April 7, 2017

Tracking Number: 355246
Authorization Number: 11678

REGISTERED MAIL

MOUNT POLLEY MINING CORPORATION
SUITE 200
580 HORNBY ST
VANCOUVER, BC
V6C 3B6

Dear Permittee:

Enclosed is Amended Permit 11678 with respect to AMS Job Nos, 353164, 353170 and 355246, issued under the provisions of the *Environmental Management Act*. Your attention is respectfully directed to the terms and conditions outlined in the permit. An annual fee will be determined according to the Permit Fees Regulation.

This permit does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the permittee. This permit is issued pursuant to the provisions of the *Environmental Management Act* to ensure compliance with Section 120(3) of that statute, which makes it an offence to discharge waste, from a prescribed industry or activity, without proper authorization. It is also the responsibility of the permittee to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

Administration of this permit will be carried out by staff from the Environmental Protection Division's Regional Operations Branch. Plans, data and reports pertinent to the permit are to be submitted by email or electronic transfer to the Director, designated Officer, or as further instructed.

Environmental Protection Division
Ministry of Environment
400 – 640 Borland St.
Williams Lake BC
V2G 4X8
Mining Operations
Telephone: (250) 398-4530
Facsimile: (250) 398-4214

Yours truly,

Douglas J. Hill, P.Eng.
for Director, *Environmental Management Act*
Mining Operations

Enclosure

cc: Environment Canada

MINISTRY OF ENVIRONMENT

PERMIT

11678

Under the Provisions of the Environmental Management Act

MOUNT POLLEY MINING CORPORATION

SUITE 200
580 HORNBY ST
VANCOUVER, BC
V6C 3B6

is authorized to discharge effluent to the land and to surface water from a copper-gold mine and mill complex located near Likely, British Columbia, subject to the terms and conditions listed below. Contravention of any of these conditions is a violation of the *Environmental Management Act* and may lead to prosecution.

This permit amendment supersedes and amends all previous versions of Permit 11678 issued under Part 2, Section 14 of the *Environmental Management Act*.

1 AUTHORIZED DISCHARGES

1.1 This section applies to the discharge of effluent from **a Copper-Gold Mine and Ore Concentrator to a Tailings Impoundment**. The site reference number for this discharge is E225309.

1.1.1 The monthly average rate of discharge of tailings slurry is 55,500 cubic meters per day.

1.1.2 The authorized discharge period is continuous.

1.1.3 The characteristics of the discharge must be typical of concentrator tailings from the milling of ore or metal contaminated soil, mill site runoff, rock disposal site runoff, open pit water, and septic tank effluent from a copper-gold mine and mill complex.

1.1.4 The authorized works are a septic tank, tailings discharge line, open pits, tailings impoundment, seepage collection and recycle system, mine, mill, and rock disposal site runoff collection ditches and sumps, tailings

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supernatant recycle systems, sediment pond(s), and related appurtenances located approximately as shown in the attached Site Plans.

1.1.5 The authorized works must be complete and in operation while discharging.

1.1.6 The location of the facilities from which the discharge originates is within Mineral Leases No. 345731, No. 410495, No. 524068, No. 573346, No. 933970, and No. 933989 as well as Mineral Claims No. CB16 204475, No. PM5 206540, No. POL2 411010, No. 514039, and No. 514044, Cariboo Mining Division, Cariboo Land District.

1.1.7 The location of the point of discharge (tailings impoundment) is on Mineral Claim No. 514039, Cariboo Mining Division, Cariboo Land District.

1.2 This section applies to the discharge of treated effluent from the **Site Runoff and Seepage Water Collection and Management Systems** to **Hazeltine Creek or to Quesnel Lake** as sampled at the Treatment Plant Outlet **(HAD-03)**. The site reference for this discharge is E304230.

1.2.1 The authorized discharge rates are

Maximum	**Annual Average**	**Location**
29,000 m^3/day	26,000 m^3/day	When discharging to Hazeltine Creek
52,000 m^3/day	29,000 m^3/day	When discharging to Quesnel Lake

1.2.2 The authorized discharge period(s) is continuous subject to the following conditions:

i. The commissioning of the direct pipeline to the Quesnel Lake outfall must be conducted per the requirements of section 3.5 of this permit.

ii. Discharge to Hazeltine Creek must cease prior to December 31, 2017.

iii. Use of the Quesnel Lake outfall is authorized until December 31, 2022.

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1.2.3 The characteristics of the discharge at the outlet of the treatment plant must be equivalent to or less than the values specified below. The discharge characteristics must also be such that, while discharging, the concentrations of the parameters meet the limits for the "Edge of the Quesnel Lake Initial Dilution Zone (IDZ) in Quesnel Lake" specified below:

Parameter	**Interim** (1) (see section 1.2.4)	**Final** (1) (see section 1.2.4)	**Edge of Quesnel Lake IDZ** (1)(2)(3)
Rainbow Trout 96hrLC50	50 % Mortality in 100% effluent	50 % Mortality in 100% effluent	-
Daphnia Magna 48hrLC50	50 % Mortality in 100% effluent	50 % Mortality in 100% effluent	-
pH	< 9.5 and >6.0 pH units	< 9.5 and >6.0 pH units	-
Total Suspended Solids	30 mg/L, and 15 mg/L Monthly Average	30 mg/L, and 15 mg/L Monthly Average	-
Total Sulfate	720 mg/L	1,100 mg/L	218 mg/L
Total Ammonia (as N)	0.41 mg/L	1.3 mg/L	0.18 mg/l as N
Total Nitrate (as N)	9.7 mg/L	34.0 mg/L	3.0 mg/l as N
Total Nitrite (as N)	0.78 mg/L	0.78 mg/L	0.02 mg/L as N
Total Phosphorus	90.0 µg/L	90.0 µg/L	10.0 µg/L
Fluoride	17.0 mg/L	17.0 mg/L	1.0 mg/L
Total Arsenic	3.4 µg/L	28 µg/L	5.0 µg/L
Total Chromium	1.1 µg/L	4 µg/L	1 µg/L
Total Copper	12 µg/L	33 µg/L	2.2 µg/L
Total Iron	1.0 mg/L	1.0 mg/L	1.0 mg/L
Dissolved Iron	0.35 mg/L	0.35 mg/L	0.35 mg/L
Total Manganese	3.4 mg/L	3.4 mg/L	0.84 mg/L
Total Molybdenum	0.36 mg/L	0.36 mg/L	0.05 mg/L
Total Silver	0.24 µg/L	0.24 µg/L	0.05 µg/L
Total Selenium	60 µg/L	75 µg/L	2 µg/L
Total Zinc	59 µg/L	59 µg/L	7.5 µg/L
Dissolved Aluminum	0.75 mg/L	0.75 mg/L	0.05 mg/|
Dissolved Cadmium	0.34 µg/L	0.34 µg/L	0.13 µg/L

(1) All values are maximum values from grab samples unless otherwise specified.

(2) Only applies while discharging directly to Quesnel Lake.

(3) The "Edge of the Quesnel Lake IDZ" is a point located 100m from the Quesnel Lake outfall, represented by site QUL-58, or alternative approved by the Director.

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1.2.4 The discharge must not exceed the "Interim" concentrations specified in section 1.2.3 until the Permittee has conducted an acute toxicity testing program on the Final effluent concentrations, submitted the results and the Director is satisfied that the Final effluent concentration mixture is not acutely toxic to aquatic life. The Director may require a lower discharge limit for any number of individual Final effluent limits listed in 1.2.3 based on the acute toxicity results.

1.2.5 The Permittee must maintain the diversion channel and the two settling ponds in lower Hazeltine Creek while the Hazeltine Creek Discharge remains in use. The Permittee must cease discharging to Hazeltine Creek immediately if the upper settling pond is overflowing into the lower settling pond.

1.2.6 The Permittee must cease discharging under section 1.2 immediately if the effluent fails to meet the appropriate characteristics in section 1.2.3 above, including the required parameter limits at the edge of the IDZ. The discharge may resume only if a subsequent re-test demonstrates that the effluent meets the characteristics in section 1.2.3.

1.2.7 The authorized works for the Hazeltine Creek discharge are the mine contact water collection system, the Veolia Actiflo treatment system, flow control valve(s), continuous flow meter and outfall to the Hazeltine Creek channel, the lower Hazeltine Creek settling ponds, and the Quesnel Lake outfall system and associated appurtenances as generally shown in the attached Site Plans.

The authorized works for the Quesnel Lake Discharge are the mine contact water collection system, the Veolia Actiflo treatment system, flow control valve(s), continuous flow meter, direct pipeline to the Quesnel Lake outfall system and associated appurtenances as generally shown in the attached Site Plans.

The works specific to each discharge must be complete and in operation prior to discharging via those specific works.

1.2.8 The location of the facilities from which the discharge originates is the same as in section 1.1.6 above.

1.2.9 The location of the discharge is upper Hazeltine Creek at a point within Mineral Claim No. 514039 when discharging to Hazeltine Creek.

The location of the discharge is the Quesnel Lake outfall at a point within Mineral Claim No. 501479 when discharging to Quesnel Lake.

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1.3 This section applies to the discharge of seepage water from **Springer Pit to Ground**. The site reference for this discharge is **E307887**

1.3.1 The Permittee must maintain Springer Pit water levels at less than 1025 meters above sea level (masl) to limit seepage towards Bootjack Lake

1.3.2 The characteristics of the discharge are typical site runoff and seepage water.

1.3.3 Should Springer Pit levels exceed 1025 masl for more than 21 days, the Permittee must initiate quarterly 96 hr LC50 Rainbow Trout and 48 hr LC50 *Daphnia magna* acute toxicity testing of Springer Pit water and report the results as part of the routine reporting requirements.

1.3.4 Should Springer Pit levels exceed 1025 masl for more than 3 consecutive months the Permittee must submit a response plan within 15 days of the end of the 3rd month to draw down the levels to less than 1025 masl and implement the response plan to the satisfaction of the Director.

1.3.5 The authorized works are Springer Pit, and its associated water management works and related appurtenances.

1.3.6 The location of the facilities from which the discharge originates and the point of discharge are as generally shown in Site Plan B.

2 GENERAL REQUIREMENTS

2.1 Maintenance of Works and Emergency Procedures

The authorized works must be inspected regularly and maintained in good working order. In the event of an emergency or condition beyond the control of the Permittee which prevents effective operation of the authorized works or leads to an unauthorized discharge, the Permittee must take appropriate remedial action and notify the Director immediately. The Director may require the Permittee to reduce or suspend operations to protect the environment until the authorized works have been restored, and/or corrective steps taken to prevent unauthorized discharges.

All ponds, ditching, and other runoff or seepage collection and diversion works must be inspected at least twice per year, once in the spring after freshet and once in the fall before freeze-up. Records of these inspections must be kept on site and made available for inspection by an Officer.

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2.2 Bypasses

Any bypass of the authorized works is prohibited unless the approval of the Director is obtained and confirmed in writing.

2.3 Process Modifications

The Director must be notified prior to implementing changes to any process that may adversely affect the quality and/or quantity of the authorized discharges. Despite notification under this section, permitted levels must not be exceeded.

2.4 Surface Runoff and Mine Drainage Control

2.4.1 Unless required for operational purposes, surface runoff from undisturbed areas and groundwater pumped from up gradient of pits or other disturbed areas, must be diverted so that it does not flow to the tailings impoundment, or to the mine and mill areas. Water quality must be maintained during construction and operation from up gradient areas when being diverted to natural watercourses.

2.4.2 To the maximum extent possible, seepage and runoff from the open pits, rock disposal sites, and from down gradient of the tailings impoundment must be collected and conveyed to treatment works, the tailings impoundment, mill or open pits. Recycling of on-site water and evaporation enhancing techniques must be practiced to the maximum extent practicable. Inactive open pits may be used for storage of mine water, tailings impoundment supernatant or mill site runoff, provided records of volumes transferred to any pit are maintained and reported quarterly.

2.4.3 Surface runoff control works must be provided for all areas disturbed by roads, open pits, rock disposal/storage sites, the mill site and ore storage sites. The surface runoff control system must convey all flows up to a 1 in 10 year 24-hour storm event, and must withstand all flows up to a 1 in 200 year 24-hour storm event, without significant damage.

2.4.4 The tailings impoundment must provide adequate storage, beach width and freeboard as required by Mines Act Permit M-200. All other effluent storage ponds, seepage ponds, and surface runoff ponds must provide at least 0.5 meters of freeboard. If at any time free board is less than 0.5 meters in any other pond, the Permittee must notify the Director following procedures in section 2.1 above.

2.4.5 After initially reporting such an occurrence, the Permittee must report the freeboard weekly until such time as the required freeboard is

re-established. Freeboard is defined as the difference in elevation between the contained liquid level and the top of the berm structure at its lowest point. The lowest point does not include a spillway where a discharge is authorized or where the supernatant over flows to a downstream collection pond that is part of the authorized works.

2.4.6 Sedimentation of watercourses must be prevented during construction and operation of any mine structures or facilities. The *Sediment and Erosion Control Management Plan* must be implemented to the satisfaction of the Director. The Director may specify and require implementation of measures to prevent sedimentation of watercourses caused by construction or operational activity at the site.

2.5 Environmental Emergency and Permit Exceedance Response Plan

The Permittee must maintain and submit an updated Environmental Emergency Response Plan annually or as requested by the Director. The Plan must be to the satisfaction of the Director and include adequate procedures for responding to all probable environmental emergencies, including spills, and permit exceedances associated with the Mount Polley Mine operations and mine site area, as well as procedures for the suspension of the effluent discharge to Hazeltine Creek and/or Quesnel Lake. Appropriate mine personnel must be made aware of and review its contents at least annually. The plan must include a notification protocol for immediately advising the Soda Creek Indian Band, the Williams Lake Indian Band, the Cariboo Regional District, and the community of Likely of significant emergency events, and permit exceedances at the mine site.

2.6 Hazeltine Creek Fish Exclusion and Response Plan

The Permittee must continue to implement the *Hazeltine Creek Fish Exclusion and Response Plan*, until the direct discharge to Quesnel Lake commences. The Plan must include monthly visual monitoring when Hazeltine Creek is ice free.

2.7 Annual Discharge Plan

An Annual Discharge Plan must be submitted to the Director for approval by April 15th of each year for the discharge authorised in section 1.2 above, and must include the following:

(1) An outline of the expected volume, timing, and duration of effluent released to Hazeltine Creek and Quesnel Lake;

(2) Consideration or account of recent hydrology and snowpack information, mine water balance information, Polley Lake discharge control, and background water quality information;

(3) Demonstrate how the BCWQGs will be met at the edge of the initial dilution zone in Quesnel Lake;
(4) A maximum turbidity target(s), as measured at the point of discharge and in the sedimentation pond in lower Hazeltine Creek, which requires immediate reporting to the Director should the turbidity target(s), be exceeded for longer than one hour in duration;
(5) A trigger and response plan for treatment system shutdown, and for suspension of discharge, if the requirements of the permit cannot be met;
(6) Identification of the sources of mine water and the percent of each source in the total effluent discharge for each day;
(7) Demonstrate how the discharge will be managed to minimize suspended solids deposition into Hazeltine Creek and Quesnel Lake; and,
(8) Identification of equipment, including calibration and maintenance related to continuous measurements of flow, turbidity, specific conductance and temperature.

2.8 Best Achievable Technology (BAT) / Final Water Management Plan

The Permittee must develop and implement a final water management plan that includes BAT technology to address contaminants not removed by the current Actiflo system and/or extended duration passive settling of the mine influenced waters. The Permittee must submit the final plan and implementation schedule to the Director prior to December 1st, 2019.

The plan must meet the all following requirements:

a) Provide works for the full treatment and/or management of 1 in 10 wet year flows, including the associated freshet flows for all mine influenced water sources on site that do not meet Water Quality Guidelines, once the works are fully complete, without requiring the use of the Quesnel Lake outfall.
b) Include all the essential information necessary for: review and support of the final design, assessing its expected performance, and the impacts of the discharge(s) on the receiving environment, including but not limited to:
    i. Detailed bench scale, and pilot scale results for all the proposed works. Performance assurances from vendors for active treatment systems may also be considered in lieu of pilot scale tests.
    ii. Discussion of how all the bench and pilot system findings, and/or other performance assurances have been incorporated into the final design of the individual components and/or the system as a whole to assure attainment of discharge standards and/or B.C. Water Quality Criteria.
    iii. Discussion and documentation of the ability and/or design criteria

necessary, for the works to treat all contaminants known to be above all relevant BC Water Quality Criteria to levels below appropriate water quality guidelines where possible.

iv. An assessment whether low permeability barriers could limit infiltration and exfiltration of Springer pit water (and other pits as necessary) with respect to providing both short term and long term mitigation for the seepage from Springer-Cariboo Pit (and or other pits) to ground and potentially to adjacent surface waters. The assessment must also assess other mitigation options for Springer –Cariboo Pit such as a seepage collection system(s), and treatment alternatives.

v. A siting map and implementation plan that results in commissioning of all works necessary for full scale operations on or before December 31, 2022, or as necessary relative to the plans to backfill and submerge potentially acid generating waste rock within Springer-Cariboo Pit. Siting must also allow for potential future mining operations or ongoing mining operations to take place.

vi. An updated and refined water balance and water quality model acceptable to the Director, with appropriate sensitivity analyses for both onsite and receiving waters, which predicts the impacts to the receiving environment. The water quality model must use updated site monitoring data to demonstrate how well the model is calibrated to observed site conditions.

vii. Other requirements as specified by the Director, following review of a draft final water management plan to be submitted on or before June 30th, 2019.

2.9 Treatment Works and Source Control Optimization

The Permittee must assess and optimise the existing treatment process and works on a regular basis.

A final assessment report on refining and implementing an improved copper removal process must be provided within 60 working days of the issuance of this permit amendment, and the recommended measures implemented prior to July 1st, 2017.

Additional optimization assessments must be undertaken including:

a) Utilizing single or dual media filters to improve TSS removal as well as address the elevated aluminum concentrations caused by carry thru of aluminum based coagulants.

b) Bench scale lime treatment tests to assess further improvements in discharge quality.

The Permittee must submit an initial optimization plan to the Director on July 1st, 2017 and updated progress reports every 6 months until submission of the Final Water Management Plan under section 2.8.

The Permittee must submit an Explosive and Nitrogen Management Plan developed by a Qualified Professional by October 1, 2017. The plan must specifically target measures that prevent the loss of nitrogen species into the environment. The submitted nitrogen management program must be implemented and any update to the plan provided to the Director within 30 days of adoption.

2.10 Bio-Chemical Reactors (BCR) Bench Scale Testing and Piloting

The Permittee must submit:

a) the Bench scale testing plan(s) within 60 days of the issuance of this permit amendment for review by the Director; and,
b) a detailed design for the Pilot Passive Water Treatment system(s) by August 15th 2017 for review by the Director.

Both the above items must include documentation that the testing and piloting programs are relevant for all the different types of mine influenced water on site that the final water management plan needs to address and potential applications of BCR based treatment systems on site. For clarity, this includes the potential in-situ treatment of Springer-Cariboo Pit seepage waters containing submerged potentially acid generating waste rock.

The Pilot Scale BCR system(s) and, if necessary a Bench scale system specific to in situ treatment of Springer-Cariboo Pit water, and or other mine water generated on site must be commissioned and operational on or before December 1, 2017. The Permittee must all submit "As built" drawing of the Pilot(s) and or further Bench Scale BCR system(s) on or before December 1, 2017.

2.11 Communication Plan

The Permittee in consultation with the stakeholders noted below must develop and submit an update to the Communication Plan by June 30, 2017. The Communication Plan must be to the satisfaction of the Director and address the sharing of environmental data with the Soda Creek Indian Band, the Williams Lake Indian Band, the Cariboo Regional District, and the Community of Likely.

2.12 Public Liaison Committee

The Permittee must maintain a Public Liaison Committee (PLC), in accordance with the approved Terms of Reference. The Permittee must in consultation with PLC participants, develop updated Terms of Reference for submission to the Director by June 30, 2017, and must submit any further updates to the Director for approval 30 days prior to adopting them.

The Committee must meet at least quarterly to share and receive information about mine activities and the results of monitoring programs with interested members of the public, the Soda Creek Indian Band, the Williams Lake Indian Band, and regulating agencies.

2.13 Posting of Security

The Permittee must maintain a Reclamation Security as required by *Mines Act* Permit M-200.

2.14 Metal Contaminated Soil Milling

Tailings from the mill processing of metal contaminated soils from off mine site sources may be discharged to the tailings impoundment provided the Permittee has notified and obtained written approval from the Director prior to receiving these materials at the mine site. Records of the volumes processed must also be maintained and reported as part of the routine reporting requirements.

2.15 Qualified Professionals

All documents submitted to the Director must be signed by the author and where specifically required by this permit, authored and signed by a Qualified Professional.

A "Qualified Professional" means an applied scientist or technologist specializing in an applied science or technology applicable to the duty or function, including, if applicable and without limiting this, agrology, biology, chemistry, engineering, geology or hydrogeology and who

i. is registered with the appropriate professional organization, is acting under that organization's code of ethics and is subject to disciplinary action by that organization, and,
ii. through suitable education, experience, accreditation and/or knowledge, may be reasonably relied on to provide advice within their area of expertise.

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3 MONITORING AND REPORTING REQUIREMENTS

3.1 Springer-Cariboo Pit Hydrogeology Work Plan and Assessment

The Permittee must submit a summary, satisfactory to the Director, of all hydrogeological work that has been completed downgradient of the Springer Pit and Cariboo Pit relevant to the Springer Pit filling and drawdown. The summary must describe all monitoring, modelling, and drilling investigations, and must provide recommendations by a Qualified Professional for additional hydrogeological investigations required to manage water in the pits during any future refilling and for mine closure. Recommendations must consider ongoing collection of water quality and geology data as the mine advances, review of the groundwater monitoring network, and hydrogeological model refinements, as appropriate. The summary must be provided to the Director by May 31, 2017.

Based on the review of the summary, the Director may require additional hydrogeological investigation and assessment of the hydrogeology along the seepage path from the Springer-Cariboo Pit to Bootjack Lake. Any additional monitoring recommended in the summary of hydrogeological work, or required by the Director must be incorporated into updates of the Comprehensive Environmental Monitoring Plan.

The recommendations of the summary of hydrogeological work required above, and all ongoing hydrogeological data collected must be re-assessed as part of the annual reporting requirements under section 3.9 of this permit. This includes an annual update to the characterization of the groundwater system in the area between the pit and the lake, refinements and updates to the seepage model near the pit, and reporting on the groundwater monitoring network near the pit.

In addition, updated results and interpretations of the Springer-Cariboo Pit Hydrogeology Assessment, including an updated calibration and verification of the seepage model near the pit, must be prepared by a Qualified Professional and must be submitted to the Director prior to any planned refilling of Springer Pit above 1025 masl.

3.2 Comprehensive Environmental Monitoring Plan

The Permittee must continue to develop, submit and implement an ongoing Comprehensive Environmental Monitoring Plan (CEMP) to evaluate the effects of mining-related activities on the physical, chemical, and biological characteristics of Hazeltine Creek, Edney Creek, Bootjack Lake, Moorehead Creek, Polley Lake, Quesnel Lake, Quesnel River, and associated riparian and upland areas.

The CEMP will consolidate and integrate all of the pre-existing monitoring programs that are being conducted in the vicinity of the mine site and include, at minimum, surface water (quality and quantity), groundwater (characterization and interactions with surface water), sediments, soils, periphyton, phytoplankton, benthic invertebrates, zooplankton, fish, floodplain and upland vegetation, and wildlife.

The CEMP must at minimum address a three year time span, as well as at a minimum include all sampling sites, frequency of sampling, variables to be analysed, method detection limits, sampling methods, sample analysis methods, and data analysis methods.

The Director may require revisions to the CEMP based on review of monitoring data and/or any other relevant information.

During the period of treated effluent discharge authorized by section 1.2 above the Director may require expedited sampling, testing and reporting of treated effluent discharged during the spring freshet (March through July annually).

A phased approach must be used to develop the CEMP. The phased approach will include the following steps:

i. The Permittee must maintain an approved Terms of Reference for the CEMP, to the satisfaction of the Director. A revised Terms of Reference must be submitted to the Director by April 30, 2017;
ii. The Permittee must maintain an approved CEMP to the satisfaction of the Director. The June 16, 2016 version of the CEMP is approved and must be implemented until a revised CEMP is approved by the Director. A draft revised CEMP must be submitted to the Director for review by April 30, 2017;
iii. The Permittee must undertake monitoring in accordance with the approved CEMP immediately following its approval;
iv. The Permittee must provide all data and information collected under the CEMP to the Director, in electronic format, on a quarterly basis; and,
v. The Permittee must submit a three-year detailed monitoring program interpretive report and updated CEMP to the Director, for approval, by March 31, 2019, and every three years thereafter.

3.3 Effluent Toxicity Testing

Acute and chronic toxicity tests of discharges to the Hazeltine Creek and Quesnel Lake as authorized under section 1.2 of this permit must be conducted as follows:

Acute Bioassay	**Frequency**	**Source for Sample Collection**
96-hr LC50 Rainbow Trout	Monthly[a]	HAD-03 - Effluent discharged to Hazeltine Creek or Quesnel Lake (E304230)
48-hr LC50 Daphnia magna	Monthly[a]	
Chronic Bioassay	**Frequency**	**Source for Sample Collection**
7-day Ceriodaphnia dubia survival and reproduction, and 7-day ELS toxicity test with a salmonid fish and or other tests specified by the Director	Quarterly or as required by the approved CEMP	HAC-12 - Intake to Secondary Discharge Point to Quesnel Lake (E304351) when discharging to Hazeltine Creek, or as specified in the approved CEMP when discharging direct to Quesnel Lake

a - the Director may require increased frequency if trimercaptotriazine (TMT) is used with polyaluminum chloride (PAC), or if high PAC dosages are used in the water treatment plant

3.4 Water Flow Measurement

The Permittee must provide and maintain suitable flow measuring devices and record staff gauge measurements, during open water, at surface water stations W1b (Morehead Creek), W4A (North Dump Creek), W5 (Bootjack Creek) W12 (6K Creek), H1 (continuous, Upper Hazeltine Creek), H3(Edney Creek), H4 (Polley Lake outlet) and H2 (continuous, Lower Hazeltine Creek), located approximately as shown on the attached Site Plans, or at alternative monitoring stations satisfactory to the Director. Springer Pit water elevation shall be monitored and recorded on a monthly basis.

Staff gauge readings must be taken at the same time as stream flow measurements and/or water quality sampling are collected at the same or associated sites. A stage discharge curve must be developed for all staff gauges, and all staff gauges and flow measuring devices must be checked and calibrated once per year, after June 15th but prior to August 31st of each calendar year.

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The water elevation must be measured in all groundwater wells each time they are sampled for water quality.

3.5 Outfall and Pipeline Commissioning and Inspection

The Pipeline from the Actiflo treatment plant to Quesnel Lake must include a leak detection and containment system. The Pipeline must pass pressure and leak testing protocols approved by a Qualified Professional and the findings reported to the Director for review prior to being put into service. The use of effluent meeting the characteristics of section 1.2.3 during testing of the pipeline is authorized, but after each test it must be either bled into the diffuser system for lake discharge or managed in another manner acceptable to the Director.

The Permittee must develop and implement a routine visual inspection program for the outfall and pipeline and submit it to the Director 30 days prior to commencing pipeline operations under section 1.2 of this permit. Records of the routine visual inspections must be kept on site and made available for inspection by an Officer.

The Permittee must ensure that a comprehensive inspection and testing program of the pipe line and outfall is conducted and includes an annual leak and pressure testing of the pipeline and an underwater inspection of the diffuser every 2 years to ensure they remain in good working order.

The annual inspection and testing reports with recommended remedial actions if required must be submitted to the Director within 60 days of completion of the inspections.

A sign must be maintained along the alignment of the outfall facing Quesnel Lake above the high water mark. The sign must identify the nature of works. The wording and size of the sign must be acceptable to the Director. Signs must also be posted along the effluent pipeline right-of-way at points of public access to identify the right-of-way. All signs must include emergency contact information.

3.6 Climate Monitoring

The Permittee must maintain a meteorological station and measure continuous daily precipitation; daily maximum, minimum and mean temperature; and daily evaporation calculation or suitable alternative as approved by the Director. Climate Monitoring sites are as generally shown in Site Plan E.

3.7 Sampling and Analysis Procedures

Sampling is to be carried out in accordance with the procedures described in the "British Columbia Field Sampling Manual For Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples 2013 Edition (Permittee)", or most recent edition, or by suitable alternative procedures as authorized by the Director.

Analyses are to be carried out in accordance with procedures described in the "British Columbia Environmental Laboratory Manual 2013 Edition", or the most recent edition, or by suitable alternative procedures as authorized by the Director.

Copies of the above manuals are available on the Ministry web page at:
http://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/sampling-methods-quality-assurance

Bioassays must follow:

i. the "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout", Report EPS 1/RM/13 December 2000;
ii. the "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna", Reference Method EPS 1/RM/14 December 2000;
iii. the "Biological Test Method: Toxicity Tests Using Early Life Stages of Salmonid Fish (Rainbow Trout)", Report EPS 1/RM28, July 1998 - Embryo/Alevin;
iv. the "Biological Test Method: Test of Reproduction and Survival Using the Cladoceran Ceriodaphnia dubia", Report EPS l/RM/21, February 2007;
v. or by suitable alternative procedures as authorized by the Director.

3.8 Quality Assurance

The Permittee must maintain a "Quality Assurance Manual" consistent with "British Columbia Field Sampling Manual for Continuous Monitoring plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples 2013 Edition (Permittee)", or most recent edition. The Permittee must ensure that all data submitted as a requirement of this permit is produced in accordance with the Quality Assurance Manual, that data is handled and reviewed in accordance with protocols established in the Manual, and is accompanied by quality assurance data required by the Manual. The Permittee must provide the Director with any updates to this Manual within 30 days of adoption.

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Date amended: April 7, 2017
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Analysis of samples for parameters designated under the Environmental Data Quality Assurance Regulation must be at a laboratory registered for the designated parameter under the Regulation. In addition, the Permittee must participate in quality assurance audits as required by the Regulation.

3.9 Reporting

In each month that discharge occurs as authorized by section 1.2 above, the Permittee must submit a monthly report, suitably tabulated and formatted, to the Director summarizing:

a. the volume of treated effluent discharged,
b. a summary of continuous Turbidity readings of the treated effluent discharged, and
c. the most recently available water quality results for the effluent discharged, including toxicity.

Each monthly report must be submitted within seven days of the end of previous month via email to EnvAuthorizationsReporting@gov.bc.ca . Each monthly report must also contain and present all data submitted in the previous 2 monthly reports in a manner that would identify potential trends.

Each monthly report must also be provided to the Williams Lake Indian Band and Xatsull First Nation, and be made available to the Public Liaison Committee with 7 days of the submission to the Ministry.

The Permittee must also submit by March 31st of each year, a comprehensive annual report of all monitoring via email to the above email address, in a format suitable for public release. The annual report must include:

a) all monitoring sample results required under the permit,
b) an evaluation of quality assurance, including collection, sampling, and data handling protocols,
c) an evaluation of the treatment plant operation and control,
d) an evaluation of the impacts of the mining operation on the receiving environment from the previous year,
e) a summary of any non-compliance with the permit and other incidents that may have led to impacts to the receiving environment,
f) updates of the water balance, and a calibration assessments of the water balance and water quality models,
g) assessment of the outfall dispersion and dispersion modelling for the Quesnel Lake discharge,

h) an update to any modeling relating to the Springer Pit groundwater seepage and its impacts on Bootjack Lake as described in section 3.1,
i) a progress update with respect to the final water management plan,
j) a review and update of the assessment of acid rock drainage (ARD) potential and water quality impacts from mine waste management,
k) a comparison of monitoring data with water quality guidelines, predictions and targets,
l) an update on the progress of reclamation and any updates to the reclamation plan that impact on site water quality,
m) an evaluation of the effectiveness of the Surface Runoff and Mine Drainage Control programs,
n) a summary of the Public Liaison Committee meetings, including any issues and concerns presented,
o) an evaluation of the Outfall and Pipeline Inspection program, and
p) trend analysis (graphs) of water monitoring data at each site for the past 5 years.

Monitoring data and the analysis of that data, as it will be presented in the annual report, must be reviewed by a third party Qualified Professional.

A groundwater monitoring program review, including but not limited to sampling, well locations, site water balance, interpretation of data trends and possible environmental impacts, and suitable recommendations, must be completed for the entire mine site at least every three years, with the next review required by March 31, 2019.

A Copy of the annual report must be deposited with the Cariboo Regional District Library and provided to the Williams Lake Indian Band and Xatsull First Nation within 30 days of the report being submitted to the Director.

The Director may require modification to the monitoring program based on the evaluation of the monthly and annual reports and on any other information that pertains to the operations and or discharges.

The Permittee must upload monitoring data associated with this permit to the Ministry's Environmental Monitoring System (EMS) database, within 45 days of the end of the 3 month period in which the data is collected.

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3.10 Effluent Toxicity Failure Reporting

The Permittee must immediately notify the Director of any toxicity failure according to the Non-Compliance Reporting requirements in Section 3.11. For the purpose of this section, a sample is considered to have failed the specific toxicity test if:

a) **96-hr LC50 Rainbow Trout:** Using 100% effluent concentration, more than 50% of the fish die within a 96 hour test period,
b) **48-hr LC50 Daphnia magna:** Using 100% effluent concentration, more than 50% of the organisms die within a 48 hour test period,
c) **7-day Ceriodaphnia dubia reproduction:** The water from HAC-12 is determined to cause greater than 25% inhibition of survival and reproduction, or
d) **7-day ELS toxicity test with a salmonid fish:** The water from HAC-12 is determined to cause greater than 25% non-viable embryos.

The Permittee must investigate each toxicity failure to determine the cause(s). Reasonable efforts must be made to obtain preliminary and in progress results from the analytical laboratory during the toxicity testing. The Permittee must make immediate arrangements to retest in the event of potential and confirmed failures. The Director may require additional toxicity testing based on the evaluation of results from toxicity testing and the causes of failure.

3.11 Non-compliance Reporting

The Permittee must immediately notify the Director or designate of any noncompliance with the requirements of this Permit and take appropriate remedial action. Written confirmation of all non-compliance events, including available test results is required within 24 hours of the original notification unless otherwise directed by the Director.

Both the initial notice and the confirmation must also be emailed to EnvironmentalCompliance@gov.bc.ca

Within 30 days of any non-compliant event, the Permittee must submit a follow-up report to the Director and the above mailbox that includes, but is not necessarily limited to the following:

a) all relevant test results related to the non-compliance instance(s),
b) an explanation of the most probable cause(s) of the noncompliance(s), and
c) remedial actions taken and planned to prevent similar noncompliance(s).

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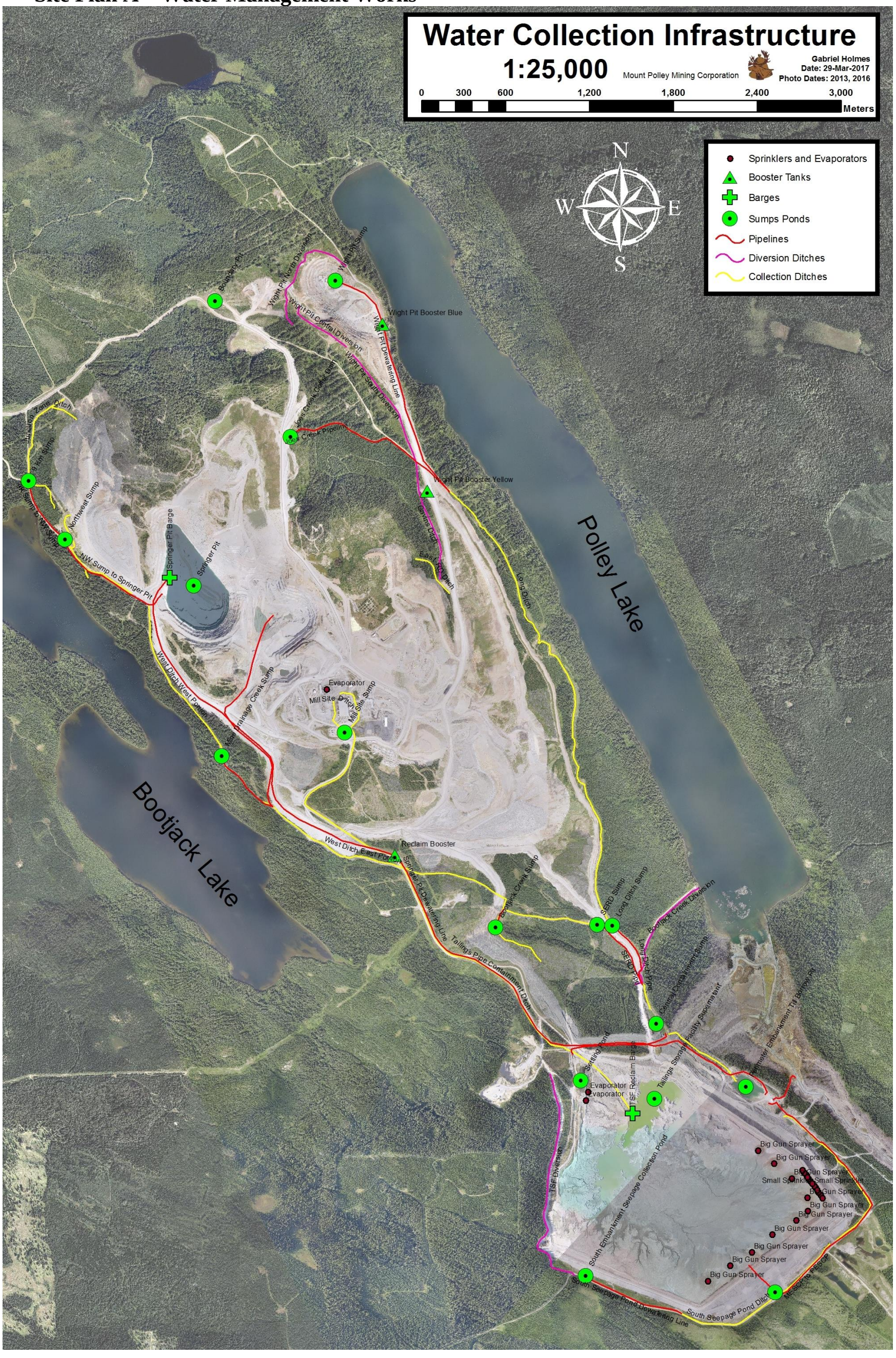
Site Plan A – Water Management Works



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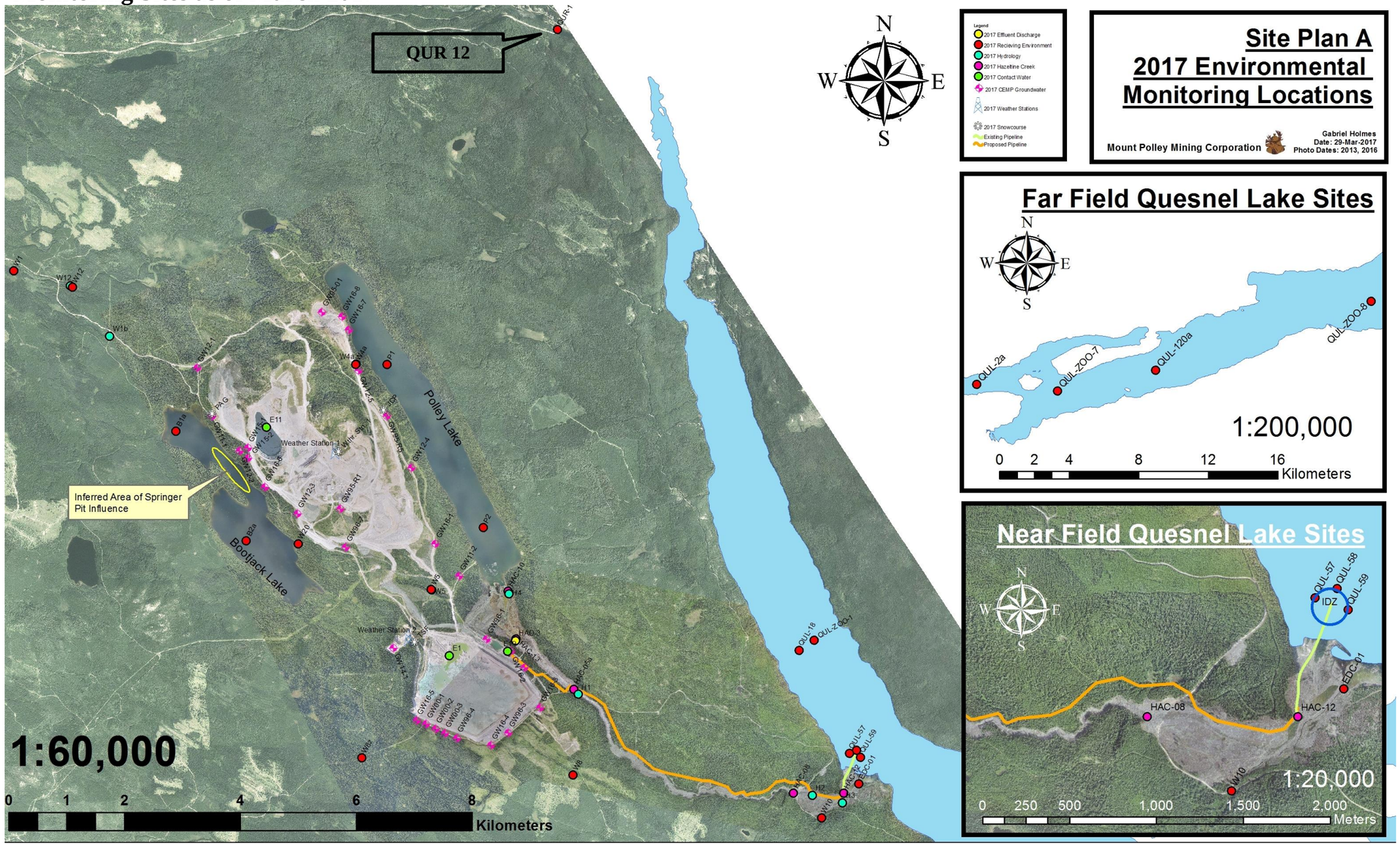
Site Plan B - Monitoring Sites as of March 2017



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