APPENDIX A

BIM RESPONSES TO COMMENTS FROM REGULATORY/GOVERNMENT AGENCIES

Appendix A.1

Response to Comments - December 9, 2007

2007-December-9

Phyllis Beaulieu
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0A 1J0

Re: October 18th, 2007 Comments on 2BB-MRY0710/Wastewater Management Plan/Mary River Project/Baffinland Iron Mine Corporation

We thank you for your comments in your response dated October 18th with regards to Baffinland Iron Mine Corporations (BIMC) Wastewater Management Plan. Responses to comments are found below in numerical order corresponding with the INAC letter.

1. **The proponent should identify if the Mary River and Milne Inlet Waste Water Treatment Facilities will be operated by people with appropriate training and experience in wastewater management. Project personnel designated to manage these facilities should be referenced within the Waste Water Management Plan and copies of their respective resumes should be included and regularly updated within the Plan's appendices.**

   The manufacturers of the Waste Water Treatment Facilities were on-site to provide direction as part of the initial start-up and commissioning process. As part of this work, the manufacturer provided the level of training to Baffinland site supervisors that it recommends to clients of their equipment.

   To enhance management capabilities and enable continuity of operation, Baffinland has currently retained dedicated operators for Waste Water Treatment Facilities. These operators have undergone intensive on-site training by the manufacturer, Seprotech. The equipment manufacturer will provide on-going training and expert advice, as required. In addition to the use of contract operators and as a contingency, Baffinland supervisors have received additional training.

2. **The proponent to explain how the design of the Mary River Camp's effluent discharge pipeline will prevent the freezing of treated wastewater en route to Sheardown Lake. Section 3.2 of the submitted Plan states the freeze protection measures include having a pipeline constructed of high density polyethylene, polyurethane insulation, and a heat traced electric thermocable. The proponent should explain why it intends to have the portion of pipe within the lake's ice depth to be insulated but not heat traced and why the portion of the pipe below 4 meters depth of the typical water/ice surface will be un-insulated. Having insulation and heat tracing throughout the entire discharge pipeline may be a prudent freeze protection strategy.**

   An upgraded design of the sewage outflow pipe into Sheardown Lake includes the heat tracing and insulation to 300mm below the nominal ice level. This will prevent the freezing of the treated wastewater discharged into Sheardown Lake. The attached Drawing Number E104-R3 illustrates the new design of the sewage outflow line at Mary River and will ensure that a freeze protection strategy is in place.

3. **Erosion protection measures are not clearly noted for all treated wastewater discharge points. Treated wastewater from the Milne Inlet site will be discharged to a local drainage ditch which drains into Milne Inlet. The discharge outfall will be armoured with rip-rap as an erosion protection measure, but according to Section 3.2 of the submitted Plan, the winter discharge point will not be armoured with rip-rap. The proponent should have erosion protection measure in place at the winter discharge point.**

   To prevent erosion occurring at the winter discharge point at Milne Inlet, rip rap will be placed within the drainage ditch during winter months prior to discharge. During spring thaw, this section will be inspected to ensure erosion does not occur. Should erosion occur, although not forseen, protection measures will be implemented as per the Site Water Management Plan, such as the use of silt fences. While discharging into the drainage ditch, inspections will be conducted to ensure erosion, should it occur, is mitigated.

4. **BIMC intends to convert its polishing waste stabilization ponds at the Mary River and Milne Inlet sites into sludge management areas after completion of its bulk sampling program. The consideration of alternative sludge management strategies is recommended. INAC understands that these ponds are used as contingency measures for wastewater storage and treatment should the RBC treatment systems become in-operational. In addition, if these ponds, were to be used to dry sludge, any modifications required to allow continual decant of pooled water which will accumulate from precipitation runoff and the RBC treatment facilities when they are in-operational should be identified.**

   BIMC will take into consideration alternative sludge management systems once volumes of sludge have been calculated at the end of the bulk sampling period. Water that may pool from precipitation in the polishing waste stabilization pond (PWSP) will be returned, if required to the RBC via a vacuum truck to ensure effluent quality prior to discharge into Sheardown Lake or Milne Inlet.

5. **The Wastewater Management should include a detailed description of the drainage ditch situated at the Milne Inlet site. Section 9.3 refers to this ditch as being large, wide and several hundred meters in length. Approximate dimensions of the ditch, observed vegetation, and recorded water levels would allow a better understanding of the receiving environment.**

   A detailed description of the ditch is included as a Figure 2 attached to this letter. The dimensions of the ditch are as follows: average width of the drainage ditch is 15 meters, average depth (not water levels but depth of land) is 1.9 meters and approximate length is 275 meters.

6. **The Wastewater Management Plan should describe whether surface erosion caused by releases from the polishing waste stabilization ponds at the Mary River and Milne Inlet sites will be minimized. This is term of the 2BB-MRY0710 licence set in Part D, Item 14.**

Releases from the Milne Inlet polishing waste stabilization pond at Milne Inlet will occur via vacuum truck into the rip rapped drainage ditch. Erosion is not expected to occur due to rip rap protecting underlying ground while slowing the velocity of the effluent discharged. Should erosion occur, mitigation measures included in the Site Water Management Plan will be implemented such as the use of silt fencing. Effluent from the Mary River polishing waste stabilization pond will be re-directed into the RBC unit, if required. As submitted, the piping detail for the connection of the pond to the Sheardown pipeline from the RBC is shown. The pipeline from the Mary River RBC unit will be constructed to drain directly into Sheardown Lake negating any possible erosion concerns.

7. **The Wastewater Management Plan should include as-built design drawings of the polishing waste stabilization ponds and the Mary River Camp effluent pipeline. Topographic maps of the drainage where effluent will be discharged from the Milne Inlet Waste Water Treatment Facility and the Mary River Camp pipeline should be included as well. All maps and design drawings should be set an appropriate scale.**

   As-builts of the waste water management plants as well as ponds will be submitted within the required dates in BIMC's water license. Upon the completion of the pipeline construction at both Milne Inlet and Mary River, as builts will be submitted, as requested above including topographic data.

8. **INAC recommends that the Proponent agree to set timeline for the installation and commissioning of the Tanks-a-lot and RBC units to be used at Mary River and Milne Inlet.**

   The construction of the Mary River tanks-a-lot system was completed on October 5th. Effluent from the Tank-a-lot system will continue to be discharged into the polishing waste stabilization pond and re-treated in the RBC unit should it be required prior to discharge. The installation and commissioning of the RBC unit at Mary River is currently planned for the end of January 2008 when the 200 man all season weather haven camp is in construction.

   The construction of the Milne Inlet RBC unit was completed on October 29th. Commissioning is continuing and discharge will not occur until effluent parameters set out in the BIMC water license are met. Until this point, effluent will continue to be discharged into the polishing waste stabilization pond.

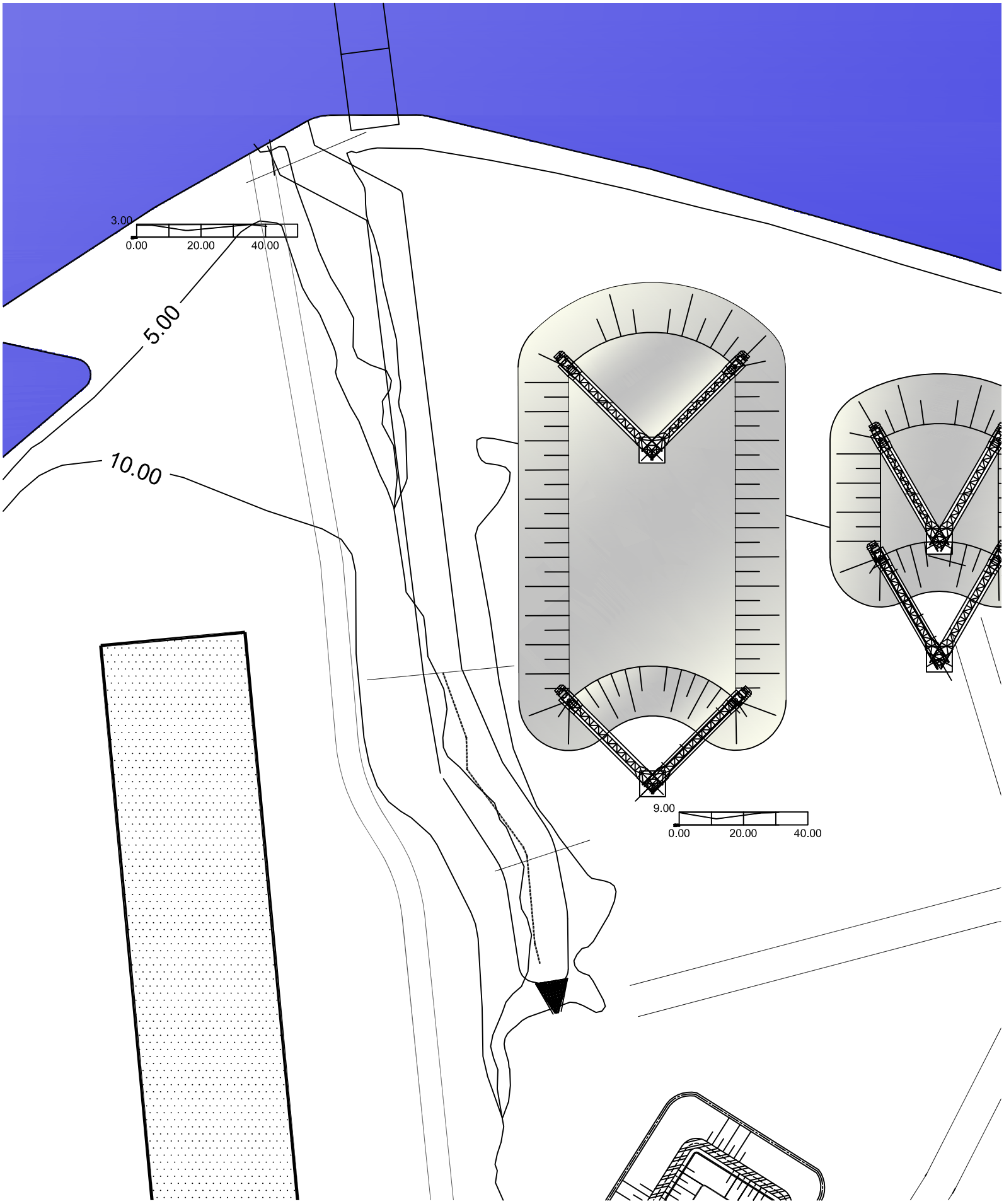
Yours sincerely,

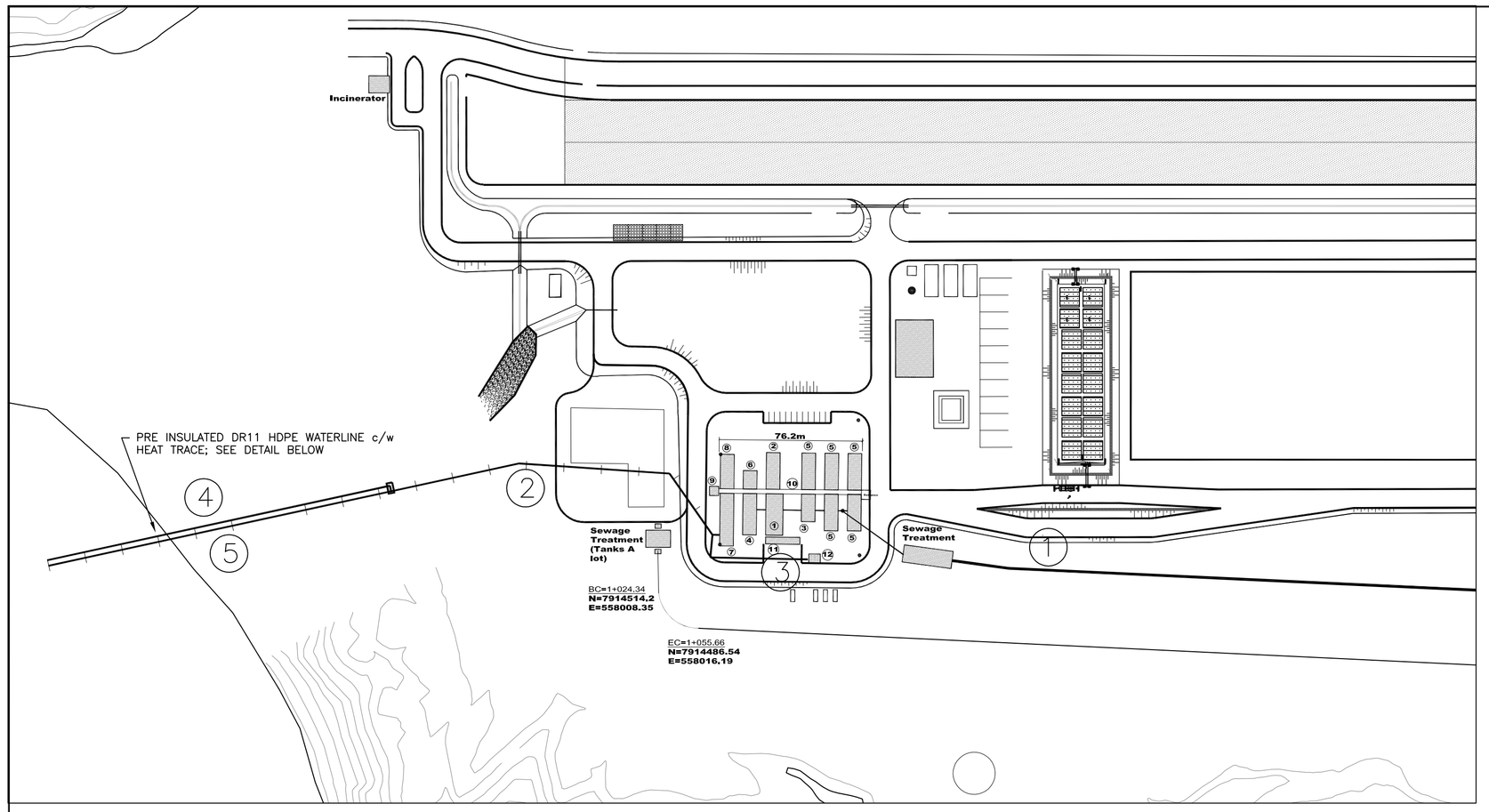
Cheryl Wray
Environmental Superintendent
Baffinland Iron Ore Mines

Dave McCann
Assistant Project Manager
Baffinland Iron Ore Mines

cc. Derek Chubb, VP, Sustainable Development

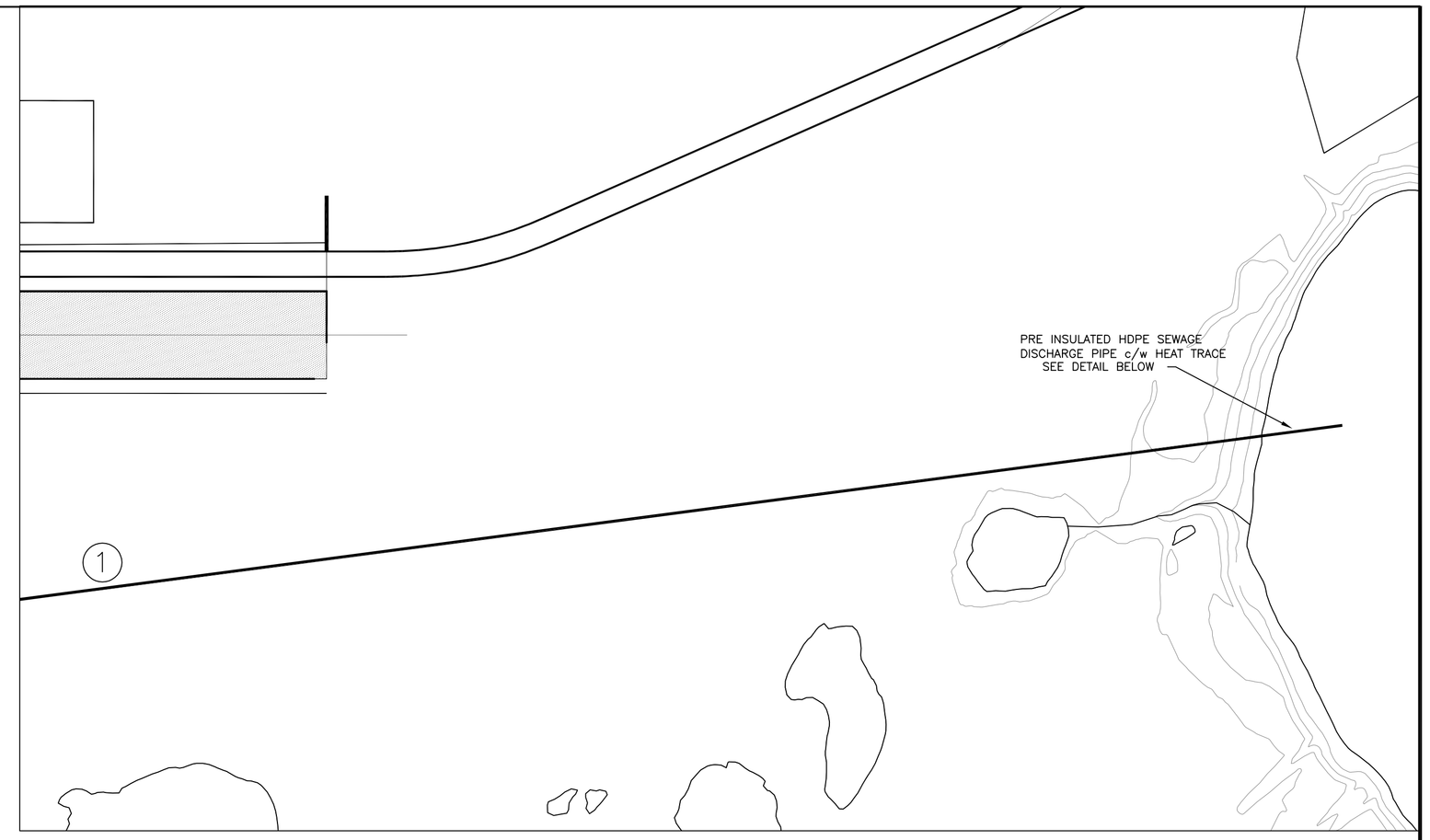
Attachments


3.00
0.00
20.00
40.00
5.00
10.00
9.00
0.00
20.00
40.00



HEAT TRACE PLAN

SCALE 1:2000



HEAT TRACE PLAN

SCALE 1:2000

1 **Sewage Forcemain**

Scope

Freeze protection of approximately 1850m (6070ft) x 3" DR26 HDPE – laid directly on grade (above ground) @ -45°C ambient temperature.

Pre-insulated and heat traced with series type heat cable. 600V 3-phase power provided at one end only.

Pre-Insulated Pipe

Nominal 2" thick, factory applied U.I.P.® urethane insulation c/w 8.00" OD x ….175" wall black seamless PE casing, one (1) integral standard channel for the heating cable, and one (1) Slipjoint ® joint insulation kit per 50ft length of 3" DR26 HDPE pipe.

Nominal 2" thick polymer coated insulation kits supplied with accessories to be field installed by others on 3" DR26 HDPE elbows and fittings.

Heat Tracing

Assuming:

2" thick factory applied urethane insulation

Minimum ambient: -45°C

Maintain temperature: 5°C

Voltage available: 600 volts 3 phases

Feed point location: at one end of the pipe

Series connections: at 600 feet (183 m) intervals

*2000m x Flexible multi-conductor, **series type heating cable**, 600 volts rated fluoropolymer insulation. One run of heating cable is required along the pipe. Circuit length would be 2,000 meters. For ease of installation, the circuit could be broken down into segments of approximately 183 meters being series connected in between each of them. The total connected load is 29kW @ 600 volts 3 phase.*

*1 pc x Electronic thermostat model # **UTC-6340-03** with ground fault detection circuitry. 600 Vac, 40 A, 3-pole circuit breaker and contactor in a Nema 4 painted steel enclosure. Factory set @; control: 5 oC, high limit: 65 oC for protection of plastic piping.*

2pcs x cold lead connection kit

1pc x End of line termination kit

10pcs x In-Line splice kit

1pc x 100 ohms RTD temperature sensor # URTD-30-G with 30 meters of grey PVC lead wire

1pc x 100 ohms RTD temperature sensor # URTD-30-R with 30 meters of red PVC lead wire

2 **Water Line #1 – camp domestic water reservoir to header building at lake**

Scope

Freeze protection of approximately 200m (656ft) x 3" DR11 HDPE – laid directly on grade (above ground) @ -45°C ambient temperature.

Pre-insulated and heat traced with Thermocable® heat cable. 208V power provided at one end only.

Pre-Insulated Pipe

Nominal 2" thick, factory applied U.I.P.® urethane insulation c/w 8.00" OD x .175" wall black seamless PE casing, one (1) integral standard channel for the heating cable, and one (1) Slipjoint ® joint insulation kit per 50ft length of 3" DR11 HDPE pipe.

Nominal 2" thick polymer coated insulation kits supplied with accessories to be field installed by others on 3" DR26 HDPE elbows and fittings.

Heat Tracing

One run x ***THERMOCABLE** C13-240-COJ heating cable with an output of 13 watts/meter @ 240 volts and a maximum circuit length of 245 meters.*

*1pc x Electronic thermostat model # **UTC-2030-01** with ground fault detection circuitry, 120-240 Vac, 30 A, 2 poles in a Nema 4 painted steel enclosure. Factory set @; control: 3°C, high limit: 65°C for protection of plastic piping.*

*1pc x 100 ohms RTD temperature sensor # **URTD-30-G** with 6 meters of grey PVC lead wire*

*1pc x 100 ohms RTD temperature sensor # **URTD-30-R** with 6 meters of red PVC lead wire*

*1pc x Urecon power feed kit model **PFK-4***

3 **Water Line #2– camp domestic water reservoir to fire water reservoir**

Scope

Freeze protection of approximately 70m (230ft) x 3" DR11 HDPE – laid directly on grade (above ground) @ -45°C ambient temperature.

Pre-insulated and heat traced with Thermocable® heat cable. 208V power provided at one end only.

Pre-Insulated Pipe

Nominal 2" thick, factory applied U.I.P.® urethane insulation c/w 8.00" OD x .175" wall black seamless PE casing, one (1) integral standard channel for the heating cable, and one (1) Slipjoint ® joint insulation kit per 50ft length of 3" DR11 HDPE pipe.

Nominal 2" thick polymer coated insulation kits supplied with accessories to be field installed by others on 3" DR26 HDPE elbows and fittings.

Heat Tracing

One run x ***THERMOCABLE** C13-240-COJ heating cable with an output of 13 watts/meter @ 240 volts and a maximum circuit length of 245 meters.*

*1pc x Electronic thermostat model # **UTC-2030-01** with ground fault detection circuitry, 120-240 Vac, 30 A, 2 poles in a Nema 4 painted steel enclosure. Factory set @; control: 3°C, high limit: 65°C for protection of plastic piping.*

*1pc x 100 ohms RTD temperature sensor # **URTD-06-G** with 6 meters of grey PVC lead wire*

*1pc x 100 ohms RTD temperature sensor # **URTD-06-R** with 6 meters of red PVC lead wire*

*1pc x Urecon power feed kit model **PFK-4***

4 **Water Line #3 – Intake from lake to header building**

Scope

Freeze protection of approximately 190m (623ft) x 3" DR11 HDPE water intake – 15m will be submerged and 15m will be laid directly on grade (above ground) @ -45°C ambient temperature.

Pre-insulated and heat traced with Thermocable® heat cable. 208V power provided at one end only.

Pre-Insulated Pipe

SUBMERGED SECTION: 50ft length x nominal 2" thick U.I.P.® urethane insulation c/w 8.00" OD x .175" wall black seamless PE casing, one (1) integral channel made from ¾" copper for heat cable - capped at wet/submerged end (to guard against water ingress), one (1) factory applied tapered insulation kit complete with (1) WLOX HiRatio heat shrink sleeve to seal the submerged end below ice cap; and one (1) Canusa Superseal joint insulation kit per 50ft length on 3" DR11 HDPE pipe.

ABOVE GROUND SECTION: 50ft length x nominal 2" thick U.I.P.® urethane insulation c/w 8.00" OD x .175" wall black seamless PE casing, one (1) integral channel made from ¾" copper for heat cable, one (1) integral standard channel for the sensors (on "dry" pipe length), compression couplings for copper conduit and one (1) Slipjoint ® joint insulation kit per 50ft length on 3" DR11 HDPE pipe.

Note: to guard against water ingress, the copper heat trace channels are coupled together over the joints and capped on the far "wet" end. The cables and sensors are fed through the conduits from "dry" end closest to controller at the header building.

Heat Tracing

One run x ***THERMOCABLE** C13-240-COJ heating cable with an output of 13 watts/meter @ 240 volts and a maximum circuit length of 245 meters.*

*1pc x Electronic thermostat model # **UTC-2030-01** with ground fault detection circuitry, 120-240 Vac, 30 A, 2 poles in a Nema 4 painted steel enclosure. Factory set @; control: 3°C, high limit: 65°C for protection of plastic piping.*

*1pc x 100 ohms RTD temperature sensor # **URTD-06-G** with 6 meters of grey PVC lead wire*

*1pc x 100 ohms RTD temperature sensor # **URTD-06-R** with 6 meters of red PVC lead wire*

*1pc x Urecon power feed kit model **PFK-4***

5 **Water Line #4 – Intake from lake to header building** *<same as #3>*

Scope

Freeze protection of approximately 185m (607ft) x 3" DR11 HDPE water intake – 15m will be submerged and 15m will be laid directly on grade (above ground) @ -45°C ambient temperature.

Pre-insulated and heat traced with Thermocable® heat cable. 208V power provided at one end only.

Pre-Insulated Pipe

SUBMERGED SECTION: 50ft length x nominal 2" thick U.I.P.® urethane insulation c/w 8.00" OD x .175" wall black seamless PE casing, one (1) integral channel made from ¾" copper for heat cable - capped at wet/submerged end (to guard against water ingress), one (1) factory applied tapered insulation kit complete with (1) WLOX HiRatio heat shrink sleeve to seal the submerged end below ice cap; and one (1) Canusa Superseal joint insulation kit per 50ft length on 3" DR11 HDPE pipe.

ABOVE GROUND SECTION: 50ft length x nominal 2" thick U.I.P.® urethane insulation c/w 8.00" OD x .175" wall black seamless PE casing, one (1) integral channel made from ¾" copper for heat cable, one (1) integral standard channel for the sensors (on "dry" pipe length), compression couplings for copper conduit and one (1) Slipjoint ® joint insulation kit per 50ft length on 3" DR11 HDPE pipe.

Note: to guard against water ingress, the copper heat trace channels are coupled together over the joints and capped on the far "wet" end. The cables and sensors are fed through the conduits from "dry" end closest to controller at the header building.

Heat Tracing

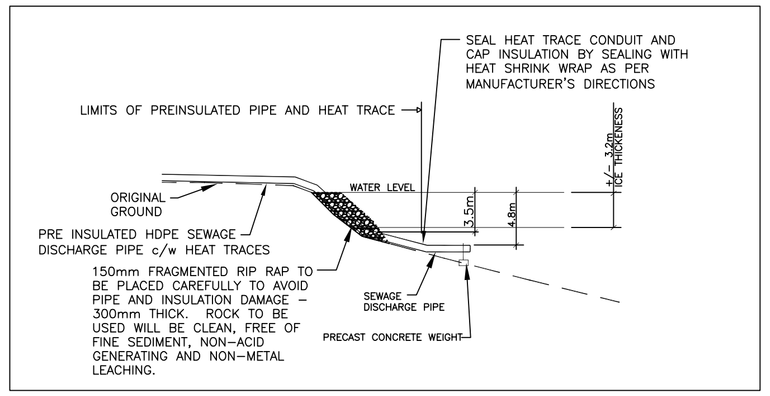
One run x ***THERMOCABLE** C13-240-COJ heating cable with an output of 13 watts/meter @ 240 volts and a maximum circuit length of 245 meters.*

*1pc x Electronic thermostat model # **UTC-2030-01** with ground fault detection circuitry, 120-240 Vac, 30 A, 2 poles in a Nema 4 painted steel enclosure. Factory set @; control: 3°C, high limit: 65°C for protection of plastic piping.*

*1pc x 100 ohms RTD temperature sensor # **URTD-06-G** with 6 meters of grey PVC lead wire*

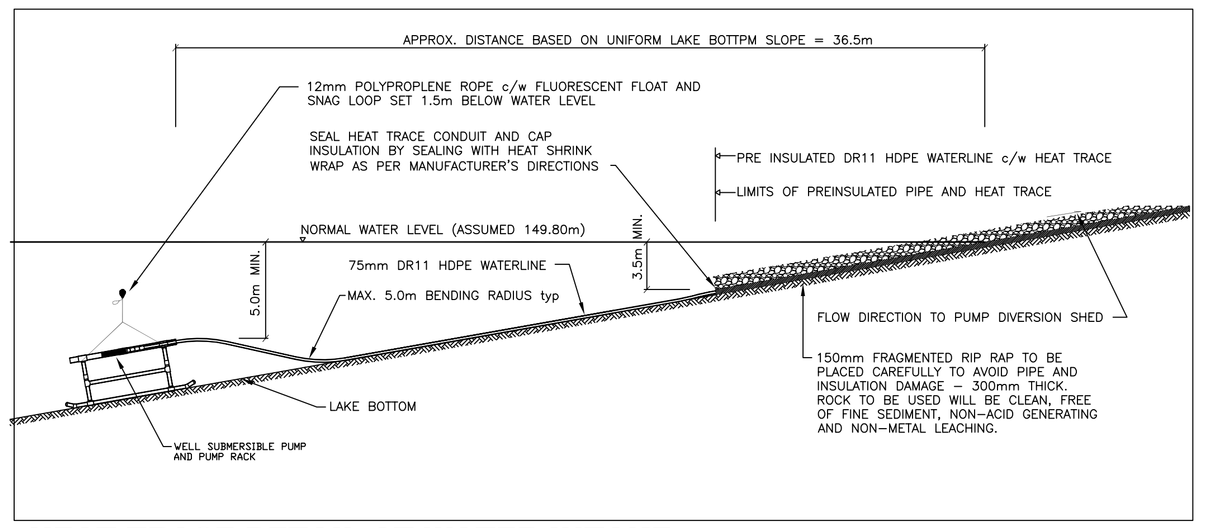
*1pc x 100 ohms RTD temperature sensor # **URTD-06-R** with 6 meters of red PVC lead wire*

*1pc x Urecon power feed kit model **PFK-4***



⚠ HEAT TRACE DETAIL AT SEWAGE DISCHARGE

NO SCALE



⚠ HEAT TRACE DETAIL AT WATER INTAKE

NO SCALE

Description	Date	No.
REVISED HEAT TRACE DETAILS	NOV 09/07	3
REVISED HEAT TRACE DETAILS	NOV 07/07	2
ISSUED FOR CONSTRUCTION	JULY 13/07	1
ISSUED FOR TENDERS	MAY 25/07	0

Revisions and Issues

NORTH

Date Printed

B.H. MARTIN CONSULTANTS LTD.
Consulting Engineers and Architect
Timmins Ontario
www.bhmartin.com

ARCHITECT | STRUCTURAL/CIVIL

MECHANICAL | ELECTRICAL

Project

BAFFINLAND MINE
MARY RIVER SITE

BAFFIN ISLAND NUNAVUT

Drawing

HEAT TRACE PLAN AND DETAILS

Date: FEBRUARY 2007	CADD File Number: ELEC\E104-R3.DWG
Scale: AS NOTED	Job Number: **06-090**
Drawn: MEB/R.S.P.	
Checked: MEB/NRL	Drawing Number: **E104-R3**
Approved: NRL	

Appendix A.2

Response to Comments Received in 2008

Table A.2: Regulator/Government Comments and BIM's Response

REGULATOR COMMENT	BIM RESPONSE / ACTION
Comments/Questions related to BIM's April 2008 Request for Modification to Waste Disposal Facilities Environmental Canada	
1 Releases of inadequately treated sewage should be avoided. Meeting the requirements of the Fisheries Act is mandatory, irrespective of any other regulatory orpermitting system. Section 36(3) of the Fisheries Act specifies that unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water. The legal definition of deleterious substance provided in subsection 34(1) of the Fisheries Act, in conjunction with court rulings, provides a very broad interpretation of deleterious and includes any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat.	BIM is committed to minimizing potential impacts to the receiving environment as described in the updated Wastewater Management Plan There will be no discharge of effluent to the receiving environments until it can be demonstrated that effluent streams are acutely non toxic and that all Water Licence parameters meet effluent criteria. BIM have made a commitment to apply target levels for phosphorus in treated effluent to Sheardown Lake that will limit the potential for eutrophication.
2. According to the available information the proposed ponds will provide sufficient capacity to avoid releases of inadequately treated sewage during the ramp-up of the sewage treatment facility and during any future treatment upsets. Though it is logical for a reader to assume that once the treatment facilities are operational BIMC intends to pump out the contingency ponds and then to release the treated waste, the text does not explicitly state so. Environment Canada recommends that, as much as is practical, the ponds be maintained in an empty state so that the holding capacity is available in the event of need.	Section 6 of the updated Wastewater Management Plan provides a technical strategy and work plan that is focussed on discharging stored effluent from the PWSPs during 2009.
3. The diagrams provided make it difficult to assess the location of the proposed ponds relative to surrounding water bodies. EC recommends that the ponds be located and constructed in such a manner as to prevent the untreated contents from entering any water body or watercourse frequented by fish.	The PWSPs are engineered structures with impermeable HDPE liner systems designed to contain effluent and prevent leakage. The PWSPs are inspected regularly with sign-off annually by an engineer registered in Nunavut. PWSPs at Mary River and Milne Inlet Camps are located a distance of over one kilometre from to Sheardown Lake and Milne Inlet, respectively.

INAC – Water Resources Division	
1. INAC supports the Licensee's Waste Disposal Facilities Modification Request. This is an acceptable means of treating domestic wastewater effluent with the aim of satisfying quality standards specified in Part D, Items 10 and 11 of the 2BB-MRY0710 licence.	No comment.
2. Pending the Board's approval of this modification request, the Licensee should revise its Waste Water Management Plan to take into account changes to the Mary River Camp and Milne Inlet Camp wastewater treatment facility designs.	The Wastewater Management Plan has been revised to reflect these changes.
3. The Licensee should ensure that the Board has approved the September 17, 2007 Waste Water Management Plan. An approval letter for this plan cannot be located in the online public registry.	BIM intends to work proactively to ensure that the revised Wastewater Management Plan is approved in a timely fashion.
4. The Licensee should ensure that terms and conditions applicable to the Mary River Camp and Milne Inlet Camps Wastewater Treatment Facilities specified in Part I of the 2BB-MRY0710 licence are addressed in the project's Environmental Monitoring Plan.	The Site Water Management Plan has been updated to address Part I of the water licence.
5. INAC cannot locate a copy of the Environmental Monitoring Plan required by Part I, Item 1 of the 2BB-MRY0710 in the online public registry. If this plan has been approved, an approval letter should be posted on this registry.	BIM intends to work proactively to ensure that the revised Site Water Management Plan is approved in a timely fashion.
Comments/Recommendations on wastewater management related to BIM's submission of the 2007 Annual Water Licence Report (dated March 31, 2008)	
Environment Canada	
1. EC also notes that the impacts of nutrient addition to Sheardown Lake as a result of sewage input are not assessed. Loadings form a 100 person camp could be significant, and the lake appears to be large enough to support a fish population, so conforming with section 36(3) of the Fisheries Act is required. Appendix C-2 indicates the proponent plans to use alum to remove phosphorus but no target levels for phosphorus are specified. The report is also unclear if the existing polishing ponds will continue to provide contingency storage for the new system. Is there a backup plan for sewage treatment/disposal in case of system upset?	The revised Wastewater Management Plan addresses the concerns brought forward by Environment Canada. The 2007 Wastewater Management plan assessed the potential for impacts to Sheardown Lake due to sewage effluent. The revised plan presented herein provides an update to this assessment based on existing conditions and 2009 operating plans (Section 10). The revised plan provides a target level for total phosphorus. A technical strategy and work plan have been developed to continue to effectively manage the PWSPs. In the meantime, the PWSPs continue to provide a contingency for effluent storage.
2. Assess of the impact of the addition of nutrient (treated sewage) into Sheardown	The assessment of nutrient addition to Sheardown Lake has been updated in

Lake and the planned target level of phosphorus removal by alum.	the revised Wastewater Management Plan (Section 10) and a target level for phosphorus has and continues to be established.
3. Provide details of contingency plan for managing sewage in the event of system upsets at treatment/disposal facilities.	The PWSPs continue to provide capacity in the event of upsets at the treatment facilities.

Appendix A.3
Responses to Comments Received in 2009
Wastewater Management Plan Approval Letter, August 2009

July 24, 2009

Richard Dwyer, Licencing Administrator
Phyllis Beaulieu, Manager of Licencing
Nunavut Water Board
P.O. Box 119, Gjoa Haven NU X0B 1J0

Dear Mr. Dwyer and Ms. Beaulieau:

Re: 2BB-MRY0710 Mary River Project Baffinland Wastewater Management Plan (WWMP) – Response to Reviewers Comments

Baffinland Iron Mines Corporation (BIM) received reviewers' comments on our March 2009 Waste Water Management Plan (WWMP)[1] from the Nunavut Water Board (NWB) on July 22, 2009[2]. Our WWMP was submitted to the NWB as Appendix H of our Annual Water Licence Report submission and among other things, details our Polishing Waste Stabilization Pond (PWSP) discharge strategy for the 2009 open water season. BIM also submitted an update in the form of a letter to NWB, dated June 9, 2009, that detailed our planned activities related to the management and discharge of our PWSPs during the 2009 open water season.

The reviewers' comments received on July 22 included letters from the Nunavut Department of Environment (DOE) and Environment Canada (EC). BIM is proactively providing this response to the NWB to help facilitate prompt approval of the WWMP. It should be noted that based on the comments received and attached herewith (refer to Attachment A), there are no major concerns that would require a revision to our current PWSP discharge plans as detailed in the WWMP. It is the opinion of BIM and its specialists that the minor concerns expressed by Environment Canada have been addressed within the WWMP and the supplementary responses provided, herein. As stated in our June letter, it is our intention to move forward with our PWSP discharge activities in early August 2009 on the basis that our plans are consistent with the terms and conditions of our above referenced water licence, our March WWMP update and the responses provided herein.

Key comments from the EC and Nunavut DOE letters (attached), along with BIMs' responses, are provided below.

ENVIRONMENT CANADA (EC)

EC Comment No. 1: *EC has concerns with the incineration of sewage, as both pathogens and toxins can be dispersed if appropriate temperatures and combustion methods are not employed. EC recommends that toilet wastes only be incinerated if an appropriate incinerator that can attain complete combustion is used; otherwise EC recommends that the latrine wastes be buried in an appropriate disposal area. Rationale: An incinerator is mentioned on Page 12 but no information is provided on the type of incinerator to be used. EC requests more information*

[1] March 2009 Annual Report to the Nunavut Water Board,(for Water Licence No. 2BB-MRY0710) for the Mary River Project, dated March 30, 2009. Receipt of report was acknowledged by the NWB on April 20, 2009.
[2] E-mail correspondence dated July 23, 2009, from Richard Dwyer, Licencing Administrator, NWB to Jim Millard, Senior Environmental Superintendent, BIM with attached reviewers' comments.

Baffinland Iron Mines Corporation
Suite 1016 120 Adelaide Street West, Toronto, ON Canada M5H 1T1
Tel: +1 (416) 364-8820 ● Fax: +1 (416) 364-0193
www.baffinland.com

on the capabilities of both the incinerator and training of the personnel operating it. An incineration management plan would be useful.

BIM Response: BIM utilizes Westland duel chamber incinerators for the purpose of camp waste disposal including latrine waste. Currently a small quantity of latrine waste is generated from its Milne Inlet Camp and incinerated at Mary River. During 2008, latrine waste was incinerated in similar and appropriately sized incinerators at the Mid-Rail and Steensby Inlet Camps. Manufacturer description and specifications for the incinerators used for the Mary River Project are presented in Attachment B to this letter. The Mary River Camp currently utilizes the larger CY-2050-FA "D" model. A Standard Operating Procedure (SOP) covering incinerator operation and a training program have been developed and implemented for incinerator operators at Mary River.

EC Comment No. 2: *EC recommends that effluent and sludge sampling be included as part of Routine Operation & Maintenance (O&M) practices (Page 13 Section 5.0). Rationale: Though it is outlined in Section 9.0, effluent and sludge sampling are not currently included in O & M (routine or otherwise); this sampling should be included as part of routine O&M.*

BIM Response: Effluent and sludge process monitoring is currently part of our internal process sampling program within the RBC system. This program is an essential routine program that is designed to detect upset conditions in the RBC plant and to initiate operational corrections as required. All solids from the RBC are discharged to the Polishing Waste Stabilization Ponds (PWSPs). Section 7 and Appendix F outline the routine and long term sludge management plans. The management plans include characterization programs that involve physical and chemical analyses of the sludge in the PWSPs prior to disposal.

EC Comment No. 3: *EC requests a listing of the tests to be performed and the assessment criteria to be used to determine the suitability of the sludge for landfill disposal. Rationale: Page 16 Section 7.2 (Long Term Sludge Management) states "Once the sludge is sufficiently dry (determined by monitoring the moisture content of the sludge), tests on the sludge content would be performed and depending on the results the contents would be landfilled on site" however no details of the testing are provided.*

BIM Response: The specific tests to be considered will include:

- % moisture
- % volatile solids before and after drying; and,
- TCLP leachate procedure is based on US EPA 1311 for general parameters and metals

BIM is looking forward to working proactively with Environment Canada and our INAC Water Resource Officer on the adoption of appropriate assessment criteria. Note that there are no plans to dispose of sludge until the spring or summer of 2010. At that time BIM will revise the WWMP as appropriate to reflect the refinement of the sludge management plan.

EC Comment No. 4: *EC requests clarification regarding the potential impacts of increased Biological Oxygen Demand (BOD) due to the addition of treated sewage to Sheardown Lake. Rationale: Page 21 Section 10.2 (Effects of Sewage Effluent Discharges to Sheardown Lake)*

states "Overall, the available information indicates that the majority of the water column and lake volume is well-oxygenated throughout the year but may develop pockets of oxygen depletion at depth during some periods" however it is unclear how the addition of BOD in the form of treated sewage will affect areas of naturally low DO. Has winter monitoring data been collected to determine potential for anoxia? We note that on Page 22 "Potential Effects to Sheardown Lake" it is stated that a conservative approach was taken when modeling the loading to Sheardown Lake. The conservatism was built in by incorporating the assumption that releases to the lake were instantaneously released to the whole lake. Though this is conservative when considering the whole lake impacts it is not conservative when in comes to looking at concentration gradients that occur from point source discharges like sewage outfalls, i.e. it would overlook the fact that local concentrations would be higher in the area of the outfall and will decline with distance. Although the discharge is "not acutely toxic" it should be noted that there will be some changes in TSS and BOD in the nearfield. Monitoring should be done to ensure these changes are not an issue.

BIM Response: DO depth profile data collected from the Sheardown Lake are presented in Figures 3 and 4 in Appendix G of the March WWMP. The winter DO and summer water quality programs are ongoing for Sheardown Lake. As noted in Appendix G of the March WWMP: "Some localized effects of BOD5 from effluent discharges may occur in the vicinity of the effluent outfall; however, DO concentrations are generally high in the lake in the open-water season when the two wastewater streams would be discharged concurrently." As noted below, the near-field modeling was also conservative with details provided in Appendix G of the March WWMP.

The "conservatism" referred to is the consideration of the effects of the total cumulative loads associated with the discharge of effluent over approximately a one year period in an instantaneous manner. It is agreed that gradients from the outfall would be expected for some parameters. To address this issue, "near-field modeling" was conducted as indicated on p. 22: "Additionally, to provide 'near-field' estimates of the potential effects of the effluents on water quality in Sheardown Lake NW, mass-balance modeling was applied to near-field areas surrounding the effluent outfall. This exercise was intended to provide greater resolution regarding potential changes in water quality near the outfall…" This exercise also assumed instantaneous discharge of all cumulative loads and was therefore also conservative. Additional details can be found in Appendix G.

Monitoring of the receiving environment will be conducted as indicated on p. 19. BIM will proactively work with Environment Canada to ensure that they concur with the monitoring program to be undertaken.

EC Comment No. 5: *EC recommends that BIM prevent the release of any final effluent that "does not achieve the expected treatment levels" (Page 26). Rationale: On page 26 BIM indicates that "winter storage, melting and subsequent mixing in the final receiving waters of Milne Inlet (will) provide some contingency if the final effluent does not achieve the expected treatment levels." If the effluent does not meet the discharge standards it should be directed to the Polishing/Waste Stabilization Ponds for further processing prior to release as is described in other sections of the Plan.*

BIM Response: This comment is in reference to discharge at Milne Inlet. The contingency referred to has not been utilized. There has and continues to be sufficient

storage capacity at the Milne PWSP to accommodate off-spec effluent. BIM takes every effort to ensure that non-compliant off-spec effluent is directed to our PWSPs.

EC Comment No.6: *EC reiterates that "deleterious" should not be interpreted as "acutely toxic". Rationale: The criteria of "non acutely toxic" is used throughout the Plan even though EC's comments of April 17th, 2008 clearly state this is not an acceptable approach. As shown in comment #1 of Appendix A2 in the Plan EC indicated that "deleterious" is not synonymous with "acutely toxic" and further EC stated "The legal definition of deleterious substance provided in subsection 34(1) of the Fisheries Act, in conjunction with court rulings, provides a very broad interpretation of deleterious and includes any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat." BIM's response was to limit their interpretation to "acutely toxic" and to use this criteria throughout the Plan.*

BIM Response: The approach BIM has used for this assessment of potential affects to Sheardown Lake included screening the end-of-pipe effluent quality against appropriate Environment Canada guidelines (e.g., EC's Guideline for the release of ammonia dissolved in water), CCME FAL guidelines, as well as acute toxicity. Effects to the receiving environment were assessed in relation to appropriate CCME FAL guidelines. CCME guidelines are very conservative and are aimed at addressing potential non-acute toxicity (i.e., chronic toxicity) issues. Therefore BIM has not limited our assessment to potential acute toxicity effects to Sheardown Lake. Appendix G of the March WWMP details our assessment approach.

NUNAVUT DEPARTMENT OF ENVIRONMENT (DOE)

DOE Comment No. 1: *Incineration. The proponent shall apply appropriate technologies to ensure complete combustion of wastes, and the use of a dual chamber, controlled-air flow incinerator is recommended. Both the Government of Canada and the Government of the Nunavut are signatories to the Canada-Wide Standards for Dioxins and Furans and the Canada-Wide Standard for Mercury Emissions, and are required to implement them according to their respective jurisdictional responsibility. Installation of an incineration device capable of meeting the emission limits established under these standards is required. Compliance with the Standards shall be demonstrated with an initial stack test upon commission of the incinerator at site, the results of which shall be submitted to the Nunavut Water Board, Nunavut Impact Review Board, Environment Canada, and Government of Nunavut-Department of Environment. During the course of operations, the proponent shall make determined efforts to achieve compliance with the Canada-wide Standards for dioxins and furans and the Canada-wide Standard for mercury. Determined efforts shall include but not be limited to appropriate record management, including maintenance reports, operator training logs, and the submission of an annual report that outlines the efforts made to achieve compliance with the Standards.*

BIM Response: See BIM's response to EC Comment No. 1.

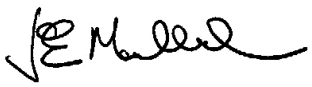
DOE Comment No. 2: *Sludge Management. DOE recommends that the proponent submit a stand-alone sludge management plan. This plan should reflect the sludge sampling work undertaken to date and the current state of the landfill site.*

BIM Response: The solids (sludge) management characterization work is currently been initiated during the 2009 open water season. The results for the characterization work as well as landfill management/operations (note that the landfill is not currently constructed) will be reported in the Annual Water Licence and NIRB Annual Reports. A summary of solids characterization will also be provided in future updates to the WWMP. BIM disagrees about the need for a stand-alone management plan document and asserts that sludge management is appropriately included as a separate chapter and appendix within the WWMP as is current practice.

BIM appreciates the thoughtful review comments provided by Environment Canada and the Nunavut Department of Environment. Should you have any questions, please do not hesitate to contact Jim Millard, Senior Environmental Superintendent or in my absence Matthew Pickard/Cheryl Wray at 403-450-8843.

Best Regards,

Baffinland Iron Mines Corporation



Jim Millard, M.Sc., P.Geol.
Senior Environmental Superintendent

cc
Andrew Keim, INAC
Steven Bathory, Salamonie Shoo, QIA

Attach: Attachment A - Reviewers' Comments.
Attachment B – Incinerator Product and Specification Sheets

ATTACHMENT A

REVIEWERS COMMENTS

Environment Canada
Environnement Canada

Environmental Protection Operations
P.O. Box 2310
5019 – 52nd St,
Yellowknife, NT
X1A 2P7

Our File: 4703 003 018
July 16, 2009 NWB File: 2BB-MRY0710/TR/D13

Richard Dwyer
Nunavut Water Board
P.O. BOX 119
Gjoa Haven, NU X0B 1J0

By email: licensingadmin@nunavutwaterboard.org

Re: Baffinland Iron Mines Corporation - Revised Wastewater Management Plan – Water Licence 2BB-MRY0710

Environment Canada (EC) has reviewed the Revised Waste Water Management Plan and offer the following comments pursuant to Environment Canada's mandated responsibilities pursuant to the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Brief summary of the request:

In 2007 Baffinland Iron Ore Mines Corporation (BIM) submitted the original Wastewater Management Plan (the Plan) to cover wastewater management for the whole Mary River Project. The plan has been updated to accommodate future Project requirements with respect to sewage treatment and in consideration of operational experience with the Wastewater Treatment Facilities at Milne Inlet and Mary River gained over the years 2007 and 2008. NWB has requested EC review the document and provide comments.

Comments and Recommendations:

1. EC has concerns with the incineration of sewage, as both pathogens and toxins can be dispersed if appropriate temperatures and combustion methods are not employed. EC recommends that toilet wastes only be incinerated if an appropriate incinerator that can attain complete combustion is used; otherwise EC recommends that the latrine wastes be buried in an appropriate disposal area.
   Rationale: An incinerator is mentioned on Page 12 but no information is provided on the type of incinerator to be used. EC requests more information on the capabilities of both the incinerator and training of the personnel operating it. An incineration management plan would be useful.

2. EC recommends that effluent and sludge sampling be included as part of Routine Operation & Maintenance (O&M) practices (Page 13 Section 5.0)

Rationale: Though it is outlined in Section 9.0, effluent and sludge sampling are not currently included in O & M (routine or otherwise); this sampling should be included as part of routine O&M.

3. EC requests a listing of the tests to be performed and the assessment criteria to be used to determine the suitability of the sludge for landfill disposal.
   Rationale: Page 16 Section 7.2 (Long Term Sludge Management) states "Once the sludge is sufficiently dry (determined by monitoring the moisture content of the sludge), tests on the sludge content would be performed and depending on the results the contents would be landfilled on site" however no details of the testing are provided.

4. EC requests clarification regarding the potential impacts of increased Biological Oxygen Demand (BOD) due to the addition of treated sewage to Sheardown Lake.
   Rationale: Page 21 Section 10.2 (Effects of Sewage Effluent Discharges to Sheardown Lake) states "Overall, the available information indicates that the majority of the water column and lake volume is well-oxygenated throughout the year but may develop pockets of oxygen depletion at depth during some periods" however it is unclear how the addition of BOD in the form of treated sewage will affect areas of naturally low DO. Has winter monitoring data been collected to determine potential for anoxia?

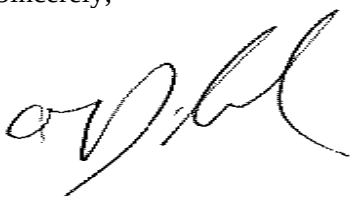
   We note that on Page 22 "Potential Effects to Sheardown Lake" it is stated that a conservative approach was taken when modeling the loading to Sheardown Lake. The conservatism was built in by incorporating the assumption that releases to the lake were instantaneously released to the whole lake. Though this is conservative when considering the whole lake impacts it is not conservative when in comes to looking at concentration gradients that occur from point source discharges like sewage outfalls, i.e. it would overlook the fact that local concentrations would be higher in the area of the outfall and will decline with distance. Although the discharge is "not acutely toxic" it should be noted that there will be some changes in TSS and BOD in the nearfield. Monitoring should be done to ensure these changes are not an issue.

5. EC recommends that BIM prevent the release of any final effluent that “does not achieve the expected treatment levels” (Page 26).
   Rationale: On page 26 BIM indicates that "winter storage, melting and subsequent mixing in the final receiving waters of Milne Inlet (will) provide some contingency if the final effluent does not achieve the expected treatment levels." If the effluent does not meet the discharge standards it should be directed to the Polishing/Waste Stabilization Ponds for further processing prior to release as is described in other sections of the Plan.

6. **EC reiterates that “deleterious” should not be interpreted as “acutely toxic”.**
   Rationale: The criteria of “non acutely toxic” is used throughout the Plan even though EC’s comments of April 17th, 2008 clearly state this is not an acceptable approach. As shown in comment #1 of Appendix A2 in the Plan EC indicated that "deleterious" is not synonymous with “acutely toxic” and further EC stated "**The legal definition of deleterious substance provided in subsection 34(1) of the *Fisheries Act*, in conjunction with court rulings, provides a very broad interpretation of deleterious and includes any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat**." BIM's response was to limit their interpretation to "acutely toxic" and to use this criteria throughout the Plan.

Please do not hesitate to contact me at (204) 983-4815 with any questions or comments regarding the foregoing.

Sincerely,



Mark Dahl
Environmental Assessment and Marine Protection Division
Prairie and Northern Region
Environment Canada

cc: Carey Ogilvie, Head, Environmental Assessment-North, EPO, Yellowknife, NT
Anne Wilson, Water Pollution Specialist, Environmental Assessment-North, EPO, Yellowknife, NT
Carrie Spavor, Environmental Assessment Coordinator, Environmental Assessment North, EPO, Iqaluit, NU
Jane Fitzgerald, Environmental Assessment Coordinator, Environmental Assessment North, EPO, Yellowknife, NT
Dave Fox, Air Issues Specialist, Environmental Assessment North, EPO, Yellowknife, NT
Lisa Perry, Environmental Assessment Coordinator, Environmental Assessment North, EPO, Yellowknife, NT
Myra Robertson, Environmental Assessment Coordinator, CWS, Yellowknife, NT
Dave Tildon, Hazardous Materials Specialist, Environmental Emergencies, Yellowknife, NT
Brenda Toth, Hydrologist, MSC Operations Prairie and Northern, Saskatoon, SK
Glen Groskopf, Mining Project Officer, EPO, Regina, SK
B. Kochtubajda, Climate Processes Project Leader, Environment Canada, Edmonton, AB

ᐊᐸᑎᓕᓵᕐᑯᑦ

Avatiligiyiit

Department of Environment

Ministère de l'Environnement

July 16, 2009

Phyllis Beaulieu
Manager of Licensing
Nunavut Water Board

via Email to: licensing@nunavutwaterboard.org

RE: NWB No. 2BB-MRY0710 Mary River Project Baffinland Iron Mines Revised Waste Water Management Plan D13

Dear Ms. Beaulieu:

The Government of Nunavut, Department of Environment (DOE) has reviewed the Revised Waste Management Plan D13 from Mary River Project Baffinland Iron Mines, and has the following comments and recommendations to make based on the Environmental Protection Act.

WASTE MANAGEMENT

1. Incineration

The proponent shall apply appropriate technologies to ensure complete combustion of wastes, and the use of a dual chamber, controlled-air flow incinerator is recommended. Both the Government of Canada and the Government of the Nunavut are signatories to the Canada-Wide Standards for Dioxins and Furans and the Canada-Wide Standard for Mercury Emissions, and are required to implement them according to their respective jurisdictional responsibility. Installation of an incineration device capable of meeting the emission limits established under these standards is required. Compliance with the Standards shall be demonstrated with an initial stack test upon commission of the incinerator at site, the results of which shall be submitted to the Nunavut Water Board, Nunavut Impact Review Board, Environment Canada, and Government of Nunavut-Department of Environment. During the course of operations, the proponent shall make determined efforts to achieve compliance with the Canada-wide Standards for dioxins and furans and the Canada-wide Standard for mercury. Determined efforts shall include but not be limited to appropriate record management, including maintenance reports, operator training logs, and the submission of an annual report that outlines the efforts made to achieve compliance with the Standards.

2. Sludge Management

DOE recommends that the proponent submit a stand-alone sludge management plan. This plan should reflect the sludge sampling work undertaken to date and the current state of the landfill site.

DOE thanks the NWB for the opportunity to provide comments on the Mary River Project Baffinland Iron Mines Revised Waste Management Plan D13. Please contact us if you have further questions.

Yours sincerely,

Original signed by

Dee Karadag
Environmental Assessment Coordinator & Scientist
Department of Environment
Government of Nunavut
PH: (867) 975-7732
FX: (867) 975-7739
EM: dkaradag@gov.nu.ca

ATTACHMENT B

INCINERATOR DESCRIPTION AND SPECIFICATION SHEETS

WESTLAND
ENVIRONMENTAL SERVICES INC.
www.westlandenvironmental.com

DOUBLE CHAMBER CYCLONATOR INCINERATOR

SERIES CY2000

- **Built In Safety Features**
- **Readily Transportable**
- **Economical Operation**
- **Clean Burning**

CY-2050-FA "D"

Designed for Petroleum, Mining, and Lumber Industries

Capacity
1.4 m^3, 90 kg per hour.
Type No. 1, 2, & 3 waste.

Power Requirements
115 volts 60 cycle single phase.

Stack
Stainless Steel
- 14 gauge.
- 38cm diameter.
- 3m high.
- c/w stainless steel spark arrester.
- a hinged base plate for moving.

Casing
12 gauge steel.
Lining: high heat duty castable refractory over high temperature insulation.

Hearth
Refractory hearth over 6.35mm steel base.

Doors
6.35-cm steel plate c/w heavy-duty blade latch.
Charging:
- 61cm-x 71cm clear opening
- Refractory lined over steel plate.

Ash:
- 61cm x 40cm clear opening
- Refractory lined over steel plate

Air Supply
Forced air fan c/w duct to primary airs jets and to secondary over-fire air jets.

Timers
Cycle timer interconnected to air supply fan and gun type burner enclosed in burner housing.

Burners
650,000 BTU gun type primary burner.
Gun burner enclosed in protective plate steel housing.
450,000 BTU in secondary chamber.

Fuel Supply: Oil Fired Unit Only
1350-liter fuel storage tank c/w filter and flexible hose type connection.

Transporter
Incinerator and fuel storage mounted on skid type frame 4.27m long x 1.83m wide.
Height: 3.2m tall, with stack folded.
Constructed of W150 I-Beam c/w bumper posts.

Weight
5000 kg.

Options
* LPG Fired burner.
* Diesel fired burner.
* 2.3m Electric power cord.
* Stack winch.
* Cold climate assembly.

MANUFACTURED BY:

WESTLAND
Environmental Services Inc.
20204 – 110 Avenue, Edmonton, AB Canada T5S 1X8
Phone: (780) 447-5052 Fax: (780) 447-4912
E-MAIL info@westlandenvironmental.com

DISTRIBUTED BY:

WESTLAND
ENVIRONMENTAL SERVICES INC.
www.westlandenvironmental.com

DOUBLE CHAMBER CYCLONATOR INCINERATOR

SERIES CY2000

- **Built In Safety Features**
- **Readily Transportable**
- **Economical Operation**
- **Clean Burning**

CY-2020-FA "N"

Designed for Petroleum, Mining, and Lumber Industries

Capacity
0.6 m3, 64 kg per hour.
type No. 1, 2, & 3 waste.

Power Requirements
115 volts 60 cycle single phase.

Stack
Stainless Steel
- 14 gauge
- 33 cm diameter
- 3 m high
- c/w stainless steel spark arrester
- a hinged base plate for moving

Casing
12 gauge steel.
Lining: high heat duty castable refractory over high temperature insulation.

Hearth
Refractory hearth over 6.35 mm steel base

Doors
6.35 cm steel plate c/w heavy duty blade latch.
Charging: - 46 cm x 61 cm clear opening
- Refractory lined over steel plate
Ash: - 46 cm x 30 cm clear opening
- Refractory lined over steel plate

Air Supply
Forced air fan c/w duct to primary air jets and to secondary over-fire air jets.

Timers
Cycle timer interconnected to air supply fan and gun type burner enclosed in burner housing.

Burners
500,000 B.T.U. gun type primary burner. Gun burner enclosed in protective plate steel housing.
300,000 B.T.U. in secondary chamber

Fuel Supply: Oil Fired Unit Only
1350 litre fuel storage tank c/w filter and flexible hose type connection.

Transporter
Incinerator and fuel storage mounted on skid type frame 365 cm long x 152 cm wide.
Height: 2.64 M tall, with stack folded.
Constructed of 15 cm I Beam c/w bumper posts.

Weight
2268 kg.

Options
* L.P.G. Fired burner
* Diesel fired burner
* 2.3 m Electric power cord
* Stack winch
* 1.4 m3 model 2050.
* Cold climate assembly.

MANUFACTURED BY:

WESTLAND
Environmental Services Inc.
20204 – 110 Avenue, Edmonton, AB Canada T5S 1X8
Phone: (780) 447-5052 Fax: (780) 447-4912
E-MAIL info@westlandenvironmental.com

DISTRIBUTED BY:

P.O. BOX 119
GJOA HAVEN, NU X0B 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

ᓄᓇᕗᑦ ᐃᒪᓕᕆᔨᒃᑯᑦ ᑲᑎᒪᔨᖏᑦ
NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File: 2BB-MRY0710/D13

August 10, 2009

Jim Millard, M.Sc., P.Geo.
Senior Environmental Superintendent
Baffinland Iron Mines Corporation
Suite 1016 120 Adelaide Street West
Toronto, ON
M5H 1T1

By email: jim.millard@baffinland.com

Subject: Submission of the Waste Water Management Plan – Revision 1, under Water Licence 2BB-MRY0710, Part D, Item 13

Dear Mr. Millard,

The Nunavut Water Board (NWB) received the above-cited revised Waste Water Management Plan (WWMP), submitted in accordance with Part D, Item 13 of Licence 2BB-MRY0710, on April 20, 2009. The document was distributed for review with a comment deadline of July 16, 2009. Comments were received from the Government of Nunavut Department of Environment (GN-DoE) and Environment Canada (EC). The NWB also appreciates the response to these comments as provided by the Licensee on July 24, 2009. These submissions are made available at the Nunavut Water Board's FTP site at the following address:

ftp://nunavutwaterboard.org/2BB%20-%20BULK%20SAMPLING/2BB-MRY/J%20Modifications/2008/

The NWB has reviewed the submissions and after taking into consideration the recommendations made by both parties, hereby approves the revised WWMP, including the technical strategy for the Polishing Wastewater Stabilization Pond (PWSP) discharge during 2009 under **Motion 2009-09-L05,** dated **August 10, 2009**. However, in doing so, the NWB notes the following for the Licensee's attention.

In the Board's view, an important issue is that the Rotating Biological Contactors (RBC) at Mary River and Milne Inlet have not functioned as intended resulting in an accumulation of effluent in the Polishing Wastewater Stabilization Ponds (PWSP).

> The PWSPs were constructed at Mary River and Milne Camps to temporarily store noncompliant effluent generated from the Mary River and Milne Camps' rotary biological contactor (RBC) sewage treatment plants (STPs). In 2007, one PWSP facility was constructed in each of our Mary River and Milne Inlet camps. Due to start-up issues related to our RBC at the Mary River Camp, a modification request was submitted to the Nunavut Water Board (NWB) in April 2008. The purpose of the requested modification

> was to construct additional PWSP facilities that would provide added storage capacity for non-compliant sewage effluent[1].

The NWB understands that the PWSPs were implemented as a primary contingency measure during RBC upset conditions. In its approval letter of May 7, 2008, the NWB authorized the construction of additional PWSPs to increase contingency pond capacity. A condition of the approval was that:

> Once the Waste Water Treatment Facilities are operational and treated effluent has met licensing criteria for discharge to the environment, the holding ponds are to be reduced in volume by further treatment and release to provide maximum holding capacity in the event of system upsets or malfunctions. The Operations and Maintenance Manual should provide direction on the optimal operation of the facilities to ensure the above[2].

The intent of the condition was to direct the Licensee to re-circulate the partially treated effluent through the RBCs once the facilities were operational. However, the Board realizes that given the operational issues with the RBCs and their limited capacity to treat the currently stored volumes, the newly proposed in situ treatment will be required, at this time, in order to prevent the release of non-compliant effluent.

In addition to Part J, Items 3 and 4, the NWB has imposed monitoring requirements to ensure that discharge from the PWSPs, during the short 2009 season, meets the discharge limits set out in Part D, Items 10, 11, and 12 of the Licence. The additional requirements are as follows:

1. For the 2009 PWSP discharge season, the Licensee shall monitor effluent from each PWSP for compliance verification purposes, once prior to discharge, once during discharge and once prior to terminating discharge;
2. The volume of effluent discharged from each PWSP shall be recorded; and
3. The results of the 2009 PWSP discharge monitoring shall be presented in the 2009 Annual Report.

The Licensee is also reminded of conditions of Part D, Item 1, 7 and 14 which relate to waste disposal operations applicable to the PWSPs.

In the event PWSP in situ effluent treatment is required beyond the 2009 discharge season, the Licensee is advised to submit an application to amend the Licence. The Board also anticipates that the Licensee will work towards achieving reliable operation of the RBCs.

Finally, the revised WWMP has been approved by the Board subject to a second revision to be provided with the 2009 Annual Report. The second revision to the WWMP should include the following:

1. An executive summary of the WWMP in English with Inuktitut translation in accordance with Part B, Item 14;
2. An update to the sludge management plan, following sludge characterization during the 2009 open water season;
3. A schedule/frequency of RBC inspections; and
4. Where appropriate, the integration of information provided in response to comments received during the review of WWMP revision 1.

---

[1] Letter from Jim Millard, Baffinland Iron Mines, to Phyllis Beaulieu, NWB dated June 9, 2009. Pg 1.

[2] Letter from David Hohnstein, NWB, to Derek Chubb, Baffinland Iron Mines Corporation, dated May7, 2008. Pg 2, condition ii.

The NWB supports the continued efforts of interested parties and the Licensee in working cooperatively to address issues that arise during the development and review of management plans. Should you have any questions regarding the above, please do not hesitate to contact me.

Yours truly,

Original signed by :

David Hohnstein, C.E.T.
A/Director Technical Services

DH/sl

Cc: Qikiqtani Distribution List
S. Lines, TLA