Table B-01. Proposed Water Quality Monitoring for the Project during Construction, Operations, and Closure in Goose Property Area

Monitoring Location Number	Monitoring Type	Description	Purpose	Mine Phase	Parameter Group Code[5]	Frequency
BRP-G-01 to BRP-G-TBD	Regulated Monitoring[1]	General Site Runoff including Quarries - both Goose and MLA	Applies anywhere on the site; monitoring for erosion and sedimentation	Construction	C	Weekly if flow enters a waterbody
BRP-01	Regulated Monitoring[2]	Discharge to Goose Lake (after treatment)	Test of dewatering discharge (i.e., effluent), at final point of control. If water does not meet TSS discharge criteria, water will be treated prior to release[2].	Construction	A, B, G	Weekly during dewatering
					D	Four times during dewatering, at the same time as the weekly samples
					H	Once per month during dewatering, at the same time as groups D and F
					I	One time during dewatering, at the same time as groups D and F
BRP-02	General Monitoring	Llama Lake Dewatering (prior to treatment) if required	If treatment is required, this station will test pretreated water. When paired with results from BRP-01 this will be used to evaluate treatment efficiency.	Construction	C (TSS only)	Weekly if treatment is required; no sample if treatment is not required
BRP-03	Verification Monitoring	Llama Pit	Pit water quality prior to transfer to a tailings facility	Operations (Stage 1) to Operations (Stage 2)	A, G	See note [6]
BRP-04	General Monitoring	Llama Pit Lake	During pit flooding and before overflow to the downstream environment	Closure to Post-closure	A, D	Twice per year
BRP-05	Verification Monitoring	Llama WRSA Pond	Test quality of drainage water from Llama WRSA	Operations (Stage 1) to Closure	A, G	See note [6]

(continued)

Table B-01. Proposed Water Quality Monitoring for the Project during Construction, Operations, and Closure in Goose Property Area (continued)

Monitoring Location Number	Monitoring Type	Description	Purpose	Mine Phase	Parameter Group Code[5]	Frequency
BRP-06	General Monitoring	Umwelt Lake Dewatering (prior to treatment) if required	If treatment is required, this station will test pretreated water. When paired with results from BRP-01 this will be used to evaluate treatment efficiency.	Construction	C (TSS only)	Weekly if treatment is required; no sample if treatment is not required
BRP-07	Verification Monitoring	Umwelt Pit	Pit water quality prior to transfer to a tailings facility; Umwelt underground water directed to Saline Pond and not Umwelt Pit	Construction to Operations (Stage 2)	A, G	See note [6]
BRP-08	General Monitoring	Umwelt Pit Lake	During pit flooding and before overflow to the downstream environment	Closure to Post-closure	A, D	Twice per year
BRP-09	Verification Monitoring	Umwelt WRSA Pond	Test quality of drainage water from Umwelt WRSA. A landfill is located in this WRSA. Appropriate landfill parameters will be tested for; see the LWMP (SD-10) for details.	Construction to Closure (early)	A, G	See note [6]
BRP-10	Verification Monitoring	Primary Water Pond	Test quality of water in pond for industrial water use	Construction to Closure (early)	A, D	See note [6]
BRP-11	Verification Monitoring	Saline Water Pond	Test quality of water in pond; Formerly Umwelt Lake; different than station 3; monitoring at 14 does not overlap with monitoring at 3	Construction (late) to Closure (early)	A, D	See note [6]
BRP-12	General Monitoring	Big Lake Intake;	Source intake water quality for potable and industrial use	Construction to Closure	A, D	Four times per year
					B	Weekly
BRP-13	Verification Monitoring	Ore Stockpile Pond	Test quality of drainage water from Ore stockpile	Construction to Closure (early)	A, D	See note [6]
BRP-14	Verification Monitoring	ANFO Plant	Test quality of runoff water in the ANFO plant containment area	Construction to closure	A, E	See note [6]

(continued)

Table B-01. Proposed Water Quality Monitoring for the Project during Construction, Operations, and Closure in Goose Property Area (continued)

Monitoring Location Number	Monitoring Type	Description	Purpose	Mine Phase	Parameter Group Code[5]	Frequency
BRP-15	Regulated Monitoring[3]	Goose Fuel Tank Farm	Test quality of runoff water in the Fuel Tank Farm containment area	Construction to closure	A, E	Prior to discharge or transfer of water
BRP-16	Regulated Monitoring[3]	Goose Hazardous Waste Mgmt Area	Test quality of runoff water in the Hazardous Waste Management containment area	Construction to closure	A, E	Prior to discharge or transfer of water
BRP-17	Regulated Monitoring[4]	Treated sewage discharge to land	Test quality of sewage effluent discharge water quality	Construction to closure	A, E	Prior to discharge or transfer of water
BRP-18	General Monitoring	Llama Watershed Outflow (PN04 from water and load balance)	Test quality of non-contact water runoff from the "Llama" watershed	Construction to closure	A, D	Once during freshet
BRP-19	General Monitoring	Echo Outflow (PN09 from water and load balance)	Test quality of non-contact water runoff from the "Echo" watershed	Operations (Stage 1) to Closure	A, D	Once during freshet
BRP-20	Verification Monitoring	Echo Pit	Pit water quality prior to transfer to a tailings facility; Echo underground water is always directed to the TSF	Operations (Stage 2)	A, G	See note [6]
BRP-21	General Monitoring	Echo Pit Lake	During pit flooding and before overflow to the downstream environment	Closure to Post-closure	A, D	Twice per year
BRP-22	Verification Monitoring	Echo WRSA Pond	Test quality of drainage water from Echo WRSF	Operations (Stage 2) to Closure (early)	A, G	See note [6]
BRP-23	General Monitoring	Gander Pond Outflow (PN07 from water and load balance)	Test quality of non-contact water runoff from the "Gander" watershed	Operations (Stage 1) to Closure	A, D	Once during freshet
BRP-24	General Monitoring	Goose Lake Intake	Source intake water quality; for operational use (mill water make up)	Operations (Stage 2) to Closure (early)	B	Weekly
BRP-25	Verification Monitoring	Goose Pit	Pit water quality prior to transfer to a tailings facility; underground (saline) water directed to Saline Water Pond	Operations (Stage 1) to Operations (Stage 2)	A, G	See note [6]

(continued)

Table B-01. Proposed Water Quality Monitoring for the Project during Construction, Operations, and Closure in Goose Property Area (completed)

Monitoring Location Number	Monitoring Type	Description	Purpose	Mine Phase	Parameter Group Code[5]	Frequency
BRP-26	General Monitoring	Goose Pit Lake	During pit flooding and before overflow to the downstream environment	Closure to Post-closure	A, D	Twice per year
BRP-27	Verification Monitoring	Goose Main TF Intake; collected at "inlet" to treatment facility	Pretreatment quality	Operations (Stage 3) to Closure	A, G	See note [6]
BRP-28	Verification Monitoring	Goose Main TF Discharge into Goose Main TF (after treatment); collected at "outlet" of treatment facility; no discharge to the receiving environment	Post-treatment quality to confirm treatment efficiency	Operations (Stage 3) to Closure	A, G	See note [6]
BRP-29	Verification Monitoring	TSF WRSA Pond	Test quality of drainage water from TSF; A landfill is located in this WRSA. Appropriate landfill parameters will be tested for; see the LWMP (SD-10) for details.	Operations (Stage 1) to Closure	A, G	See note [6]
BRP-30	General Monitoring	Goose Southeast Inflow (PN06 from water and load balance)	Test quality of non-contact water runoff from the "TSF" watershed	Operations (Stage 1) to Closure	A, D	Once during freshet
BRP-51	Regulated Monitoring[3]	Goose Landfarm	Test quality of runoff water in the Landfarm containment area	Construction to Closure	E	Prior to discharge or transfer of water

Notes BRP = Back River Project; MLA = Marine Laydown Area
1) See Table 7.5-2 (Dewatering Discharge Criteria) in the Water Management Plan
2) See Table 7.5-1 (Site Runoff Discharge Criteria) in the Water Management Plan
3) See Table 7-5.3 (Discharge to Land Criteria) in the Water Management Plan
4) See Table 7.5-4 (Treated Sewage Effluent Criteria) in the Water Management Plan
5) See Table B-03 for parameters in each monitoring group
6) Monitoring parameters and frequency at the discretion of Sabina as results from the verification stations are used for operational and management purposes

Table B-02. Proposed Water Quality Monitoring for the Project during Construction, Operations, and Closure in Marine Laydown Area

Monitoring Location Number	Monitoring Type	Description	Purpose	Mine Phase	Parameter Group Code[4]	Frequency
BRP-G-01 to BRP-G-TBD	Regulated Monitoring[1]	General Site Runoff including Quarries - both Goose and MLA	Applies anywhere on the site; monitoring for erosion and sedimentation	Construction	C	Weekly if flow enters a waterbody
BRP-40	General Monitoring	Bathurst Inlet Intake (pre-treatment)	Source intake water quality for potable and industrial use	Construction to Closure	A, D	See note [5]
					B	See note [5]
BRP-41	General Monitoring[1]	Bathurst Inlet Discharge (post treatment)	Test quality at final point of control	Construction to Closure	A, J	See note [5]
BRP-42	Regulated Monitoring[2]	MLA Treated Effluent Discharge Location to land (greywater)	Confirm quality of greywater before release	Construction to Closure	A, F	Prior to discharge or transfer of water
BRP-43	Regulated Monitoring[3]	MLA Fuel Tank Farm	Test quality of runoff water in the Fuel Tank Farm containment area	Construction to closure	A, E	Prior to discharge or transfer of water
BRP-44	Regulated Monitoring[3]	MLA Landfarm	Test quality of runoff water in the Landfarm containment area	Construction to closure	A, E	Prior to discharge or transfer of water
BRP-45	Regulated Monitoring[3]	MLA Hazardous Waste Mgmt Area	Test quality of runoff water in the Hazardous Waste Management containment area	Construction to closure	A, E	Prior to discharge or transfer of water

Notes BRP = Back River Project; MLA = Marine Laydown Area
1)Marine Discharge Criteria not required for the Water Licence
2) See Table 7.5-4 (Treated Sewage Effluent Criteria) in the Water Management Plan
3) See Table 7.5-3 (Discharge to Land Criteria) in the Water Management Plan
4) See Table B-03 for parameters in each monitoring group
5) Monitoring parameters and frequency at the discretion of Sabina as results from the verification stations are used for operational and management purposes

Table B-03. List of Constituents in Each Parameter Group

Parameter Group	Parameter Group Code	Specific parameters
Field Chemistry	A	pH, specific conductivity, and temperature.
Flow	B	Flow datalogger, calculated volume
General Surface runoff	C	Total Suspended Solids (TSS), Oil and Grease, pH
General Chemistry	D	Conventional: turbidity, hardness, alkalinity, calcium, chloride, fluoride, magnesium, potassium, sodium, sulphate, total dissolved solids, TSS, total cyanide, free cyanide, and weak acid dissociable (WAD) cyanide. Nutrients: ammonia, nitrate, nitrite, total phosphorus (TP), and dissolved organic carbon. Total and dissolved metals: aluminum, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, uranium, and zinc Other: radium-226, *Escherichia coli*, and Total coliforms, when required
Secondary Containment	E	TSS, pH, ammonia, total arsenic, total copper, total lead, total nickel, total zinc, benzene, toluene, ethylbenzene, xylene, Oil and Grease
Sewage	F	Biochemical Oxygen Demand (5-day), TSS, Fecal coliform, ammonia, phosphorus, Oil and Grease, pH, Acute toxicity (Rainbow Trout and Daphnia magna)
MMER deleterious substances	G	TSS, total cyanide, total arsenic, total copper, total lead, total nickel, total zinc, and radium-226
MMER toxicity	H	Acute toxicity (Rainbow Trout and Daphnia magna)
MMER sublethal toxicity	I	Sublethal toxicity (Fathead Minnow or Rainbow Trout, Ceriodaphnia dubia, Lemna minor, Pseudokirchneriella subcapitata)
Discharge to Marine	J	Salinity, total metals (aluminum, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, uranium, and zinc), oil and grease

Note: Detection limits may vary for site monitoring and for downstream receiving environment monitoring

REFERENCES

1985. *Fisheries Act*. R.S.C. 1985, c. F-14.

1988. *Environmental Protection Act*. RSNWT (Nu) 1988, c E-7.

1993. *Nunavut Agreement Act*. S.C. 1993, c. 29.

CCME (Canadian Council of Ministers of the Environment). 1999 (with updates to 2017). Canadian Environmental Quality Guidelines for the Protection of Aquatic Life - Summary Table. Available at: http://st-ts.ccme.ca/.