

Date: April 25/13

Exhibit No.: 8



Environment Canada's Intervention on the Mary River Project Water Licence Application

Nunavut Water Board-Final Hearing
Pond Inlet, NU
Mark Dahl / Anne Wilson
Environmental Protection Operations
April 23 - 25, 2013

Overview

- Mandate
- Water Quality
- Waste Management
- Closure and Reclamation
- Water Licence Term
- Conclusion



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EC's Mandate

- *Department of the Environment Act*
- *Fisheries Act*
 - Pollution Prevention Provisions
 - *Metal Mining Effluent Regulations*;
- *Canadian Environmental Protection Act*
- Canada-Wide Standards for Mercury Emissions
- Canada-Wide Standards for Dioxins and Furans

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Water Quality



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Water Quality Discharge Limits - Sewage

- Baffinland's Perspective:
 - Allow for operational variation and assimilative capacity
 - Type B licence criteria adequate for marine discharges
 - Criteria in Type A application are protective
 - Monitoring will detect impacts and allow management
 - Regulatory limits will be met at the end of pipe for Mary River
 - Dilution effect will ensure guidelines are met at Sheardown Lake

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Water Quality Discharge Limits - Sewage (cont.)

- EC's Perspective:
 - Discharges must be non-deleterious
 - Avoid eutrophication of Sheardown Lake
 - Change in trophic status signals a large effect
 - Early detection of impacts is critical
 - Compliance with the *Fisheries Act* is mandatory

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Water Quality Discharge Limits - Sewage (cont.)

- EC's Recommendations:
 - a. Consider EC's conclusions above when setting wastewater quality criteria
 - b. Require source control of phosphorus
 - c. Monitoring of appropriate environmental indicators to detect and prevent adverse changes to Sheardown Lake

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Water Quality Discharge Limits - Oily Water Wastewater Facility



- Baffinland's Perspective:
 - Sporadic and infrequent discharge
 - Effluent will be treated and then combined with treated sewage
- EC's Recommendation:
 - Oily water effluent should meet concentrations proposed in Table F-2 of the draft water licence prior to blending

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Water Quality Nutrients

- Baffinland's Perspective:
 - Lakes are nutrient poor
 - Lakes are sensitive to nutrient inputs
 - Effluent will be treated
 - Monitoring used to detect impacts
 - Adaptive management applied to correct issues
- EC's Perspective:
 - Phosphorus will increase in Sheardown Lake and Mary River
 - Eutrophication may result
 - May cause decline in winter oxygen concentration

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Water Quality Nutrients

- EC recommends that the water licence include:
 - water quality objectives that are protective of the receiving environment for nutrients, with identified thresholds for action
 - biological productivity monitoring during the open water season
 - regular under-ice monitoring of dissolved oxygen concentrations in Sheardown Lake
 - contingency plans to address any trend toward decreasing dissolved oxygen concentrations

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Water Quality Discharge Limits - Marine

- Baffinland's Perspective:
 - Will meet the requirements of the *Fisheries Act*
 - Table F-1 criteria will be met
- EC's Perspective
 - Effective monitoring will be required at Milne and Steensby Inlets
- EC recommends the Water Board
 - Require monitoring at Milne Inlet
 - Recommend monitoring at Steensby Inlet

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Water Quality Discharge Limits - Mine Contact Water

- Baffinland's Perspective:
 - Metal Mining Effluent Regulations (MMER) apply
 - Will monitor to ensure meet MMER criteria (Table F-6)

Table F-6 Waste Rock and Ore Storage Piles Runoff Water Quality Criteria

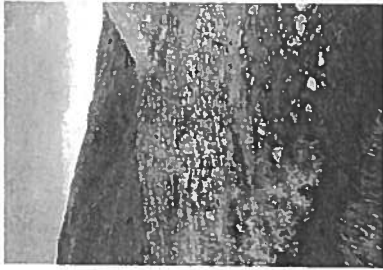
Discharge Substance	Maximum Concentration (mg/L)	Maximum Concentration in Grab Sample (mg/L)	Maximum Concentration in Grab Sample (mg/L)
pH	8.0 - 9.0	8.0 - 9.0	8.0 - 9.0
Ammonia	0.50	0.50	0.50
Copper	0.05	0.05	0.05
Lead	0.05	0.05	0.05
Mercury	0.001	0.001	0.001
Vanadium	15.00	15.00	15.00
Zinc	15.00	15.00	15.00
Fluoride	15.00	15.00	15.00

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Water Quality

Discharge Limits - Mine Contact Water (cont.)

- EC's Perspective
 - Effects evaluation based on contaminant concentrations that were much lower than MMER
 - Discharging at MMER may result in exceedence of water quality objectives in Camp Lake Tributary and Mary River
 - Need to be protective of Northern ecosystem
 - Early warning thresholds and actions should be identified



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Water Quality

Discharge Limits - Mine Contact Water (cont.)

- EC's Recommendations:
 - a. Discharge limits for mine contact water from East Pond, West Pond, pit and ore stockpiles as follows:

Parameter	Monthly Average	Maximum Grab
pH	Between 6.0 – 9.0	Between 6.0 – 9.0
Ammonia (as N)	4.0 mg/L	8.0 mg/L
Nitrate	To be determined	To be determined
Arsenic	0.1	0.2 mg/L
Copper	0.05	0.1 mg/L
Lead	0.05	0.1 mg/L
Nickel	0.25	0.5 mg/L
Zinc	0.25	0.5 mg/L
TSS	15 mg/L	30 mg/L
Oil and Grease	No visible sheen	No visible sheen
TEH*	5 mg/L	mg/L

*Total Extractable Hydrocarbons

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Water Quality

Discharge Limits - Mine Contact Water (cont.)

- EC's Recommendations:
 - b. Water quality objectives for pH, ammonia, nitrate, sulphate, chloride and total metals be maintained in the reaches of Camp Lake Tributary below the falls (i.e. where the stream is inhabited by fishes) and in Mary River;
 - c. Water quality objectives be set for ammonia, nitrate, sulphate and major ions.

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Water Quality Closure - Open Pit

- Baffinland's Perspective:
 - Pit water quality predictions will be updated as information becomes available
 - Closure Plan - mitigations, monitoring and treatment
 - Treatment options available
 - Do not anticipate treatment will be required
 - 85-100 years to fill
 - Discharge will meet MMER
 - Ongoing monitoring and management



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Water Quality Closure - Open Pit (cont.)

- EC's Perspective:
 - time required to fill makes future water quality uncertain
 - Accelerated filling options should be examined
 - Objectives should be developed based on Table 7-3.22 (FEIS Volume 7)

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Water Quality Closure - Open Pit (cont.)

- EC recommends that the Water Board:
 - a. Require exploration of alternative pit filling options, weighing environmental costs and benefits
 - b. Require a monitoring plan that includes a full list of parameters and proposed frequency/duration
 - c. Include a requirement for objectives for pit water quality at closure which would be protective of aquatic life

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Water Licence Term

- Baffinland's Perspective:
 - a 25 year term is appropriate
- EC's Perspective:
 - Typical licence is 10 years or less
 - Renewal allows re-examination of conditions and verification of environmental assessment predictions.
- EC recommends that the term of the water licence be in the range of 10 to 12 years

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THANK YOU



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