



# Mount Polley Mining Corporation

an Imperial Metals company

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**December 18, 2014**

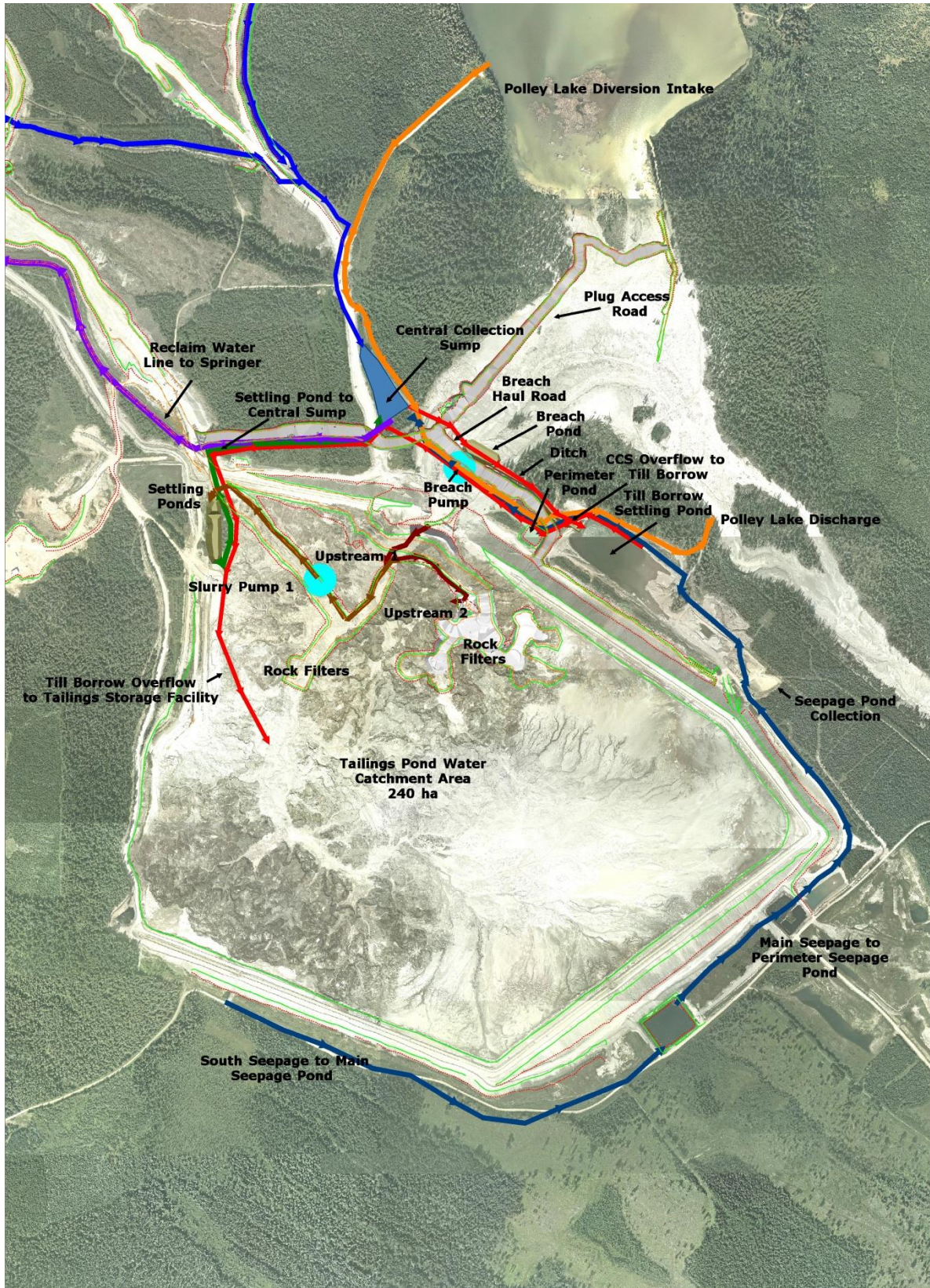
Ministry of Environment  
 Mining Operations Environmental Protection  
 2080 Labieux Rd.  
 Nanaimo, BC  
 V9T 6J9

## WEEKLY POST-TSF BREACH REPORT – WEEK OF DECEMBER 10 – 16, 2014

### Water Management and TSF Works

<b>Polley Lake Dewatering</b>	<p>Polley Lake water elevation = 921.69 m (December 16<sup>th</sup>)</p> <p>Water levels are currently within the typical range. Polley Lake is partially frozen and all pumping infrastructure was removed in late November.</p> <p>Design work for a weir structure at the outlet of Polley Lake is in the final stages.</p>
<b>Breaches</b>	<p>No breaches of the water management system containing water flow from the Tailings Storage Facility (TSF) occurred this week.</p>
<b>TSF and Water Management Structures</b>	<p>The following projects are underway (refer to Figure 1 for a map of all works):</p> <ul style="list-style-type: none"> <li>• The amendment to permit M-200 approving repair of the TSF breach to manage 2015 freshet was received from thenMinistry of Mines on December 17<sup>th</sup>.</li> <li>• Construction of the proposed Polley Lake outflow channel continues to be excavated along the south end of the Plug Access Road (PAR). Tailings are being sent to the TSF and organic material is being stockpiled.</li> <li>• Bulk excavation of the North and South Abutments (the embankments to the north and south of the breach) is ongoing.</li> <li>• Foundation preparation for additional buttressing along the Perimeter Embankment is ongoing, in addition to subsequent placement of buttressing materials. Material placed is a combination of mine waste rock and material excavated from the abutment stabilization work.</li> </ul> <p>All water from TSF water collection systems is currently transferred to the Springer Pit via the Central Collection Sump. Water flow from the breach location is transferred via the Breach Sump and a gravity feed ditch to the Till Borrow Pit to allow settling of suspended solids prior to the water being transferred to the Central Collection Sump. The red line on Figure 1 showing transport of water from the Till Borrow Pit to the TSF is contingency infrastructure that is being considered, but is not currently in place.</p>





**Figure 1.** Tailings Storage Facility construction works



## Sediment and Erosion Control Measures

<p><b>Silt Curtain</b></p>	<p>The new Hazeltine Creek outflow channel from the sedimentation ponds into Quesnel Lake bypasses the silt curtain which is attached to the log boom at the mouth of Hazeltine Creek. It is anticipated that the sedimentation ponds will now carry out the role of removing suspended solids from the water column. The curtain is in good condition and will remain in place for the time being.</p>
<p><b>Sediment Control Works</b></p>	<p>Water from Hazeltine and Edney Creeks were diverted into the completed Upper and Lower Sedimentation Ponds on December 12th (see Section 5 of the Lower Hazeltine Creek Erosion and Sediment Control Plan [the Plan]).</p> <p>Current sediment and erosion control works underway at lower Hazeltine Creek (below the Ditch Road) include:</p> <ul style="list-style-type: none"> <li>• Screening of material for creek restoration (Design Drawings in the Plan).</li> <li>• Upgrading of access roads (Section 4 of the Plan).</li> <li>• Re-grading and landscaping of select areas (Sections 4 and 9 of the Plan).</li> <li>• Installation and maintenance of sediment control measures including silt fences and straw bales (see Section 5 of the Plan).</li> </ul> <p>Rehabilitation work in the lower 100 metres of Edney Creek is ongoing. The pump around system is in operation and the energy dissipation structure at the outlet is working effectively. Pumps are being run on manual, supervised by environmental monitors. Due to the recent warm weather, Edney Creek flow has increased and minor overflowing is occurring. This water is now being collected in the sedimentation ponds. The fish exclusion fence is intact and functioning effectively.</p> <p>Environmental construction monitoring is occurring continuously during all activities. No changes in turbidity of the creek water were detected as a result of the construction this week, with the exception of when the diversion berm was completed to direct water into the sedimentation ponds. This water was, however, captured in the sedimentation ponds.</p> <p>Plans to complete erosion control and restoration works in middle and upper Hazeltine Creek are in the final stages. Steps are being taken to work with the appropriate regulatory bodies and to obtain approval for carrying out these works.</p>

## Water Quality Monitoring Program

The maps on pages 1 – 9 of Figure 5 (attached) show locations that have been sampled as part of the water quality monitoring program. The table below is a summary of the current water quality monitoring program. Updates to the monitoring plan are as follows:

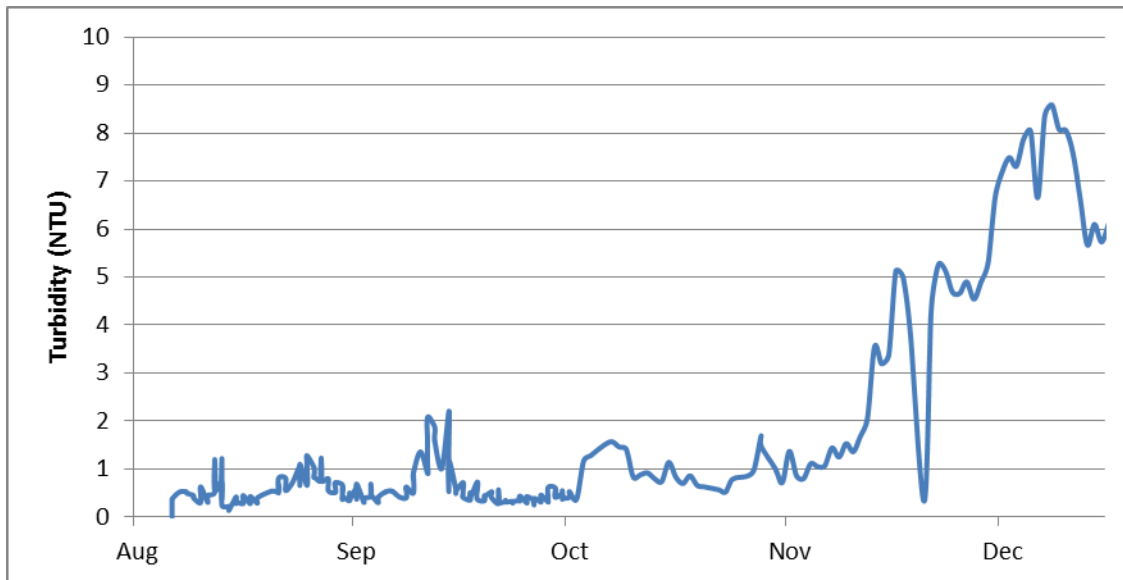
- Sampling on Quesnel Lake will be discontinued after December 17<sup>th</sup>. This is consistent with previous plans communicated to the MOE.
- Sampling frequency at site QUR-1 will be reduced from daily to weekly. Daily sampling will continue until early in the week of December 22<sup>nd</sup>.
- Sample location HAC-01a has been replaced with site HAC-01b. HAC-01b is at the outflow of the recently commissioned sedimentation ponds and is representative of water flowing from Hazeltine Creek into Quesnel Lake, water which was previously characterized by samples from HAC-01a.

All scheduled monitoring was completed this week. Supplemental sampling at site QUL-66 was completed in addition to an extra sample at HAC-01a during the melting event which occurred.

Frequency	Area	Sample Locations
Daily	Quesnel River	QUR-1
Weekly	Quesnel Lake	Samples and profiles: QUL-18, QUL-66a, QUL-79, QUL-112/QUL-112a Profiles only: QUL-22, QUL-21a, QUL-18, QUL-66a, QUL-66, QUL-2a, QUL-79, QUL-40a, QUL-120/QUL-120a, QUL-112/112a
	Hazeltine Creek	HAC-01b, HAC-05

The monitoring program also includes a sonde (datalogger) that is deployed in the Quesnel River at the Quesnel River Research Centre (site QUR-1). The sonde measures field parameters (pH, specific conductance, dissolved oxygen, and temperature) every 15 minutes.

Figure 2 shows a time series graph of turbidity results from sample location QUR-1 on Quesnel River (at the Quesnel River Research Centre). The turbidity data is from laboratory analysis completed by ALS Environmental.



**Figure 2.** Turbidity time series at sample location QUR-1 (August 6<sup>th</sup> – December 9<sup>th</sup>)

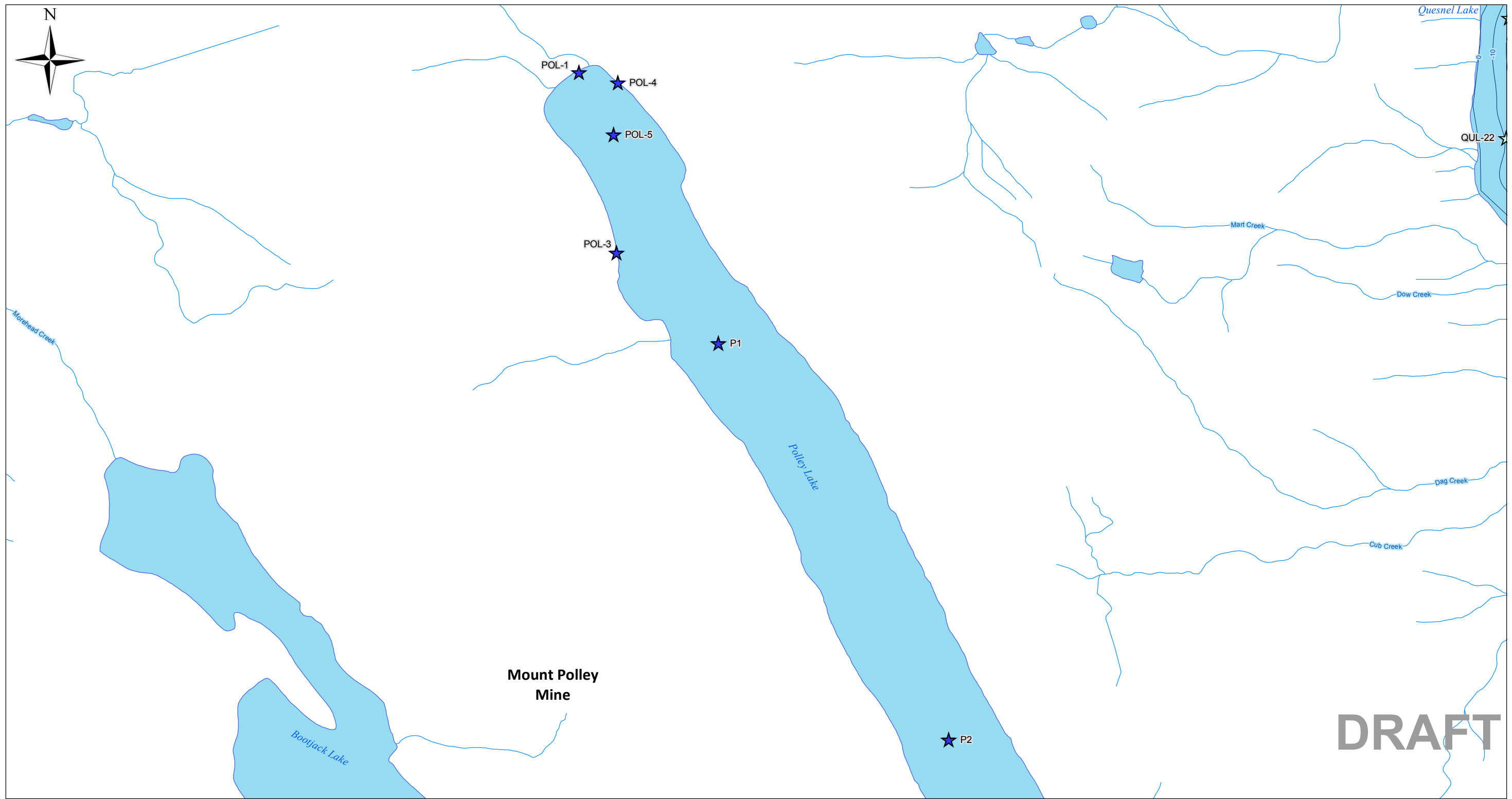
### **Publication of Environmental Monitoring Results & Remediation Updates**

Mount Polley will continue to present interpreted environmental monitoring results and updates on remediation work on the [Mount Polley Updates](#) page of the Imperial Metals website. A [Community Bulletin](#) providing an update on water quality results and restoration work was published on December 17<sup>th</sup>. It is anticipated that a document summarizing findings from Phase 1 of the Hazeltine Creek geochemical characterization will be released next week. A report on aquatic toxicity findings from the water toxicity testing program will also be published in the upcoming weeks.

## ATTACHMENTS

Drawings:

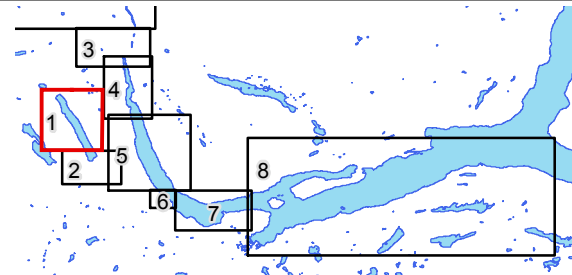
612717-005-P1 through 612717-005-P9: Current Monitoring Locations (Figure 5)



**LEGEND**

**Surface Water Sampling Locations**

- ★ Hazeltine Creek
- ★ Polley Lake
- ★ Quesnel Lake
- ★ Other Areas

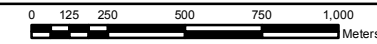


**NOTES**

1. Original in colour.
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  3. Intended for illustration purposes, accuracy has not been verified for construction or navigation purposes.
- \* Note: Shoreline has been modified from the Fresh Water Atlas source data in the area of Hazeltine Creek Mouth to reflect post-release conditions.

**REFERENCES**

1. Data provided by Mount Polley Mining Corporation
2. Data downloaded from Data.Gov.BC.ca Data Distribution Service.
3. Orthophoto collected by McElhanney on August 5th, 2014

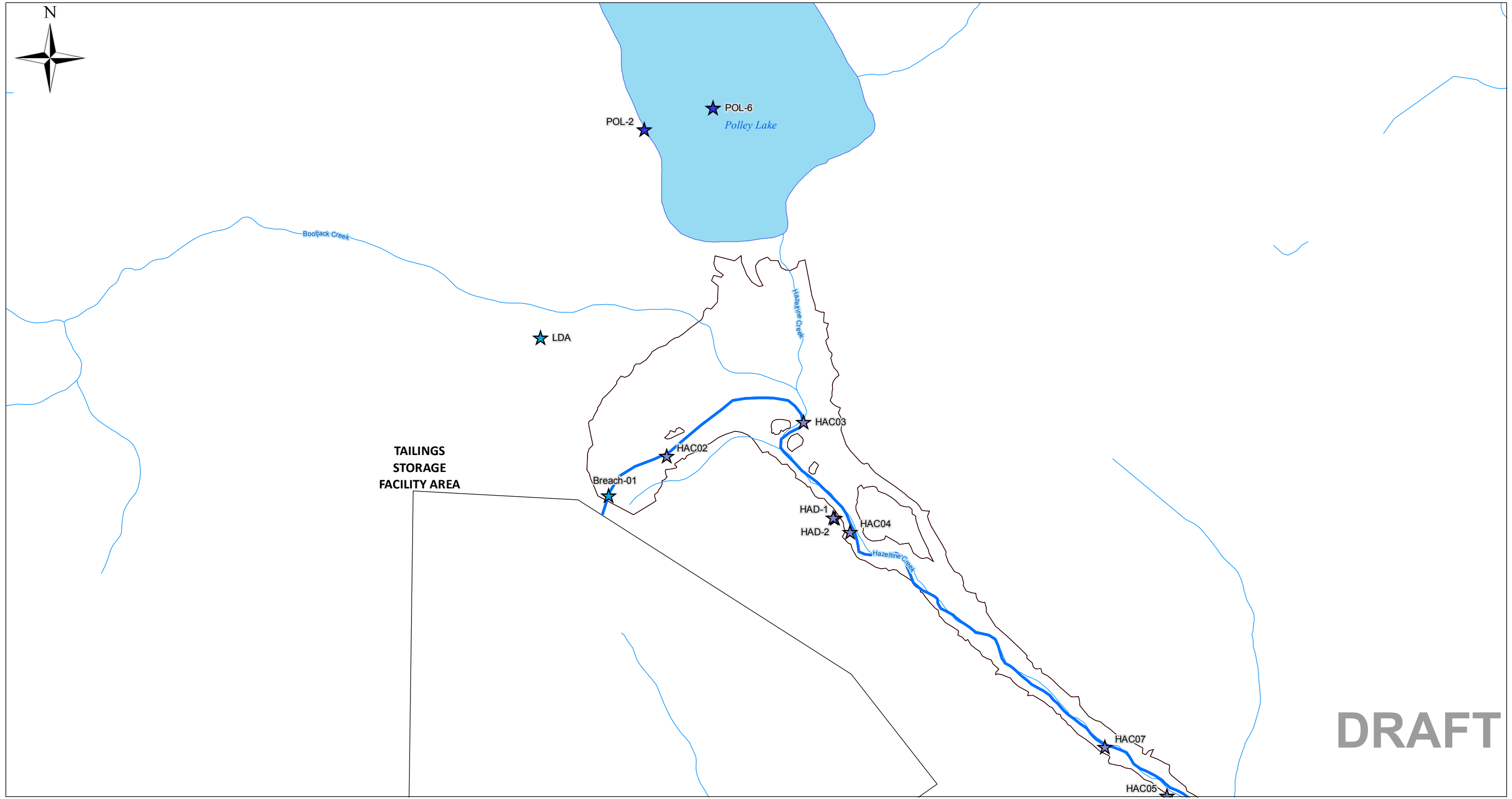


CLIENT NAME: MPMC	PROJECT LOCATION: Mount Polley Mine, British Columbia
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**Figure 5: Current Monitoring Locations**  
Page 1 of 9

BY: CJW	SCALE: 1:24,600	DATE: 2014/12/03	REF No: 621717-005-P1	REV: <b>7</b>
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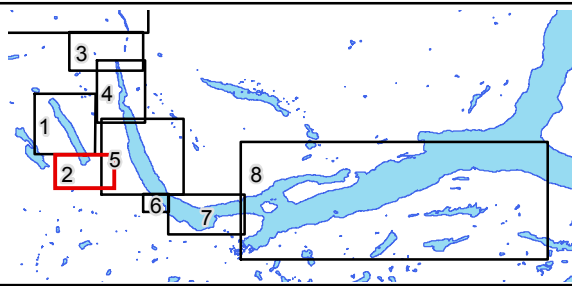
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**DRAFT**

**LEGEND**

- Surface Water**
- ★ Hazeltine Creek
  - ★ Polley Lake
  - ★ Quesnel Lake
  - ★ Other Areas
  - New Hazeltine Creek Channel (Approximate)

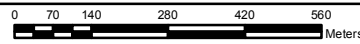


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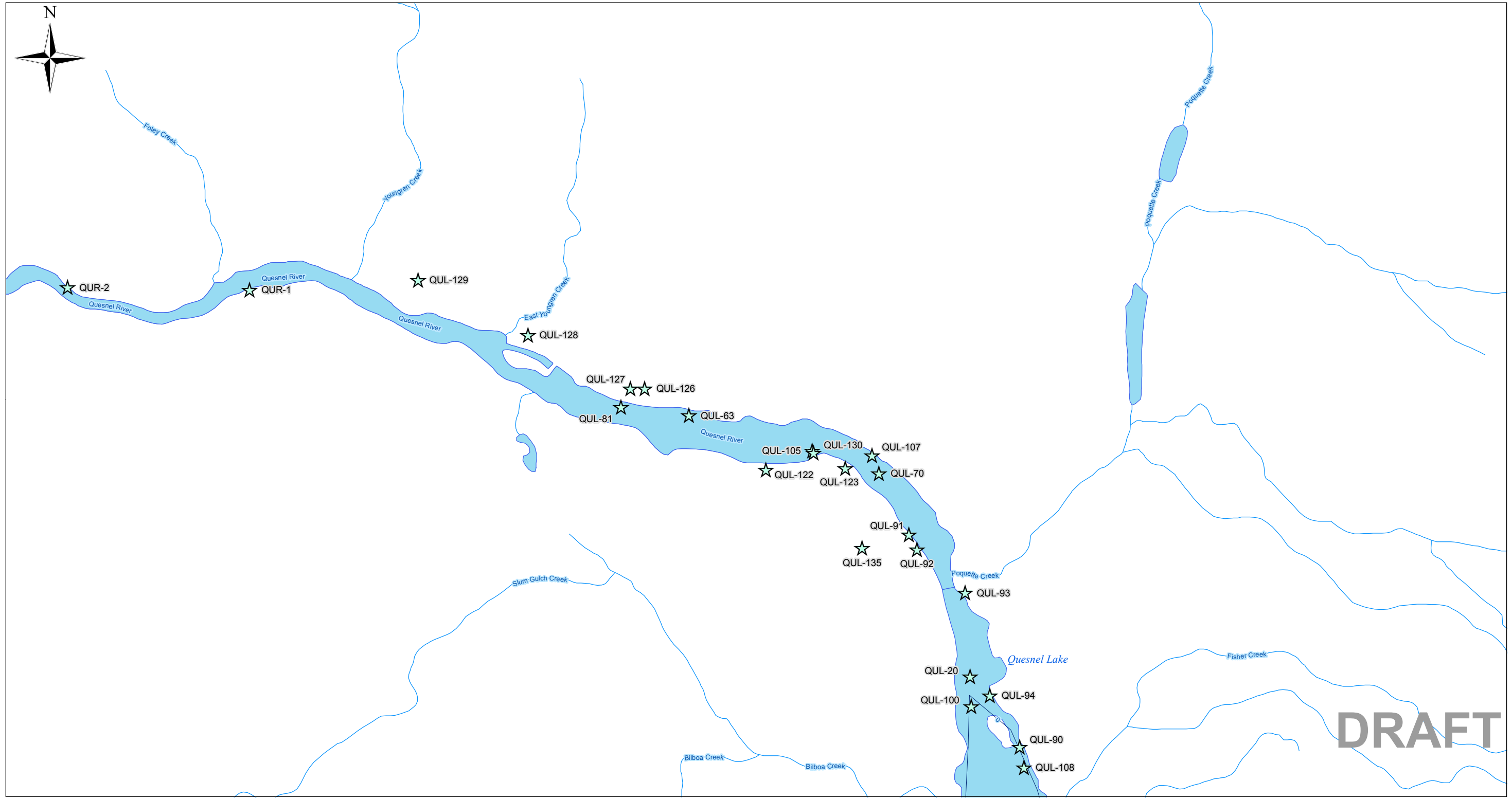
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CLIENT NAME: MPMC		PROJECT LOCATION: Mount Polley Mine, British Columbia	
<b>Figure 5: Current Monitoring Locations</b> Page 2 of 9			
BY: CJW	SCALE: 1:13,800	DATE: 2014/12/03	REF No: REV: <b>7</b>
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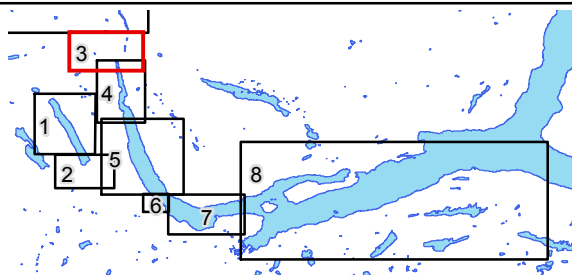
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**LEGEND**

- Surface Water**  
**Sampling Locations**
- ★ Hazeltine Creek
  - ★ Polley Lake
  - ★ Quesnel Lake
  - ★ Other Areas

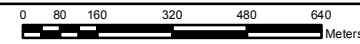


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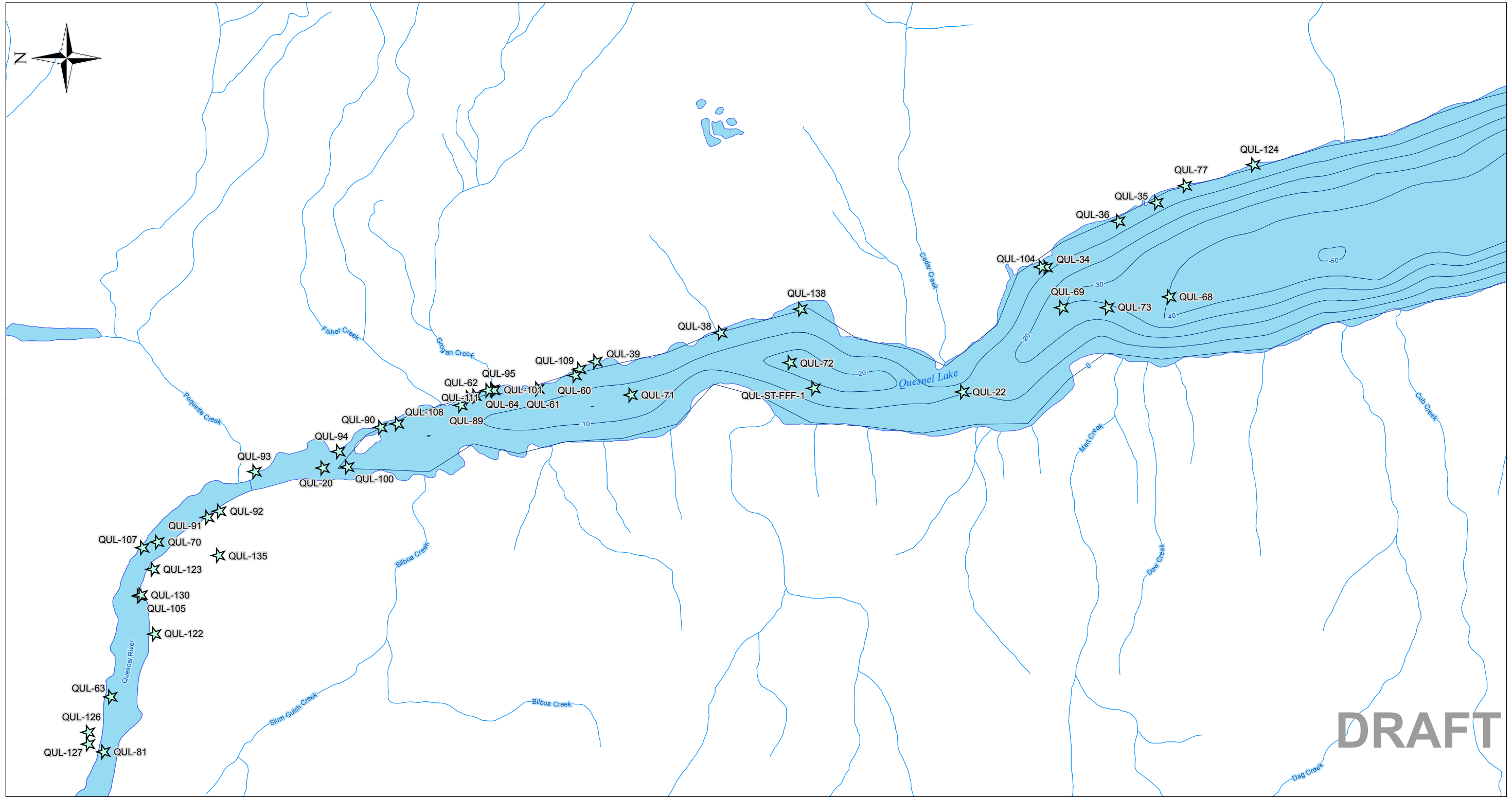


CLIENT NAME: MPMC	PROJECT LOCATION: Mount Polley Mine, British Columbia
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**Figure 5: Current Monitoring Locations**  
**Page 3 of 9**

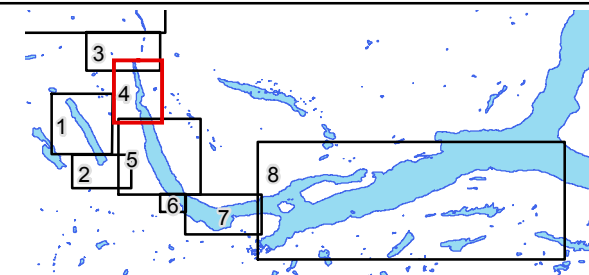
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**LEGEND**

- Surface Water Sampling Locations**
- ★ Hazeltine Creek
  - ★ Polley Lake
  - ★ Quesnel Lake
  - ★ Other Areas

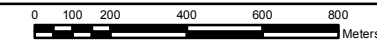


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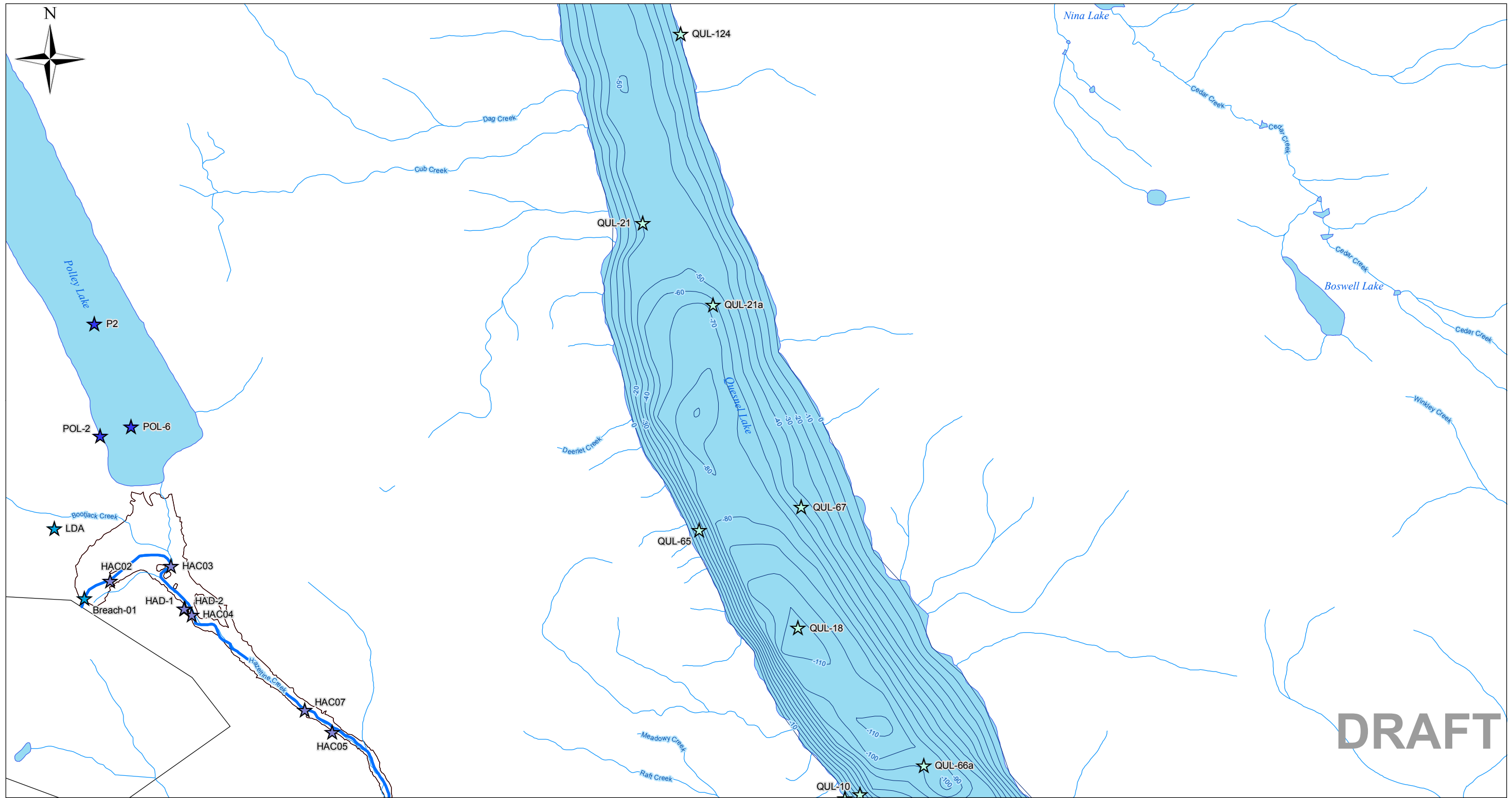


CLIENT NAME: MPMC	PROJECT LOCATION: Mount Polley Mine, British Columbia
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**Figure 5: Current Monitoring Locations**  
Page 4 of 9

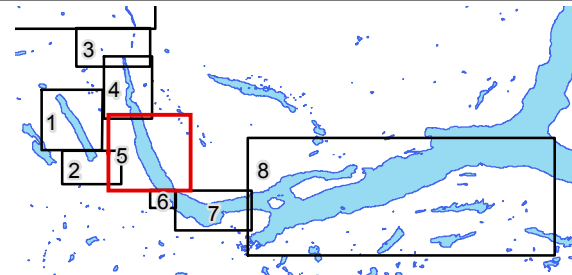
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**LEGEND**

- Surface Water**
- ★ Hazelton Creek
  - ★ Polley Lake
  - ★ Quesnel Lake
  - ★ Other Areas
  - New Hazelton Creek Channel (Approximate)

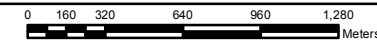


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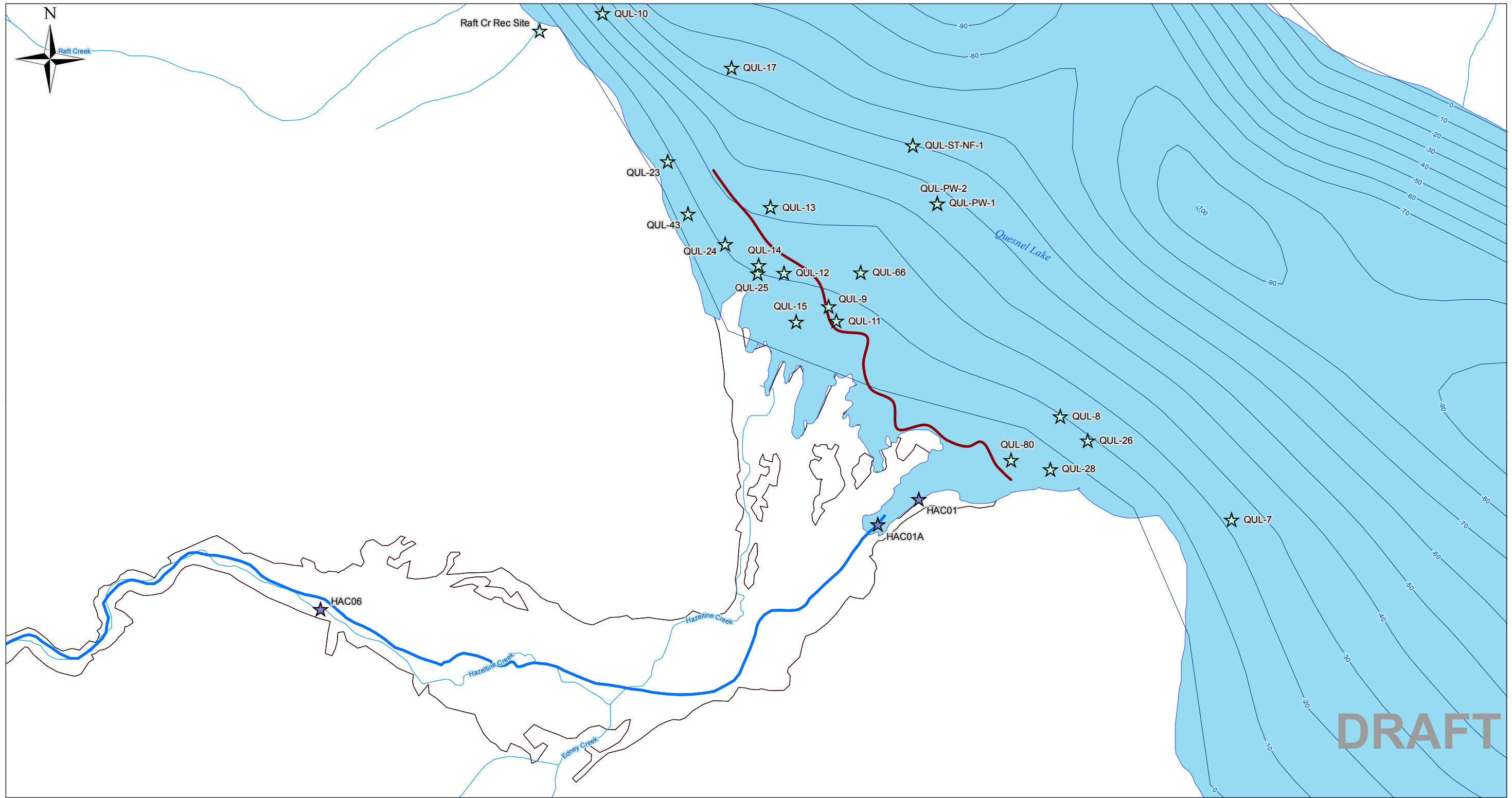
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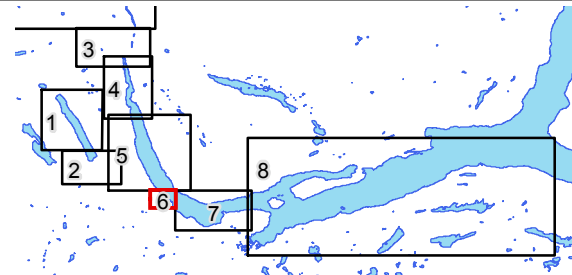


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<b>Figure 5: Current Monitoring Locations</b> Page 5 of 9			
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**LEGEND**

- Surface Water Sampling Locations**
- ★ Hazeltine Creek
  - ★ Polley Lake
  - ★ Quesnel Lake
  - ★ Other Areas
  - Silt Curtain/Log Boom
- New Hazeltine Creek Channel (Approximate)

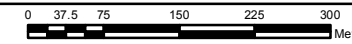


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CLIENT NAME:  
MPMC

PROJECT LOCATION:  
Mount Polley Mine,  
British Columbia

**Figure 5: Current Monitoring Locations**  
Page 6 of 9

BY: CJW

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DATE: 2014/12/03

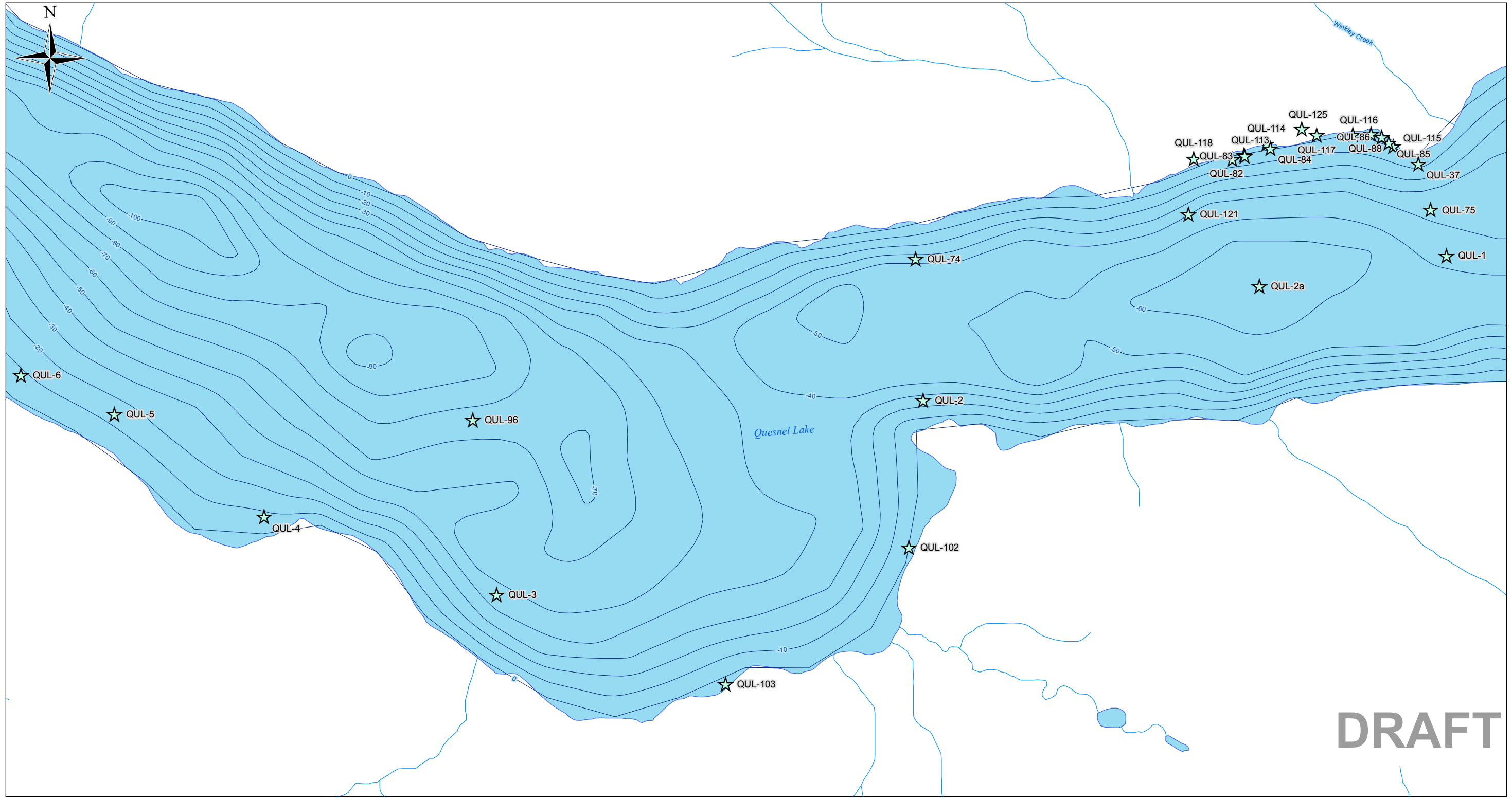
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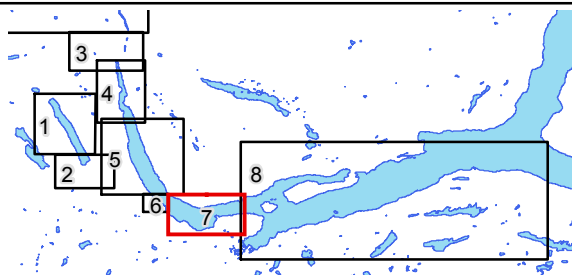
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**LEGEND**

- Surface Water Sampling Locations**
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  - ★ Polley Lake
  - ★ Quesnel Lake
  - ★ Other Areas

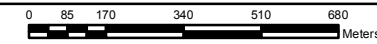


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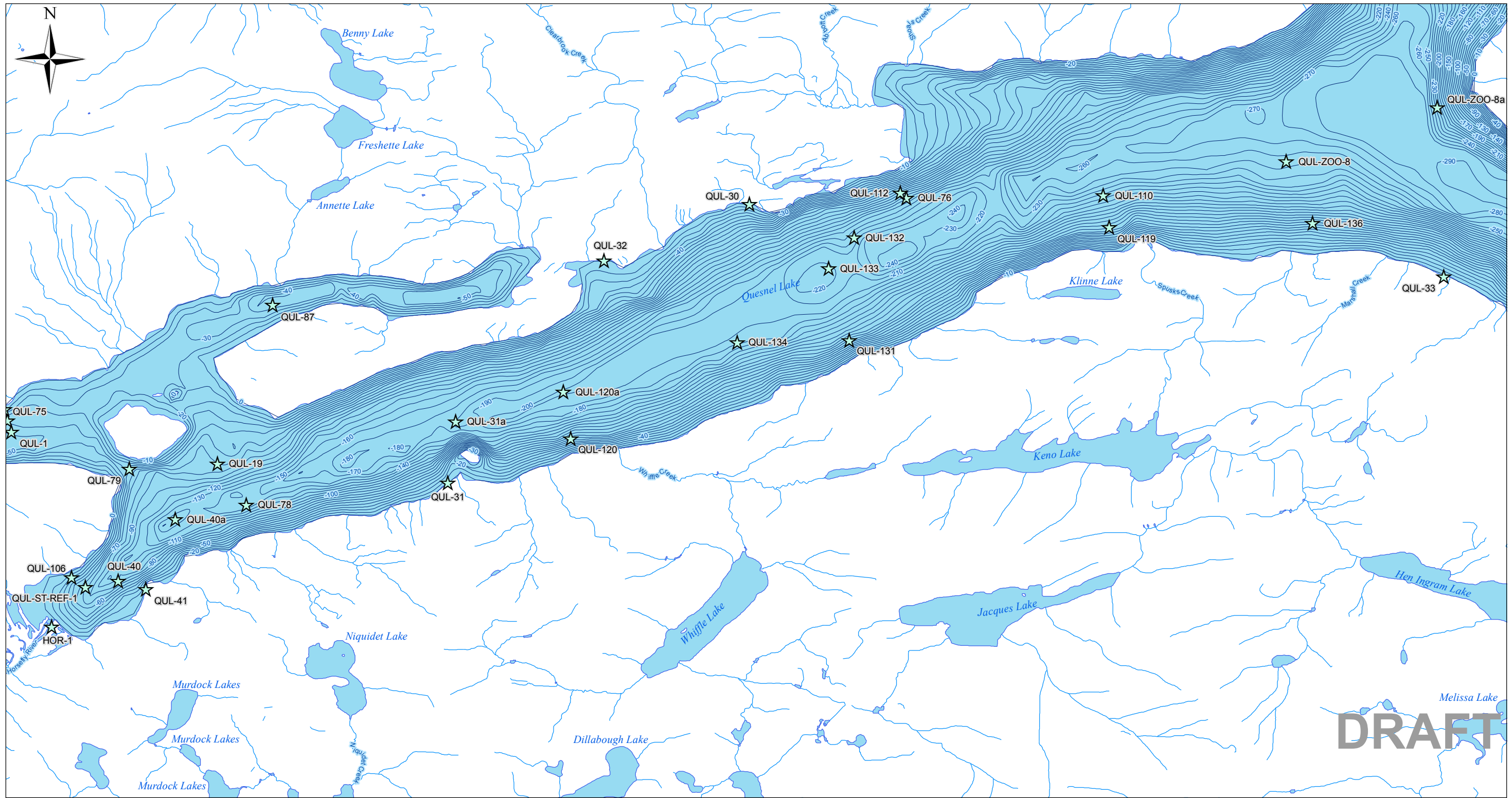
**Figure 5: Current Monitoring Locations**  
Page 7 of 9

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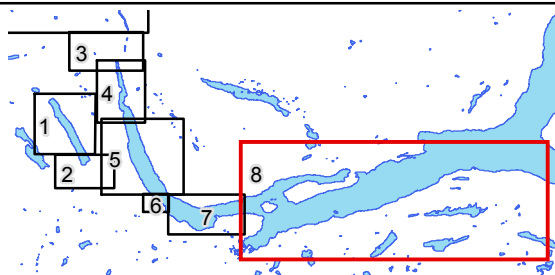




**LEGEND**

**Surface Water Sampling Locations**

- ★ Hazeltine Creek
- ★ Polley Lake
- ★ Quesnel Lake
- ★ Other Areas

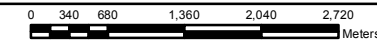


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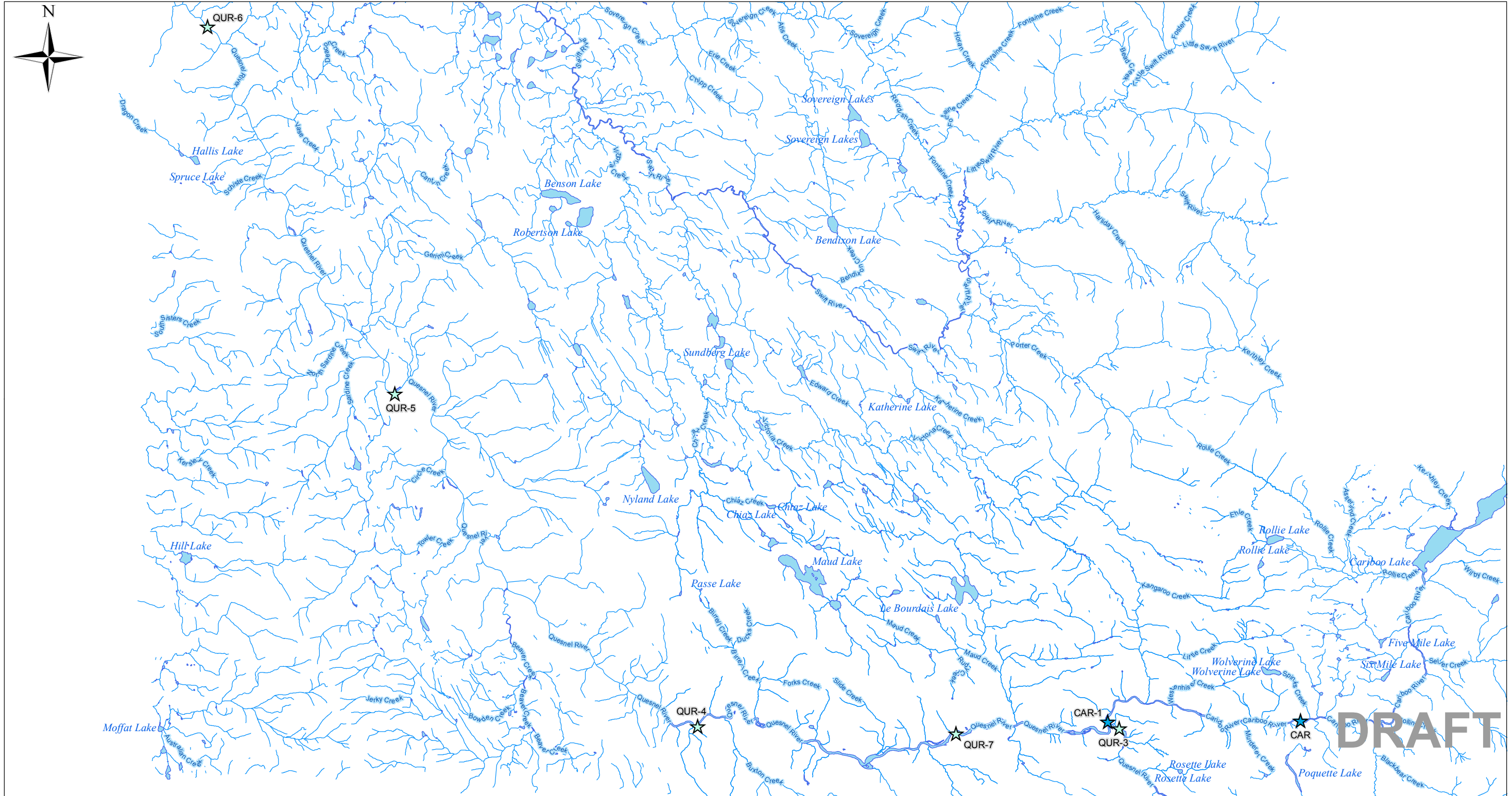


CLIENT NAME: MPMC	PROJECT LOCATION: Mount Polley Mine, British Columbia
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**Figure 5: Current Monitoring Locations**  
Page 8 of 9

BY: CJW	SCALE: 1:66,800	DATE: 2014/12/03	REF No: 621717-005-P8	REV: <b>7</b>
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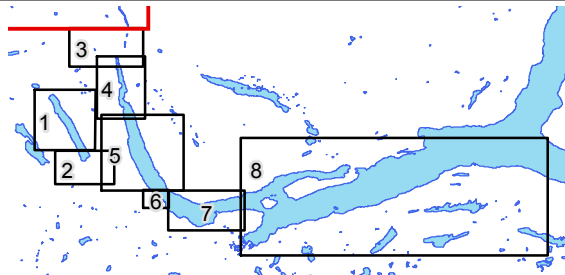
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**LEGEND**

**Surface Water  
Sampling Locations**

- ★ Hazeltine Creek
- ★ Polley Lake
- ★ Quesnel Lake
- ★ Other Areas

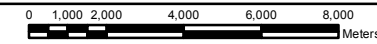


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**Figure 5: Current Monitoring Locations**  
Page 9 of 9

BY: CJW	SCALE: 1:195,400	DATE: 2014/12/03	REF No: 621717-005-P9	REV: <b>7</b>
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