

November 18, 2024

Karén Kharatyan  
Director, Technical Services  
Nunavut Water Board  
Gjoa Haven, Nunavut, X0B 1J0

**Re: 2AM-MRY1325 Type A Water Licence Renewal Application Technical Review Comments –  
Supplementary Information**

Dear Mr. Kharatyan,

In Baffinland's November 12, 2024 responses to the Technical Review Comments on the Renewal Application for Water Licence No. 2AM-MRY1325, Baffinland indicated additional information would be provided by November 18 for the following technical comment responses:

- ECCC 6: updated discharge water quality tables
- ECCC 7/8: draft Schedule I with Tables 12, 13, 14 and 15
- CIRNAC R-06: updated figures to reflect the most up to date information for all routine and permitted sampling location

This additional information is provided in Attachments 1 to 3.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Borcsok".

Steve Borcsok  
Approvals Manager

Cc: Lou Kamermans, Elisabeth Luther (Baffinland)

Enclosed:

- *Attachment 1. ECCC 6. Updated Discharge Water Quality Table*
- *Attachment 2. ECCC 8. Schedule I Tables 12, 13, 14, 15*
- *Attachment 3. CIRNAC R-06. Updated Sampling Location Figures*

# *ATTACHMENT 1. ECCC 6. UPDATED DISCHARGE WATER QUALITY TABLES*

### Updated Discharge Water Quality Tables (ECCC #6 Response Follow-up)

Baffinland agrees with this recommendation to adopt the below FEQGs as the discharge criteria for benzene, ethylbenzene, toluene and xylene at the Project.

Parameter	Federal water quality longterm guidelines (mg/L)
Benzene	0.59
Toluene	0.03
Ethylbenzene	0.07
Xylene	0.07

Baffinland also requests that the renewed Water Licence, once issued, should reflect the following discharge criteria:

- a site-wide total lead criteria of 0.2 mg/L which would align with Table 2, Schedule 4 of the MDMER; and
- controlled discharge fresh water TSS limit of 15 mg/L monthly average and 30 mg/l maximum grab sample for all final regulated discharges at the Project.

Baffinland will provide updated discharge water quality tables reflecting the items above in the update to be submitted to the NWB on November 18, 2024

**TABLE 4: EFFLUENT QUALITY DISCHARGE LIMITS FOR SEWAGE TREATMENT FACILITIES TO FRESHWATER RECEIVING ENVIRONMENT**

Parameter	Maximum Concentration of Any Grab Sample (mg/L)
Total Suspended Solids	30
BOD <sub>5</sub>	30
Fecal Coliform	1000 CFU/100 mL
Oil and Grease	No visible sheen
pH	Between 6.0 and 9.5
Ammonia (NH <sub>3</sub> -N)	4.0
Total Phosphorous (MS-01)	4.0
Total Phosphorous (MS-01a)	1.0
Toxicity	Not acutely toxic

**TABLE 5: EFFLUENT QUALITY DISCHARGE LIMITS FOR SEWAGE TREATMENT FACILITIES TO THE OCEAN**

Parameter	Maximum Concentration of Any Grab Sample (mg/L)
BOD <sub>5</sub>	100
Total Suspended Solids	120
Fecal Coliform	10,000 CFU/100 mL
Oil and Grease	No visible sheen
pH	Between 6.0 and 9.5
Toxicity	Not acutely toxic

**TABLE 6: EFFLUENT QUALITY DISCHARGE LIMITS FOR OILY WATER TREATMENT FACILITIES**

Parameter	Maximum Concentration of Any Grab Sample (mg/L)
TSS	30
Total Arsenic	0.60
Total Copper	0.60
Total Lead	0.20
Total Nickel	1.00
Total Zinc	1.00
pH	Between 6.0 and 9.5
Ammonia (NH <sub>3</sub> -N)	4.0
Total Phosphorous	4.0
Benzene	0.59
Toluene	0.03
Ethylbenzene	0.07
Xylene	0.07

**TABLE 7: EFFLUENT QUALITY DISCHARGE LIMITS FOR THE LANDFILL FACILITIES**

Parameter	Maximum Concentration of Any Grab Sample (mg/L)
pH	Between 6.0 and 9.5
Total Arsenic	0.60
Total Copper	0.60
Total Lead	0.20
Total Nickel	1.00
Total Zinc	1.00
Total Suspended Solids	30.00
Oil and Grease	No visible sheen

**TABLE 8: EFFLUENT QUALITY DISCHARGE LIMITS FOR THE BULK FUEL STORAGE FACILITIES**

Parameter	Maximum Concentration of Any Grab Sample (mg/L)
Benzene	0.59
Toluene	0.03
Ethylbenzene	0.07
Xylene	0.07
Total Lead	0.20
Oil and Grease	15 and no visible sheen

**TABLE 9: EFFLUENT QUALITY DISCHARGE LIMITS FOR THE LANDFARM FACILITIES**

Parameters	Maximum Concentration of Any Grab Sample (mg/L)
Total Suspended Solids	30
Total Lead	0.20
Benzene	0.59
Toluene	0.03
Ethylbenzene	0.07
Xylene	0.07
pH	Between 6.0 and 9.5
Oil and Grease	15 and no sheen

**TABLE 10: EFFLUENT QUALITY DISCHARGE LIMITS FOR OPEN PIT,  
STOCKPILES, AND SEDIMENTATION PONDS**

Parameter	Maximum Monthly Mean Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Total Arsenic	0.30	0.60
Total Copper	0.30	0.60
Total Lead	0.10	0.20
Total Nickel	0.50	1.00
Total Zinc	0.50	1.00
Total Suspended Solids (Discharge to Fresh Water)	15.00	30.00
Total Suspended Solids (Discharge to the Ocean)	60.00	120.00
Oil and Grease	No visible sheen	
Toxicity	Not acutely toxic	
pH	Between 6.0 and 9.5	

## *ATTACHMENT 2. ECCC 7/8. SCHEDULE I TABLES 12, 13, 14 AND 15*

**Schedule I Conditions Applying to General and Aquatics Effects Monitoring****Table 12: Monitoring Group Parameters**

Group	Parameters
1	Water withdrawal volume in cubic metres, or Water Discharge volume in cubic metres
2	Biological Oxygen Demand (BOD <sub>5</sub> ), pH, Total Suspended Solids (TSS), Fecal Coliform, Oil and Grease, Ammonia-Nitrogen, Total Kjeldahl Nitrogen(TKN), Total Phosphorous
3	a. Acute lethality to Rainbow Trout, <i>Oncorhynchus mykiss</i> (as per Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/13); and b. Acute lethality to <i>Daphnia magna</i> (as per Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/14)
4	pH, Total Suspended Solids (TSS), Ammonia, Total Phosphorous Benzene, Ethylbenzene, Toluene, Xylene Oil and Grease, <b>Total metals:</b> Arsenic, Copper, Lead, Nickel, Zinc
5	pH, Total Suspended Solids (TSS) Benzene, Ethylbenzene, Toluene, Xylene, Total Lead, Oil and Grease, Total Petroleum Hydrocarbons (TPH)
6	pH, Alkalinity, Conductivity, Total Suspended Solids (TSS), Total Dissolved Solids (TDS) Oil and Grease, Phenols Total Petroleum Hydrocarbons Total Organic Carbon (TOC), Dissolved Organic Carbon (DOC) Total Trace Metals as determined by a standard ICP Scan (to include at a minimum, the following elements: Al, Sb, Ba, Cd, Cr, Co, Cu, Fe, Pb, Li, Mn, Mo, Ni, Se, Sn, Sr, Tl, Ti, U, V, Zn): and Trace Arsenic and Mercury



7	<p>pH, total suspended solids, total dissolved solids, alkalinity, hardness, turbidity, total Kjeldahl nitrogen, ammonia nitrogen, nitrate nitrogen, dissolved organic carbon, total organic carbon, total phosphorus, sulphate, fluoride, chloride. Total and Dissolved Metals: aluminum, arsenic, cadmium, calcium, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, sodium, thallium, uranium, zinc</p> <p><b>Field parameters:</b> pH, temperature, turbidity, specific conductance</p>
8	<p>Ammonia (total NH<sub>3</sub>-N), Nitrate (total NO<sub>3</sub>-N), pH, Conductivity Total Suspended Solids, Oil and Grease</p>

**Modified Table 13: Monitoring Program - Milne Port Site**

Station	Description	Project Phases	Monitoring Parameters	Frequency
MP-MRY-2	Freshwater Intake at Phillips Creek	Construction Operations Closure	Group 1	Record Daily Report Monthly
MP-MRY-3	Freshwater Intake from Km 32 Lake	Construction Operations Closure	Group 1	Record Daily Report Monthly
MP-01	Milne Port Sewage Treatment Facilities (discharge to ocean)	Construction Operations	Groups 1, 2	Monthly
			Group 3	Annually
MP-01A	Milne Port Polishing Waste Stabilization Pond (PWSP)	Construction Operations	Groups 1, 2	Once prior to discharge and Monthly
			Group 3	Annually
MP-01B	Milne Port 380M Camp Sewage Treatment Facility (discharge to ocean)	Construction Operations	Groups 1, 2	Monthly
			Group 3	Annually
MP-02	Milne Port Maintenance Shop Oily water/WWTF	Construction Operations	Groups 1, 4	Annually
MP-03	Milne Port Bulk Fuel Storage Facility Stormwater	Construction Operations	Group 1 Group 5	Daily Flow Monthly
MP-04	Milne Port Landfarm Facility Stormwater	Construction Operations Closure	Group 1 Group 5	Daily Flow Monthly
MP-04a	Contaminated Snow & Water Containment Berm beside the Milne Port Landfarm Facility	Construction Operations Closure	Group 1 Group 5	Daily Flow Monthly
MP-C-B	Surface water monitoring	Construction	Groups 1 and 8	During periods of flow on a monthly basis
MP-C-H				
MP-C-J				
MP-C-K				

MP-05	Milne Port Ore Stockpile Sedimentation Pond (East) (discharge to the ocean)	Construction Operations Closure	Groups 1 and 7	Monthly during summer
			Group 3	Annually
MP-06	Milne Port Ore Stockpile Settling Pond (West) (discharge to the ocean)	Construction Operations Closure	Groups 1 and 7	Monthly during summer
			Group 3	Annually
Monitoring Legend: Green - Regulated; Blue - General Aquatic; Red - Verification				
<b><u>Regulated Monitoring</u></b> occurs at Monitoring Program Stations in licences or regulations. It includes discharge limits that must be achieved to maintain compliance with water licence or regulation (i.e., <i>Metal and Diamond Mining Effluent Regulations</i> ). Enforcement action may be taken if discharge limits are exceeded.				
<b><u>General Aquatic Monitoring</u></b> is subject to compliance assessment to confirm sampling is carried out using established protocols, including quality assurance/quality control provisions, and addresses identified issues. General monitoring is subject to change as directed by an Inspector, or by the Licensee, subject to approval by the NWB.				
<b><u>Verification Monitoring</u></b> Program to be carried out for operational and management purposes by Licensee. Monitoring parameters may vary between locations. Monitoring parameters and locations are internal for Licensee.				

**Modified Table 14: Monitoring Program - Mary River Mine Site**

Station	Description	Phases	Monitoring Parameters	Frequency
MS-MRY-1	Freshwater Intake from Camp Lake	Construction Operations Closure	Group 1	Record Daily
MS-01	Mine Site Sewage Treatment Facilities	Construction Operations	Groups 1 and 2	Monthly
			Group 3	Annually
MS-01A	Mine Site Polishing/Waste Stabilization Pond (PWSP)	Construction Operations	Groups 1 and 2	Once prior to discharge and Monthly thereafter
			Group 3	Annually
MS-01B	Mine Site Sailiivik Camp Sewage Treatment Facility	Construction Operations	Groups 1 and 2	Monthly
			Group 3	Annually
MS-02	Mine Site Maintenance Shop Oily Water WWTF	Construction Operations	Groups 1 and 4	Monthly
MS-MRY-04	Exploration Camp Sewage Treatment Facility	Construction Operations Closure	Groups 1 and 2	Monthly
			Group 3	Annually
MS-MRY-04A	Exploration Camp Polishing Waste Stabilization Pond 1 (PWSP 1)	Construction Operations	Groups 1 and 2	Once prior to discharge and monthly hereafter
			Group 3	Annually
MS-MRY-04B	Exploration Camp Polishing Waste Stabilization Pond 2 (PWSP 2)	Construction Operations	Groups 1 and 2	Once prior to discharge and monthly hereafter
			Group 3	Annually
MS-MRY-04C	Exploration Camp Polishing Waste Stabilization Pond 3 (PWSP 3)	Construction Operations	Groups 1 and 2	Once prior to discharge and monthly hereafter
			Group 3	Annually
MS-03	Mine Site Bulk Fuel Storage Facility Stormwater	Construction Operations	Group 1 Group 5	Daily Flow Monthly
MS-03B	Second Mine Site Bulk Fuel Storage Facility Stormwater	Construction Operations	Group 1 Group 5	Daily Flow Monthly
MS-04	Mine Site Fuel Unloading Station Stormwater	Construction Operations	Group 1 Group 5	Daily Flow Monthly
MS-05	Mine Site Landfarm Facility Stormwater	Construction Operations	Group 1 Group 5	Daily Flow Monthly
MS-MRY-6	Hazardous Materials Storage Area (MS-HWB-7)	Construction Operations	Group 1 Group 5	Daily Flow Monthly
MS-06	Ore Stockpile Pond Stormwater	Operations Closure	Groups 1 and 7	Monthly during summer
			Group 3	Annually

MS-07	Run of Mine Ore Stockpile Pond Stormwater	Operations Closure	Groups 1 and 7	Monthly during summer
			Group 3	Annually
MS-08	Waste Rock Stockpile West Pond	Operations Closure	Groups 1 and 7	Monthly during summer
			Group 3	Annually
MS-09	Waste Rock Stockpile East Pond	Operations Closure	Groups 1 and 7	Monthly during summer
			Group 3	Annually
MS-10	SDLT-1 Pond Ore Stockpile Stormwater	Operations	Groups 1 and 7	Monthly during summer
			Group 3	Annually
MS-11	KM105 Pond Stormwater	Operations	Groups 1 and 7	Monthly during summer
			Group 3	Annually
MS-MRY-13A & MS-MRY-13B	Non-Hazardous Waste Landfill – Downstream surface water drainage	Construction Operations Closure	Groups 1 and 6	Daily Monthly
MS-C-A	Surface water monitoring	Construction	Groups 1 and 8	During periods of flow on a monthly basis
MS-C-B				
MS-C-C				
MS-C-D				
MS-C-E				
MS-C-F				
MS-C-G				
MS-C-H				
Monitoring Legend: Green - Regulated; Blue - General Aquatic; Red - Verification				
<b>Regulated Monitoring</b> occurs at Monitoring Program Stations in licences or regulations. It includes discharge limits that must be achieved to maintain compliance with water licence or regulation (i.e., <i>Metal and Diamond Mining Effluent Regulations</i> ). Enforcement action may be taken if discharge limits are exceeded.				
<b>General Aquatic Monitoring</b> is subject to compliance assessment to confirm sampling is carried out using established protocols, including quality assurance/quality control provisions, and addresses identified issues. General monitoring is subject to change as directed by an Inspector, or by the Licensee, subject to approval by the NWB.				
<b>Verification Monitoring</b> Program to be carried out for operational and management purposes by Licensee. Monitoring parameters may vary between locations. Monitoring parameters and locations are internal for Licensee.				

**Table 15: Monitoring Program (Steensby Inlet or Port Site)**

Station	Description	Phase	Monitoring Parameters	Frequency
SP-08	Freshwater Intake at ST 347 Lake (permanent camp)	Construction Operations Closures	Group 1	Record Daily Report Monthly
SP-09	Freshwater Intake at 3 Km lake	Construction Operations Closure	Group 1	Record Daily Report Monthly
SP-01	Steensby Port Sewage Treatment Facilities	Construction Operations	Groups 1 and 2	Monthly
			Group 3	Annually
SP-01a	Steensby Polishing/Waste Stabilization Pond (PWSP)	Construction Operations	Groups 1 and 2	Once prior to discharge and Monthly thereafter
			Group 3	Annually
SP-02	Steensby Maintenance	Construction Operations	Groups 1 and 4	Monthly
SP-03	Floating Construction	Construction	Groups 1, 2, and 3	
SP-04	Steensby Bulk Fuel Storage Facility Stormwater	Construction Operations	Group 1 Group 5	Daily Flow Monthly
SP-05	Steensby Marine Fuel Storage Facility Stormwater	Construction Operations	Group 1 Group 5	Daily Flow Monthly
SP-06	Steensby Landfarm Facility Stormwater	Operations	Group 1 Group 5	Daily Monthly
SP-07	Steensby Ore Stockpile Stormwater	Operations	Groups 1 and 7	Monthly during summer
			Group 3	Annually
SP-08	Steensby Landfill Seepage	Construction Operations Closure	Groups 1 and 6	Monthly / observed flow

Railway Corridor				
TBD Ravn River Camp	Fresh Water Intake Ravn Camp Lake	Construction	Group 1	Record Daily Report Monthly
TBD Mid-Rail Camp	Freshwater Intake at Nivek Lake (summer) Ravn Camp Lake (winter)	Construction	Group 1	Record Daily Report Monthly
TBD Cockburn North	Freshwater Intake at Cockburn Lake	Construction	Group 1	Record Daily Report Monthly
TBD Cockburn South	Freshwater Intake at Cockburn Lake	Construction	Group 1	Record Daily Report Monthly
Monitoring Legend: Green - Regulated; Blue - General Aquatic; Red - Verification				
<b><u>Regulated Monitoring</u></b> occurs at Monitoring Program Stations in licences or regulations. It includes discharge limits that must be achieved to maintain compliance with water licence or regulation (i.e., <i>Metal and Diamond Mining Effluent Regulations</i> ). Enforcement action may be taken if discharge limits are exceeded.				
<b><u>General Aquatic Monitoring</u></b> is subject to compliance assessment to confirm sampling is carried out using established protocols, including quality assurance/quality control provisions, and addresses identified issues. General monitoring is subject to change as directed by an Inspector, or by the Licensee, subject to approval by the NWB.				
<b><u>Verification Monitoring</u></b> Program to be carried out for operational and management purposes by Licensee. Monitoring parameters may vary between locations. Monitoring parameters and locations are internal for Licensee.				

## *ATTACHMENT 3. CIRNAC R-06. UPDATED SAMPLING LOCATION FIGURES*



SAVED: C:\Users\Tim.Rast\Documents\GIS Data\Maps\Water License Renewal\2023\BIM\_Fig 5 MineSite Monitoring\_2023.mxd: 19-Nov-24





