



# Mount Polley Mining Corporation

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**February 26, 2015**

Ministry of Environment  
 Mining Operations Environmental Protection  
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## WEEKLY POST-TSF BREACH REPORT – WEEK OF FEBRUARY 18 – 24, 2015

### Water Management

<b>Polley Lake Dewatering</b>	<p>Polley Lake ice elevation = 922.11 m (February 23<sup>rd</sup>)</p> <p>Water levels are currently within the typical range. Polley Lake is frozen and all pumping infrastructure was removed in late November. Ice elevation surveys are being taken weekly.</p>
<b>TSF Water Management</b>	<p>No changes to the TSF water management system occurred this week and all water continues to be transferred to the Springer Pit via the Central Collection Sump. Refer to previous weekly reports for an overview map of the system.</p>
<b>Other Water Management (Outside of Breach Area)</b>	<p>An update on system repairs and upgrades after the incidents which occurred last week related to unanticipated, unseasonal precipitation and snowmelt runoff:</p> <ul style="list-style-type: none"> <li>• Upstream of the Bootjack Creek Sump, the damaged intake sections of the clean water culverts have been replaced. The berm separating the creek water and contact water culvert intakes is being reconstructed with packed till and reinforced with concrete. Bootjack Creek water is being pumped into the clean water culverts, which flow into the creek downstream. This work is being regularly inspected by Environmental Department staff.</li> <li>• The Central Collection Sump overflow system has been repaired and the overflow pipes have been replaced with an armoured spillway channel. The berm has been reinforced, covered with geotextile and armoured with rock.</li> </ul> <p>Modifications and upgrades to the site water management systems are ongoing in anticipation of spring runoff. This includes preparation of contingency measures for high flow events or power failure. This week a new section of 24” pipeline was installed that allows water being transferred from the Central Collection Sump to the Springer Pit to bypass the mill. This upgrade allows the booster pumps to run at full capacity.</p>

## TSF Construction

### TSF Construction

The amendment to permit M-200 approving repair of the TSF breach to manage 2015 freshet was received from the Ministry of Mines on December 17<sup>th</sup>. An update on work being completed under this approval is as follows:

- Foundation preparation and material placement for Perimeter Embankment buttressing is ongoing.
- Upstream Fill material placement for the cut-off wall is ongoing.
- Cut-off Wall Aggregate material placement for the cut-off wall is ongoing.
- Transition material placement for the cut-off wall is ongoing.
- Compacted Rockfill material placement for the cut-off wall is ongoing.
- Buttress placement immediately downstream of the cut-off wall (Phase 1 footprint) is ongoing.

Project components that have been completed under this approval are:

- Bulk excavation of the North and South Abutments (the embankments to the north and south of the breach).
- Construction of seepage collection drains in the cut-off wall foundation footprint.
- Foundation preparation for the cut-off wall.
- Foundation Filter blanket material placement for the cut-off wall.
- Foundation Transition blanket material placement for the cut-off wall.
- Extension of the seepage collection drains through the Phase 1 footprint.
- Construction of a pad and laydown area for the CSM Contractor to erect infrastructure and mobilize equipment.
- Foundation preparation immediately downstream of the cut-off wall (Phase 1 footprint).
- SAA instrumentation installation.
- Mobilization of CSM Contractor infrastructure and equipment.
- North Abutment tie-in material placement to the 950m elevation.

## Sediment and Erosion Control Measures

<p><b>Silt Curtain</b></p>	<p>A turbidity barrier (silt curtain) was installed in Quesnel Lake near the outlet of the new Edney (Hazeltine) Creek channel, downstream from the Lower Hazeltine Creek sedimentation ponds. Ongoing monitoring and observations will test if the barrier is effective and if it can withstand high creek flows, as this is not a typical application of a silt curtain. Its purpose will be to provide a contingency during spring freshet when flows through the ponds are expected to increase, and in the event that the ponds are not adequate to remove suspended sediments.</p> <p>The silt curtain at the mouth of the old Hazeltine Creek channel is no longer functioning and will be removed. Both Edney and Hazeltine Creeks are passing through the new outlet channel.</p>
<p><b>General</b></p>	<p>Environmental monitors are monitoring creek restoration work in Edney Creek, as well as in Upper, Middle, and Lower Hazeltine Creek.</p> <p>This week 5,500 tonnes of tailings were excavated from Hazeltine Creek and returned to the TSF. 37 tonnes of till and 800 tonnes of river rock were excavated from the Hazeltine Creek channel area and stockpiled for future restoration use. 18,360 tonnes of construction rock material were hauled to the Hazeltine Creek and Edney Creek areas for use in restoration work and for construction of access roads.</p> <p>Rock liner material is low sulphur rock from the Cariboo Pit and a sampling program is in place to verify the chemistry of the rock. A sampling program to verify chemistry of creek subgrade material after tailings have been removed is also in place.</p> <p>Additional grid patterned testing is ongoing in the plug area mapping depths of tailings and other deposited materials.</p>
<p><b>Lower Edney Creek</b></p>	<p>Edney Creek continues to flow through its new channel which connects with Hazeltine Creek just upstream of Quesnel Lake (downstream of the sedimentation ponds). Construction of additional habitat features in this lower channel is being considered for future low flow periods. The Edney Creek fish barrier has been upgraded and repaired.</p> <p>Minor erosion control work was completed this week in Lower Edney Creek and observation of water flow in the new channel is ongoing.</p>
<p><b>Upper Hazeltine Creek</b></p>	<p>The contract for construction of the Polley Lake outlet structure was awarded. Construction materials are being mobilized to site. A water licence application for Hazeltine Creek is required, and an application is being prepared.</p> <p>Channel excavation in Reach 1 is complete and rock liner material has been placed. This week fine-tuning of the flood plain was completed.</p> <p>In Reach 2, fine-tuning of channel excavation and rock liner placement was completed. Maintenance of water control works was carried out, as needed.</p>
<p><b>Middle Hazeltine Creek</b></p>	<p>In Reach 3, construction of the channel and floodplain was completed down to the 3800 metre mark. Ditches and a new sump were constructed to transfer water around this active work area. A new access road was established to this point as well. Ballasting work was done on the access road towards the 6800 metre mark of the Hazeltine Creek.</p> <p>New ditches and culverts under the Gavin Lake Road were installed for water control.</p>

<b>Lower Hazeltine Creek</b>	<p>Restoration work and foreshore stabilization on the South Point (adjacent to the historic Hazeltine Creek mouth) is complete, including planting of live stakes.</p> <p>Burning of stockpiled waste woody debris that is non-merchantable and has not been selected for use in reclamation has been completed to the extent possible at this time. Further such work may be completed in the future.</p> <p>In Reach 4, re-working and rocking in of the channel upstream of the sedimentation ponds is underway. A new sump has been constructed with water being pumped around to the sedimentation ponds.</p> <p>Figure 1 shows a turbidity time series graph for Lower Hazeltine and Edney Creeks. Sites presented from February 15<sup>th</sup> onward are different to reflect the fact that Edney Creek was diverted from the sedimentation ponds into its new channel.</p>
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### Water Quality Monitoring Program

<b>Water Quality Monitoring Sites</b>	<p>The water quality monitoring program currently consists of weekly samples at:</p> <ul style="list-style-type: none"> <li>• QUR-1 (Quesnel River at the Quesnel River Research Centre)</li> <li>• HAC-08 (Hazeltine Creek upstream of the sedimentation ponds)</li> <li>• HAC-01b (Hazeltine Creek at the outlet of the sedimentation ponds)</li> <li>• EDC-02 (Edney Creek downstream of the new confluence with Hazeltine Creek below the sedimentation ponds and just upstream of Quesnel Lake).</li> </ul> <p>All scheduled sampling was completed this week, as well as supplemental sampling at EDC-01 (Edney Creek just upstream from the confluence with Hazeltine). Weekly sampling at site HAC-05 (Hazeltine Creek at the Gavin Lake Road) has been temporarily discontinued because active restoration and erosion control works are ongoing in this section of the creek. Note that daily turbidity monitoring at this site is carried out by environmental monitors.</p>
<b>Continuous Monitoring</b>	<p>The monitoring program also includes a sonde (datalogger) that is deployed in the Quesnel River at monitoring site QUR-1. The sonde measures field parameters (turbidity, pH, specific conductance, dissolved oxygen, and temperature) every 15 minutes. A second sonde which measures the same parameters at the same frequency is deployed at the outlet of the Lower Hazeltine Creek sedimentation ponds.</p>
<b>Results</b>	<p>Figure 1 shows a turbidity time series graph for Lower Hazeltine and Edney Creeks. Sites presented from February 15<sup>th</sup> onward are different to reflect the fact that Edney Creek was diverted from the sedimentation ponds into its new channel.</p> <p>Figure 2 shows a time series graph of turbidity at site QUR-1. Turbidity data up to December 23<sup>rd</sup> are from laboratory analysis completed by ALS Environmental. Data from December 24<sup>th</sup> onward are laboratory turbidity values from weekly samples supplemented by field data.</p>

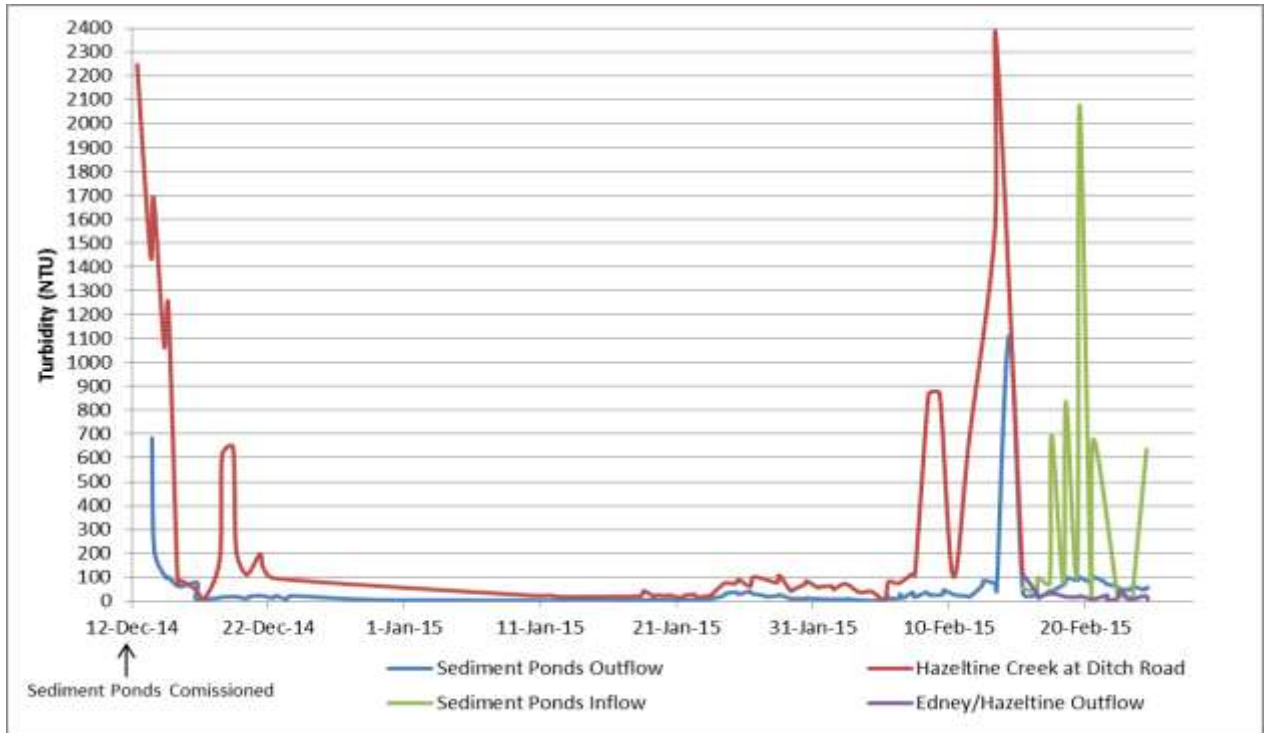


Figure 1. Turbidity time series graph for: Hazeltine Creek at the Ditch Road (December 12<sup>th</sup> – February 15<sup>th</sup>); inflow of the Lower Hazeltine Creek sedimentation ponds (February 15<sup>th</sup> – 24<sup>th</sup>); the outflow of the Lower Hazeltine Creek sedimentation ponds (December 12<sup>th</sup> – February 24<sup>th</sup>); and the combined Edney/Hazeltine Creek outflow into Quesnel Lake (February 15<sup>th</sup> – 24<sup>th</sup>)

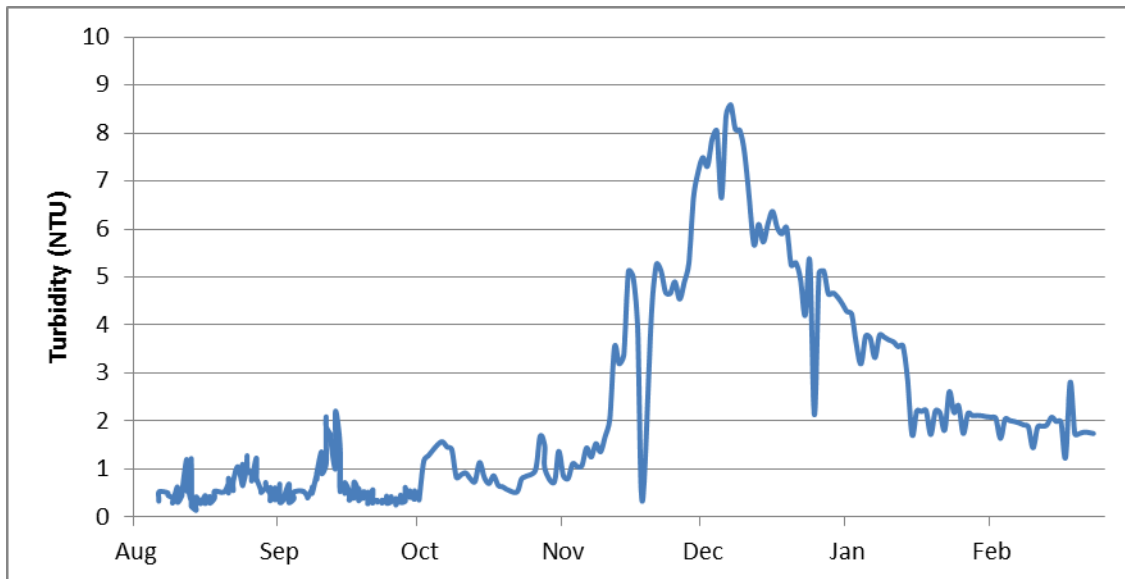


Figure 2. Turbidity time series at sample location QUR-1 (August 6<sup>th</sup> – February 23<sup>rd</sup>)

## 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 ([www.imperialmetals.com](http://www.imperialmetals.com)). The following updates were posted this week:

- [Residential Filter System Information](#) (February 20<sup>th</sup>)
- [Community Update Bulletin](#) (February 22<sup>nd</sup>)
- [Mount Polley supports scientific research into the health and activity of soil microorganisms in the Quesnel River Watershed](#) (February 23<sup>rd</sup>).