filled in with crushed rock to remediate it in anticipation for use as permitted by the Inspector.

All facilities were shut off in October 2012 when the camp was closed for the winter. These facilities will be re-commissioned in April 2013 in preparation for the camp re-opening.

15. A summary of any closure and reclamation work undertaken and an outline of any work anticipated for the next year, including any changes to implementation and scheduling [See Schedule B, Item 15]

Construction activities at the Doris North project occurred in early 2012 but then were stopped because the project was placed under care and maintenance. Reclamation work was not undertaken.

16. A summary report describing public consultation and participation with local organizations and the residents of the nearby communities, including a schedule of upcoming community events/information sessions [See Schedule B, Item 16]

Community consultations continued in accordance with the Community Relations Plan, which is a responsibility of the Environment and Social Responsibility department of Hope Bay Mining Ltd.

Alex Buchan, Manager of Community and External Relations based in Cambridge Bay is primarily responsible for implementing this Plan, with support from his Director, Chris Hanks, and supported by Ikey Evalik, Inuit Impact and Benefit Agreement Coordinator.

Community relations in 2012 focused on the addressing the impacts of, and explaining the reasons behind, the decision to place the Doris North Project under Care and Maintenance, and the scope and extent of on-site Care and Maintenance activities.

HBML vacated the Expediting Warehouse at the Cambridge Bay airport during the first quarter of 2012 previously leased from Kit-Nuna Corporation. The level of activity under Care and Maintenance did not necessitate the continued use of this space. However, throughout 2012 HBML continued to occupy and use the main office at #4 Omingmak which represents our Community Relations Storefront in Cambridge Bay.

HBML maintained two staff members in Cambridge Bay in 2012. Alex Buchan continued in his role as Manager of Community Relations while Ikey Evalik sustained the IIBA Coordinator role.

HBML continues to participate in key Nunavut organizations aligned to support community relations functions including the NWT/Nunavut Chamber of Mines, the Nunavut Mine Training Roundtable, and the Cambridge Bay Canadian High Arctic Research Station Committee.

Cambridge Bay Logistics Hub

Cambridge Bay continues to be the logistics hub for HBML in the Kitikmeot. Employees from across the region are flown to Cambridge Bay via commercial airline service, and are transported to and from Site utilizing a charter aircraft stationed at Doris Mine, or flown from Yellowknife, NWT. The option of operating a region wide charter flight that would bypass the need for overnight stays in Cambridge Bay was not implemented in 2012. The number of workers required for Care and Maintenance work was too low to make such an arrangement cost effective.

Other Communications

In 2012, HBML continued our practice of providing email notifications of company updates amongst key stakeholders. Under Care and Maintenance, there were few notifications to make due to reduced project activity. HBML Community Relations personnel regularly facilitated monthly teleconferences or in person meetings between the President of KIA and HBML in accordance to direction. These calls were intended to provide for direct and open communication regarding project related matters between the parties.

Community Relations Monthly Summary

January

- The Nunavut Mine Training Society held a meeting in Rankin Inlet. The purpose of this meeting was to establish a new organization that could be the recipient of Government of Canada support for mine training. HBML attended this meeting along with other Nunavut developers, training agencies, and the KIA.
- A new Hope Bay Project Site guide was developed and was circulated to career development professionals in the Kitikmeot region to promote understanding of working conditions amongst potential new hires.
- Assistance was provided to Heidi Swanson, a private fisheries biologist sponsored in her work by KIA and HBML, to conduct IQ, or traditional knowledge, workshops in Cambridge Bay and Kugluktuk. These workshops were intended to share and gather information on lake trout that choose to live in the ocean.
- Translations of site signage into Inuktitut and Inuinnaqtun were completed in accordance with the Inuit Language Protection Act.
- A number of Class A and Class B contract notifications were made for the 2013 field season to the Kitikmeot business community.
- In cooperation with the Arctic Closet, a Cambridge Bay Arts and Crafts business, we began to make Inuit arts and crafts available for sale at Doris Mine. This was done in response to requests from HBML staff wishing to purchase such items. The initiative was well received by HBML staff and also provided more sales to a local business and artists regionally.
- HBML made a presentation during a KIA Board meeting in Cambridge Bay. This presentation outlined a number of project challenges that were jeopardizing further Newmont investment in the project including geology, land tenure and project costs. HBML announced short term cash conservation measures that would limit project spending during the first

quarter of 2012. The same project status details were communicated to key stakeholders immediately after the KIA Board of Directors meeting.

- As details of short term cash conservation measures on the Hope Bay project were ascertained, community relations staff worked with human pesource staff to inform directly hired staff about potential employment impacts, and in some cases, lay-off notices.
- We coordinated one KIA Site visit in January.
- At the end of the month, HBML attended the Cordilleran Roundup in Vancouver. Meetings were held with the KIA on IIBA related matters, and several Kitikmeot Based Businesses were introduced to HBML Supply Chain staff to discuss contracting opportunities. Additionally, a follow-up meeting of the Nunavut Mine Training Society was held with HBML participation.
- One media contact was handled in relation to a story to appear in a North of 60 Construction Magazine.
- At the end of the month, HBML formally notified KIA of its intention to place the Hope Bay Project under Care and Maintenance pending further project evaluation.

February

- During the first part of the month, community relations activity centered on informing project stakeholders about the decision to place the Hope Bay project under Care and Maintenance. Specific communication took place with government department heads, local and territorially elected officials, contractors, territorial and northern media outlets, and directly hired staff. Communications included a news release, notice of intent to cancel contracts, and lay-off notices. Communications continued to stress that three reasons existed for the HBML decision; geological challenges, land tenure status and project economics. When asked, HBML community relations staff clearly indicated that the status of negotiations between HBML and KIA related to securing long term surface land tenure were a factor in the decision to place the project under Care and Maintenance, although other factors existed. At no time did HBML Community Relations staff indicate that Land Tenure was the sole or overriding factor leading to this decision.
- As part of the lay-off process for directly hired workers, HBML community relations and human resources staff undertook the following actions:
    - Determining if a laid off worker was interested in working at another remote exploration camp or mine, or training.
    - Assisting the laid off worker in updating or creating a resume to use in securing employment alternatives.
    - Liaising with employment and training agencies such as the Department of Education, Service Canada, Nunavut Arctic College and the Kitikmeot Inuit Association to highlight the services and support these agencies could provide to impacted workers.
    - Contacting NWT/Nunavut Chamber of Mines members, and in particular those active in the Kitikmeot region, to ascertain whether they required skilled labor, and thereafter referring impacted workers to these potential job opportunities.
    - Community relations staff also worked with the Kitikmeot Corporation Human Resource Specialist to identify alternative job opportunities for affected Kitikmeot Corporation subsidiary workers formerly on staff at Hope Bay.

- HBML organized a site tour for KIA Lands Division staff including the newly hired Senior Hope Bay Project Officer, and participated in the KIA Employment and Training Strategic Planning sessions held in Cambridge Bay.
- Despite the announcement of Care and Maintenance, some work was completed this month on Phase II socio-economic studies and a country foods baseline report.
- HBML community relations personnel were active participants in the Nunavut Mining Symposium Society program committee, and some work was conducted in preparation for the 2012 NMS to be held in Iqaluit in April. Work included identifying potential presenters and scheduling.
- HBML sponsored and participated in the 2012 Kitikmeot Trade Show held in Cambridge Bay. Participation included individual meetings with current suppliers and contractors to discuss the impact of the Care and Maintenance decision, discussing limited scopes of work for the remainder of 2012, and also delivering the 2012 Hope Bay business forecast.
- HBML Community Relations delivered a presentation on the Hope Bay project to the Nunavut Economic Developers Association meeting held in Cambridge Bay. The audience consisted of governmental community relations staff and community economic development officers, including those from the Kitikmeot region. The presentation reviewed some of the economic and social impacts derived from the Hope Bay project, and discussed the reasons for the decision to shut the project down.
- HBML also began work, with Community Relations and Supply Chain involvement, in the development of a Right of First Refusal process to govern the sale of surplus equipment and supplies from the Hope Bay Project to Inuit consistent with the Doris North IIBA.
- Sales of Arts and Crafts at Doris Mine continued. This was well received by both HBML staff and the Arctic Closet.
- Prior to the end of the month, HBML community relations staff participated in internal Ethics Advocacy training aimed at ensuring fair, clear and transparent mechanisms for dispute resolution within the company.

March

- The month began with a recruitment drive to employ as many former seasonal workers and summer students in a reduced but better defined 2012 Hope Bay Scope of Work. A particular effort was made this month to identify Kitikmeot Environmental Technology Program students that could be employed undertaking site compliance monitoring and field studies.
- Work also continued this month to secure presenters for the Nunavut Mining Symposium Community Engagement sessions, including the KIA.
- HBML Supply Chain and Community Relations worked together this month to implement the protocols set out to provide the KIA with a Right of First Refusal to purchase surplus equipment. Initial inventories of surplus materials were generated and provided to the KIA and Kitikmeot Corporation.
- A significant effort was made this month to adapt onsite management and operational plans to a Care and Maintenance scenario. Community Relations focused on the Wildlife Mitigation and Monitoring Program.
- Initial planning work was conducted this month in preparation for a community consultation tour to be held in May. Planning and preparation included initial contact and scheduling with community representatives and identification of venues.

- The Arts and Crafts sales initiative was cancelled due to Care and Maintenance.
- During the Prospectors and Developers Association of Canada Conference held in Toronto, HBML was presented an award by the KIA for Environmental Leadership.
- Assistance was provided this month to Inuit employees who were members of the site wildlife response team to obtain and/or renew their firearms PAL licences to allow them to legally use firearms in the course of their work.
- Work continued this month to assist laid off Hope Bay and contract workers in obtaining alternative employment including regular and repeated contact with other developers to identify suitable employment opportunities and refer employees, and accessing the Hope Bay training database to demonstrate skills and abilities obtained on the job.
- One KIA site inspection was facilitated by HBML Community Relations this month.
- During this month, logistics support provided in Cambridge Bay by Braden Burry Expediting Ltd. was discontinued due to low volumes of passengers and freight.
- HBML Community Relations staff made a presentation to the Kilinik High School senior high class this month on workplace readiness and attitudes.
- At the end of the month, HBML participated and presented at the Kitikmeot Socio-Economic Monitoring Committee meeting held in Cambridge Bay. During this event HBML provided information on project status, details on what Care and Maintenance means, and also reported on the socio-economic indicators required under Condition 28 of the NIRB Project Certificate.

April

- The month began with HBML indicating to Nunavut and NWT training partners that the company could not support the pan territorial mine training initiative that had been developed earlier in 2012. The reason for this decision was directly related to our project status. Related to this, HBML stopped sponsoring the Canadian Aboriginal Minerals Association due to project status.
- HBML assisted in a Search and Rescue operation this month. HBML contracted aircraft and personnel were used over several days to look for Johnny Kaosoni, a missing hunter from Cambridge Bay. Unfortunately, he was subsequently found deceased north of Doris Mine.
- Work also continued this month on selling surplus supplies and equipment to the Kitikmeot Inuit Association and Kitikmeot Corporation. During this month, a number of items were declared exempt from the Right of First Refusal, and communication was initiated with Kitikmeot municipalities, the Government of Nunavut and Kitikmeot Based Business to highlight these sales opportunities.
- HBML sponsored and attended the 2012 Nunavut Mining Symposium this month. A project update and community engagement presentation was made to delegates. A number of sidebar meetings and symposium highlights were noted including discussions with key regulators regarding Care and Maintenance planning and permitting, participating in the Nunavut Mine Training Roundtable, meetings with other Kitikmeot developers to share operating practices, and being the emcee for the Symposium banquet.
- Work was completed on an internal cross cultural training presentation to be used for all HBML management in cooperation with human resource personnel this month.
- Radio and public announcements were made this month in Cambridge Bay, in concert with Kit-Nuna Corporation, related to the operation of a winter road from the community to Doris

Mine. Additionally, a multilingual sign and telephone was setup at Roberts Bay for use by potential visiting vehicles. The focus of these notices was to provide safety information to potential road users.

- Editing work was completed this month on the 2011 Tail Lake Fish Out report, inserting details related to the distribution and use of harvested fish in Cambridge Bay.
- Hope Bay contract spending information was compiled and provided to the Kitikmeot Corporation this month for use during their Board of Directors meeting.

May

- Logistical support was provided this month to the Women in Action overland trek from Bay Chimo to Cambridge Bay in support of breast cancer research. Women participating in the walk included the Mayor of Cambridge Bay and the Commissioner of Nunavut.
- The first in person meeting between NTI Lands and HBML occurred this month, facilitated by Community Relations personnel to discuss the renewal or extension of Inuit Owned Lands mineral concession agreements scheduled to expire in 2014 and 2015. The meeting was general in nature and allowed for the establishment of a framework for further talks and negotiations. Concurrently, another meeting was held in Edmonton between HBML and KIA management aimed at restarting talks on surface land tenure.
- Mid-month, a community consultation tour was conducted throughout the Kitikmeot region including public meetings and radio talk show presentations. The purpose of the tour was to reach out to laid-off HBML employees in the Kitikmeot to provide assistance to them in obtaining alternative employment, and also explain to the public the status of the project. Community concerns expressed ranged from the loss of jobs and training opportunities, to questions related to the future of the project. A public meeting was not held in Taloyoak due to a death in the community. Instead, a radio talk show was conducted. The Kugluktuk public meeting was rescheduled due to weather interruption in flights.
- As the spring melt progressed, HBML consulted with Environment Canada on the use of deterrents for waterfowl landing at the Doris airstrip.

June

- At the beginning of the month, further consultation with Environment Canada occurred over the disposition of a songbird nest on project infrastructure that needed to be moved.
- Work progressed early in the month on the annual Socio-Economic Monitoring Report for the Doris North project with committee participation by government parties.
- Mid-month HBML presented at the KIA Board of Directors meeting held in Kugaaruk. A project update was provided along with details on the Care and Maintenance program. A copy of this presentation was provided to the KIA. Questions from the Board ranged from environmental management matters, how surplus equipment was being sold, and how and when the Hope Bay project could be restarted.
- A KIA site tour was facilitated this month involving the entire KIA Lands Department Hope Bay Capacity Agreement supported team.
- As Care and Maintenance planning progressed in the summer, HBML identified this month the need to continue site monitoring during the period in which HBML sites would be unoccupied in the winter. A series of options were considered, and a decision made to work

with local hunters to have site checks completed on behalf of the company during the period that HBML sites would be unmanned.

- Towards the end of the month, work was done with the NTI Lands Department to further the drafting of new Mineral Exploration Agreements for the Hope Bay project.
- HBML also consulted with the GN DOE on the potential destruction of an Arctic Ground Squirrel burrow at Windy Camp as a result of progressive reclamation activities.
- A quantity of surplus mobile equipment not subject to the KIA Right of First Refusal was offered to HBML direct hired staff for sale this month. HBML Community Relations staff circulated information on this equipment across the region. Additionally, a quantity of surplus computer equipment was distributed to Nunavut Arctic College from Doris Mine.

July

- Early in the month, HBML staff facilitated the distribution of a quantity of surplus winter clothing originating from Nuna Logistics.
- This month, a complaint was received from a number of Inuit employees regarding access to country foods at Hope Bay sites. HBML Community Relations staff researched this complaint and identified options for allowing the provision of country food while maintaining food safety. HBML consulted with other Nunavut remote camp operators, our food services contractor, and the GN Department of Health to develop a Country Foods Standard Operating Procedure by the end of the month, when a Country Foods kitchen was opened at Doris Mine.
- Midmonth, HBML presented the final 2011 Tail Lake Fish Out report to the Ekaluktutiak Hunters and Trappers Organization. Comments and questions centered on the findings related to the life history of the fish, and also the status of Tail Lake under Care and Maintenance.
- In June, a barren ground caribou was found entangled in traffic markers at Doris Mine and eventually became free, dragging a traffic marker with it. In consultation with the GN DOE, HBML attempted first to remove the marker from the caribou without success. Finally, the caribou was destroyed and the valuable parts saved for distribution to Inuit in Cambridge Bay. HBML subsequently discontinued the use of rope strung between markers to delimit site spaces. Later, the KIA was compensated for the loss of this animal. Similarly, Environment Canada was consulted on the discovery this month of a number of young songbirds apparently drowned in rain filled pails at Boston Camp. HBML undertook site inspections to ensure that empty pails were not left to accumulate with water creating a risk for young birds.

August

- During this month, Alex Buchan undertook Leading For Results supervisory training in preparation for being part of a smaller Care and Maintenance team going forward.
- Some work was conducted this month by Community Relations in concert with Human Resources staff on the completion of a HBML Employee Handbook. This document outlines the full range of policies and procedures necessary to orient new staff and guide existing staff in their duties and responsibilities.

- Additional work was also completed this month in reviewing term sheets and negotiation protocol submissions to the KIA on surface land tenure on behalf of HBML. Additionally this month, blanked out versions of NTI subsurface Mineral Exploration Agreements were received by HBML and Community Relations staff undertook a review of these documents as part of the HBML negotiation team.
- By the end of the month, the Annual Doris North Socio-Economic Monitoring Report was completed for submission to the Committee.
- HBML undertook to destroy a quantity of surplus explosives by open blasting. A number of Inuit complained about noise and other impacts related to this activity. HBML Community Relations staff developed a series of internal communications including meeting with staff on site to explain the need for the explosives destruction, the safeguards being used to undertake this work, and the regulatory framework that was being followed.

September

- Work continued this month by HBML Community Relations staff in concert with Environmental Management and Health and Safety staff to develop procedures in order to inspect Hope Bay facilities during the winter months. This month, the Ekaluktutiak Hunters and Trappers Organization was first approached to determine if this group was interested in undertaking this work, as the Bay Chimo or Umingmaktok HTO appeared to be non-functioning.
- HBML presented to the Kitikmeot Mayor's Meeting held in Cambridge Bay this month. HBML provided information on project status, surplus equipment sales opportunities, and information on the number of persons laid off under Care and Maintenance. Comments and Feedback focused on the economic impact of shutting down Hope Bay on Kitikmeot communities, and requesting further information on potential future outcomes for the project.
- HBML presented at the KIA Board of Directors meeting held in Taloyoak this month. A project update was provided in addition to providing details on the status of land tenure negotiations between the Parties, and the status of various permits, licenses and environmental reviews related to the Hope Bay Project.
- Towards the end of the month, HBML facilitated a NIRB annual site visit. A number of NIRB staff participated in a trip to Doris Mine to gather information for a future site tour report on compliance with the Project Certificate.
  HBML coordinated another KIA Site Inspection this month.

October

- During the first part of the month, HBML conducted winter site check training for 5 Ekaluktutiak HTO selected members at Doris Mine and Boston Camp in preparation for site shut down. The training consisted of a visual review of all site infrastructures requiring inspection, training in how to read fuel gauges on tanks, and the use of safety equipment and winter camping quarters.
- Just prior to camp shutdown, over 10,000lbs of surplus food, mainly dry goods were donated to needy families across the Kitikmeot region with assistance from the Department of Health and Social Services. Over 30 surplus flat screen televisions were also donated to Kitikmeot communities.

- HBML Community Relations staff also audited the KIA Annual General Meeting held in Cambridge Bay early in the month to ascertain whether Hope Bay related concerns were expressed.
- At mid-month, a public notice and radio announcement was released in Cambridge Bay to inform the public that the Hope Bay project was vacant, in good order, and would be periodically inspected during the winter.
- This month, the Department of Economic Development and Transportation requested support from HBML for their 2013 Kitikmeot carving-stone assessment work. Some potential exists for soapstone quarrying at Hope Bay, and this will be examined by GN Geologists next year utilizing HBML camp space.
- The NIRB conducted public scoping meetings regarding the Hope Bay Phase II Project Description this month. HBML staff audited the meetings. Details on the Environmental Assessment of the Phase II project can be viewed at: http://ftp.nirb.ca/02-REVIEWS/ACTIVE%20REVIEWS/12MN001-HBML%20PHASE%202%20HOPE%20BAY%20BELT/2-REVIEW/
- Near the end of the month, HBML Community Relations staff participated in the KIA labour market Stakeholders Meeting during which regional scale employment and training opportunities were discussed.
- Additionally this month, HBML Community Relations staff participated in a KIA/HBML land tenure negotiation session held in Yellowknife. During this meeting it was noted that the Hope Bay project could be subject to a sale, and that securing land tenure would be very helpful in renewing investment in the project.

November

- During this month, HBML staff worked with NTI Lands to obtain a final version of a Mineral Exploration Agreement to allow for the renewal of subsurface tenure at Hope Bay. During these discussions, HBML identified the need for KIA to quickly and efficiently approve of such agreements to the proponent.
- As a result of potential delays in renewing subsurface tenure, and how this could potentially affect the sale of the Hope Bay Project, HBML Community Relations staff reached out to Key Stakeholders to provide them with a critical update on the situation.
- Later in the month, HBML Community Relations staff participated in a KIA sponsored Kitikmeot Economic Development Program Delivery meeting held in Cambridge Bay. The purpose of this meeting was to solicit input into how the KIA could deliver Can-Nor programming in the region.
- During this month, more work was conducted to further refine term sheets and protocols for negotiation with the KIA on surface land tenure.
- This month saw the start of a report writing and revision process for Hope Bay by which key Hope Bay environmental reports for 2012 were generated for submission to regulators.
- At the end of the month, HBML participated in and presented at the 2012 Kitikmeot Socio-Economic Monitoring Committee meeting held in Cambridge Bay. The proceedings of this meeting can be viewed at: http://www.nunavutsemc.com/Kitikmeot

December

- During the first part of the month, work was conducted in the review of NTI Lands generated draft Mineral Exploration Agreements.
- HBML attended a KIA Board of Directors Special meeting this month in order to discuss surface land tenure. During this meeting, HBML staff introduced representatives from TMAC, a company identified to acquire and operate the Hope Bay project.
- The first winter site check was completed by HBML Community Relations staff before the end of the month. No problems or incidents were reported.

17. GPS locations of monitoring stations as confirmed with the Inspector Part J, Item 5 [See Schedule B, Item 17]

Please refer to main part of the annual report for the GPS locations of the monitoring stations.

18. A summary of actions taken to address concerns or deficiencies listed in the inspection reports and/or compliance reports filed by an Inspector [See Schedule B, Item 18]

Three inspections were conducted by the Inspector in 2012 for licence 2AM-DOH0713.

The first inspection occurred March 20, 2012. Concerns listed by the inspector in the inspection report are listed below with the corresponding HBML action:

- Part G, Item 6: Metals are to be removed from waste being incinerated, as per the Incinerator Management Plan.
    - HBML strives to remove all metal, glass and plastic from the incinerator stream through source sorting and some sorting at the Waste Management Facility as a means to improve air quality emissions from the incinerator. However, some metal, plastic and glass can be missed and ends up in the incinerator. Although Ketek Manufacturing indicates that metal, glass and plastic can be handled by the HBML incinerator, removal of these items should result in cleaner stack emissions. HBML will continue to improve waste sorting and removal of metal from the incinerator.
- Part G, Item 8: Burn Pan was found operating out of compliance, which has been an on-going issue in past inspections. While it was discussed at the time that this waste would be disposed of by alternative means, HBML has instead proposed alternative management practices of the burn pan in order to resume burning. HBML will submit detailed logs to me for the first three months, and will include the monthly logs with their annual report.
    - HBML responded to the issue by closing the burn pan on the day of the inspection, and it remained closed until appropriate management strategies could be developed and implemented. HBML installed locked gates on each access to the burn pan area, and the Waste Management Facility personnel are the only permitted employees in the area. The Waste Management Facility personnel have single point accountability for loading, burning, and cleaning the burn pan. HBML is using the log forms that were discussed with Ms. Paul and the forms will be included in the monthly SNP

reports as well as be provided directly to Ms. Paul at the end of each month, for 3 months. A conference call is scheduled with Ms. Paul for September 2012 to re-visit the reporting frequency.

In addition, HBML commissioned a wood chipper purchased for shredding clean wood for future use in reclamation activities. Shredding wood for re-use is expected to drastically reduce the frequency of use of the burn pan.

- Part I, Item 5: It was unclear to me whether the waste oil handling area across from the fuelling station at Robert's Bay is a properly lined or bermed area. As there is a large volume of hazardous waste, please clarify whether or not this area is lined, and how the current activities at this site are being conducted in order to minimize the likelihood of a spill or any contamination that may reach a water source.
    - The former waste oil storage area beside the Roberts Bay 5M litre tank fuel storage facility is lined, however, the liner is damaged. At the time of the inspection, HBML was in the process of packaging and moving the waste oil and fuel into lined seacans and into the main containment of the 5M litre tank berm. This activity has now been completed and the damaged liner is no longer used to store containers holding liquids, and the berm will be removed as part of the care and maintenance preparations.

      The large stack of drums that are laying on their sides are empty drums and are not on a liner. These drums have been kept to be reused for various purposes at site, including storage of waste fuels and oils, or cleaned and used for collection and shipping of solid wastes. Excess empty drums will be crushed for offsite disposal.
- Part I, Item 5: Consistent use of drip pans or absorbent pads under parked vehicles and equipment is requested.
    - HBML implemented use of these drip pans under parked mobile equipment in early 2012. Initially, the intention was to place these under all pieces of equipment that were not in regular use; however, to date, nearly all of the parked equipment has drip trays. HBML will continue to identify missing drip trays and place them under equipment. HBML is planning a clean-up blitz in early June 2012 to install drip trays under all parked equipment.
- Part I, Item 5: Surveillance of contractors is required to ensure they are handling hazardous materials appropriately to minimize risks, as well consistently using drip pads under parked vehicles and equipment.
    - HBML will continue to conduct inspections of contractor areas and will work with contractors to resolve any identified issues. The McCaws shop, identified as having improperly stored chemicals, was addressed immediately after the inspection. Most contractors are leaving site due to the project going into care and maintenance. As such, the contractors have been packing their equipment and supplies for shipment offsite in September 2012. As contractors have completed the packing of their assigned areas, HBML has been conducting inspections to ensure that the waste and chemicals are removed to proper storage areas.
- Part I, Item 6: Secondary containment structures to be inspected regularly for integrity and maintained free of snow or water so as not to compromise their capacity. Damaged berms to be replaced immediately.

- HBML will continue to inspect containment areas, and will strive to maintain containments free from snow and water. HBML will complete an inspection of temporary berms in use around site, and will remove or repair those that are damaged. The snowmobile fuelling station berm located at the helipad has been removed. The torn berm identified beside the helipad office will be replaced in June 2012.

  As part of the care and maintenance preparations, fuel storage tanks that are no longer required will be drained and the empty tanks will be moved to the reagent pad and the berms will then be removed wherever possible. HBML will include inspections of berm integrity as part of the routine inspection program.

- Part I, Item 6: Drums of fuel at the airport should have secondary containment.
  - HBML verified that the drums of fuel at the airport are sitting on appropriate spill trays, however, the spill trays were covered in snow at the time of the inspection. HBML will continue to require contractors to use, and maintain, adequate spill containment.

The second inspection occurred July 9-10, 2012. Concerns listed by the inspector in the inspection report are listed below with the corresponding HBML action:

- Fuel stock (current) and fuel management plan to be submitted to Inspector ASAP.
  - A Hydrocarbon Management Plan was developed at the end of July 2012 and distributed to the staff working at Doris. A fuel stock was provided to the Inspector in December.
- Submit as-built drawings of frozen core dam upon completion.
  - The as-built drawings, and accompanying report, of the frozen core dam were submitted to the Inspector and the NWB in November 2012.
- Hazardous waste manifests for 2011 to be submitted within 30 days to the Inspector. Future manifests to be included in Annual Reports.
  - Waste manifests were submitted to the Inspector in November 2012. The 2012 manifests are included with this annual report.

The third inspection occurred October 2-3, 2012. Concerns listed by the inspector in the inspection report are listed below with the corresponding HBML action:

- Water Pumphouse – Intake: Intake line remained in Doris Lake at the time of the inspection but was scheduled to be removed in the coming days.
  - The water intake line was left in place. The heat trace will be turned on to thaw the line upon reopening the camp in April/May 2013.
- Roberts Bay 5 Million Litre Tank area: Drums of helicopter fuel were found strapped to pallets. These are to be stored in Sea-cans.
  - These drums were moved into seacans during camp shut down procedures.
- Roberts Bay 5 Million Litre Tank area: Monitoring is to be completed by the Cambridge Bay HTO. A schedule of inspection has not been provided however an outline of inspection locations was submitted in draft form during the inspection.
  - HBML submitted the Winter Inspection Plan to AANDC on December 6, 2012, and received approval by Ms. Paul on December 10, 2012.

- Waste Management Area: Transportation manifests from the contractor are not sufficient to meet the requirements of the Water Licence.
    - Part G, Item 12 of the Water Licence requires that "The Licensee shall back haul and dispose of all hazardous wastes generated through the course of the operation at an approved waste disposal site." Item 13 states that, "The Licensee shall maintain records of all waste backhauled and confirmation of proper disposal. These records shall be made available to an Inspector upon request."

      With respect to Part G, Item 12, KBL Environmental is the registered waste received that HBML uses for handling waste shipped from Hope Bay. KBL is a registered waste receiver (registered by the NT Departments of Environment, receiver number NTR000123). KBL bulks HBML's waste with that of other mines in the North prior to shipping full loads of waste to registered disposal facilities (this activity makes KBL the waste generator for bulked shipments transferred from KBL to other facilities as per the Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Materials Regulations). KBL then issues a government approved Certificate of Disposal to HBML confirming that all waste has been disposed of at authorized facilities following all federal, territorial and provincial legislation.

      With respect to Part G, Item 13, HBML is completing the Interprovincial Movement of Hazardous Waste and Hazardous Recyclable Materials Movement Document (Movement Document) in compliance with the instructions of the Regulations and as per discussions with Heather Birchard of the Waste Reduction and Management Division of Environment Canada. HBML is also completing the International Air Transportation Association dangerous goods declarations and the International Marine Dangerous Goods declarations as per the respective regulations.
- Waste Management Area: Records from the transportation of hazardous wastes off site in 2011 are still required to complete the 2012 annual report. This issue remains outstanding after the previous request but the inspector
    - Part G, Item 13 states that, "The Licensee shall maintain records of all waste backhauled and confirmation of proper disposal. These records shall be made available to an Inspector upon request."

      HBML showed AANDC the records in the waste management office during the July 2012 inspection, thereby meeting this licence requirement.

      There is no requirement in the Water Licence to submit the waste transportation manifests and disposal certificates with the annual reports, therefore HBML has not done so, nor has HBML been requested to do so prior to now. HBML has scanned and sent all available 2011 manifests and documentation to AANDC on November 7, 2012 (see attached emails).
- Contractor Shops at Roberts Bay: The Kingland Ford (shop) is not currently lines and will require contaminated (soils) to be removed next year.

    - As part of the care and maintenance and progressive reclamation activities, HBML will continue to work on removing contaminated gravel around the property. HBML cannot guarantee that all contaminated gravel will be removed in 2013, but will commit to ongoing clean-up across the site.
- Contractor Shops at Roberts Bay: 5 gallon jerry cans of fuel and glycol were noted without any secondary containment.
    - The jerry cans and glycol were removed from the area immediately after the inspection. These were placed inside the seacans in the Roberts Bay 5 million litre tank berm.
- Burn Pan/Landfarm: Contaminated soils from both Windy and Boston are to be moved to the facility as soon as possible to facilitate the closure and remediation of these sites.
    - Closure plans for Windy and Boston are currently pending approval from the NWB. Once approved, HBML can proceed with the approved plan. The EBA Phase 3 reports have been submitted with the Windy and Patch Plan and the Boston Phase 3 will be completed in winter 2012.
- Burn Pan/Landfarm: Signage present (some were found lying on side).
    - The signage was stood up and re-secured immediately after the inspection.
- Burn Pan/Landfarm: Maxi bags of contaminated soils sitting adjacent to cell area, not within the cells.
    - The drums of contaminated soil are staged for replacement in the landfarm soil cell after the batch that is currently in the cell is remediated. Maxi bags were not located outside of the landfarm facility, they were located in the center cell of the landfarm (in the bags). The soil in the cell is from the Windy bulk fuel containment berm, which had elevated F2 fractions; HBML anticipated that this material will be remediated in 2013, at which time the soils will be removed and the staged material will be placed in a thin lift.
- Sewage Treatment Plant: During the period of inspection it was unclear how the licensee would shut down the unit given the need for 10 days to clear the system. A report on how this was done and what happened to the sludge from the treatment system is requested by the Inspector.
    - HBML submitted a letter to AANDC on November 19, 2012 (see attached) explaining the procedure used to shut down the sewage treatment.
- Doris Camp Water Treatment Plant: Total usage records are to be provided in the Annual Report.
    - As per the requirements of the Water Licences, water usage is reported in the monthly SNP reports submitted to the Nunavut Water Board (NWB), and are also included in the annual reports. These reports are available to AANDC through the NWB public registry.
- Reagent Pad Laydown and Shops: Drip trays were not present under the equipment at the time of the Inspection.
    - During the inspection, closure preparations were still ongoing. Drip trays were placed under the equipment immediately after the inspection.
- Reagent Pad Laydown and Shops: Herman-Nelson heater sitting adjacent to building. It is unclear what is being done with these heaters.

    - The Herman-Nelson heaters are stored in the following locations, which are areas that will require heating upon arrival of crews to reopen the camp in April/May 2013:
        - 2 in the Construction power house
        - 1 in the wash bay (explosive shop)
        - 1 in Orbit's shop at Roberts Bay
        - 1 in the Kingland shop
        - 1 in the seacan below the air strip tower
        - 1 in the Wes Arc shop.
- Reagent Pad Laydown and Shops: Buildings to be secured for winter.
    - During the inspection, closure preparations were still ongoing. The buildings were secured as part of the camp shut down activities.
- Doris Camp Bulk Fuel Storage: Not all tanks were found to be locked out at the time of the Inspection.
    - During the inspection, closure preparations were still ongoing. The tanks were locked out prior to the crew departing site on October 13, 2012.
- Doris Camp Bulk Fuel Storage: It was unclear in discussions with site personnel during the inspection how snow accumulation over the winter months would decrease the overall containment capacity within the bermed area.
    - HBML crews will be returning to site prior to spring melt to remove snow accumulation from berms, containment areas, and the Doris Camp pads. The containment berm has a capacity of 2,976,000 litres, which is considerably larger than the total volume of fuel contained in the berm (1,640,738.4 litres).
- Doris Camp Bulk Fuel Storage: Monitoring is to be completed by the Cambridge Bay HTO. A schedule of inspection has not been provided however an outline of inspection locations was submitted in draft form during the inspection.
    - HBML submitted the Winter Inspection Plan to AANDC on December 6, 2012, and received approval by Ms. Paul on December 10, 2012.
- Main Powerhouse and Fuel Tanks: Three double walled exterior tanks (two with shelters built around) were noted in place. It is unclear if any fuel remained within the units however they were piped in.
    - The day tank in one of the shelters, which had been in use, has a small volume of fuel remaining. The other two tanks, which had not been in use, are empty. The volume of fuel in the one tank is less than the containment capacity.
- Main Powerhouse and Fuel Tanks: No spill kits were present at this location during the period of inspection.
    - Spill kits are present in the Tank Farm located next to the day tanks.
- Main Camp Accommodations Buildings: Accommodations units still were in use however two wings had been shut down prior to inspection.
    - The remaining wings were shut down and boarded up as part of the shut-down activities prior to the crew departing site.
- Main Camp Accommodations Buildings: During the inspection the licensee requested to discharge water from the fire suppression system to a location on the south waste corner of the pad. This site was inspected and subject to the water meeting discharge limits approval for the discharge was subsequently granted by e-mail by the Inspector.

    - The water was discharged upon receipt of compliant water quality results. The details were provided in the October SNP monthly report submitted to the NWB.
- Main Camp Accommodations Buildings: The licensee was required to take such measure as were required to prevent erosion to the pad and sedimentation down-gradient from the release location.
    - The discharge location was selected to prevent erosion. No erosion occurred as a result of draining the fire water tank.
- Warehouse: It was unclear if any further hazardous materials remained within the warehouse during the period of inspection.
    - All bulk hazardous materials remaining on-site are identified in the Spill Contingency Plan Revision 5 which was provided to AANDC on October 10, 2012. Any materials that could not withstand freezing were shipped offsite to the Con Mine.
- Warehouse: A spill kit was not noted during the inspection.
    - The warehouse spill kit is usually located outside the front door, however, it had been moved inside a seacan for winter storage.
- Portal: Plywood or another solid barrier has not been installed at the entrance to the Portal. Gravel and wire mesh fencing along with signage have blocked the entrance so to prevent entry to the decline.
    - The current portal closure method has been approved by the Mines Inspector under the Mines Act for the care and maintenance period.
- Portal, Waste Rock and Ore: Run off diverted and captured in the pollution control ponds is to be sampled as outlined in the current licence upon freshet.
    - HBML will manage water as per the water licence requirements and the approved Interim Water Management Plan.
- Portal, Waste Rock and Ore: Monitoring for the stability of the waste rock pile after the period of abandonment is required to ensure continued stability.
    - As per the water licence requirements, HBML will continue to conduct annual geotechnical inspections as per the water licence requirements.
- Portal, Waste Rock and Ore: Any additional sampling following freshet, if required, will be ordered by the inspector.
    - HBML is operating in compliance with the water licence commitments and is monitoring runoff from the waste rock and ore pad as per the licence requirements. All information is available in the monthly SNP reports, and will be included in the annual reports. HBML is unclear where this threat for an order is coming from.
- Tail Lake Roadway/Tail Lake Dam: It was noted by the inspector that water levels remain higher than originally anticipated by the proponent.
    - HBML anticipated that dewatering Tail Lake to the original water level (28.3 m elevation) would require 2 to 4 years, depending on the annual precipitation received. In 2012, HBML lowered the water level by approximately 0.5 m to the current elevation of 29.0 m, which was greater progress than originally estimated.
- Tail Lake Roadway/Tail Lake Dam: The Inspector has requested an estimate of the volume of water discharged to Doris Creek TL-3 (falls).
    - As per the requirements of the water licence, HBML has reported the discharge volumes and water quality monitoring results in the monthly SNP reports

submitted to the NWB. The final discharge volume is in the September SNP report and will also be provided in the annual report.

Information requested by the Inspector: Movement Documents and Certificates of Disposal of Waste Shipped from Hope Bay