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

WEEKLY POST-TSF BREACH REPORT - WEEK OF FEBRUARY 4 - 10, 2015

Water Management and TSF Works

Polley Lake	Polley Lake ice elevation = 921.68 m (February 12^{th})
Dewatering	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.
TSF Water Management	All water from the TSF water collection system is currently transferred to the Springer Pit via the Central Collection Sump. Water flow from the breach location is currently being pumped to the Upstream 1 sump, and then to the Central Collection Sump via the TSF Settling Pond. Refer to Figure 1 for a map of the Tailings Storage Facility (TSF) area and associated works.
	No breaches of the water management system containing water flow from the TSF occurred this week.
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 17th. An update on work being completed under this approval is as follows: Foundation preparation and material placement for Perimeter Embankment buttressing is ongoing. Foundation preparation and material placement immediately downstream of the cut-off wall (Phase 1 footprint) 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. Buttress placement immediately downstream of the cut-off wall is ongoing. Buttress placement immediately downstream of the cut-off wall (Phase 1 footprint) is ongoing. Mobilization of CSM Contractor infrastructure and equipment commenced.

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.



Figure 1. Tailings Storage Facility construction works and water management systems

Sediment and Erosion Control Measures

Silt Curtain	Additional silt curtain has been sourced and mobilized to the site. Plans are in place to install the new section of silt curtain in Quesnel Lake near the discharge from the Lower Hazeltine Creek sedimentation ponds next week, depending on weather conditions. 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 sediments.
General	Environmental Monitors are monitoring creek restoration work in Edney Creek, as well as Upper, Middle, and Lower Hazeltine Creek.
	Collection of live willow stakes and wattles on site by a local First Nations crew was completed this week. These willows will be planted in the spring for erosion control and restoration purposes.
	The unseasonal weather being experienced (early melt #3) has been making work in the creek difficult, even with pump around solutions and other measures that have been implemented to enable work. Given these conditions, some equipment was re- assigned to the TSF breach repair where the wet weather is aiding compaction of materials; however, select work has been able to proceed, as outlined below. This equipment will be re-allocated to Hazeltine Creek work when conditions allow.
Lower Edney Creek	The Lower Edney Creek channel excavation is complete. Placement of creek bed materials and construction of habitat design features is anticipated to commence next week. The Edney Creek fish barrier is in place and continues to function. Edney Creek is flowing into the Lower Hazeltine Creek sedimentation ponds. It is anticipated that this section will be completed by the end of February and connectivity with Quesnel Lake will be restored (Edney Creek will no longer flow through the sedimentation ponds).
Upper Hazeltine Creek	A tender for construction of the Polley Lake outlet structure has been distributed.
	Channel excavation in Reach 1 is complete and rock liner material has been placed. The next step will be to place the bed material and construct the habitat design features. Channel excavation in Reach 2 is complete. Excavation of tailings adjacent to the channel and placement of the rock liner material is ongoing.
	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.
	This week 500 tonnes of tailings were excavated from Hazeltine Creek and returned to the TSF. 12,235 tonnes of construction material were hauled to Hazeltine Creek area for use in restoration work.
Middle Hazeltine Creek	In Reach 3, road access is being established to carry out the planned works, and the pump around system is being set up.
Lower Hazeltine Creek	Restoration work and foreshore stabilization on the South Point (adjacent to the historic Hazeltine Creek mouth) is approximately 60% complete. A trained environmental monitor is supervising this lakeshore work. Burning of waste woody debris that is non-merchantable and not selected for use in reclamation is ongoing.
	Lower Hazeltine Creek channel reconstruction work is ongoing; however current efforts in this area are focused on completion of the Edney Creek channel.
	Figure 2 shows a turbidity time series graph comparing the turbidity in Hazeltine Creek at the Ditch Road bridge and at the outflow of the Lower Hazeltine Creek sedimentation ponds



Figure 2. Turbidity time series graph for Hazeltine Creek at the Ditch Road and at the outflow of the Lower Hazeltine Creek sedimentation ponds (December 12th – February 10th)

Water Quality Monitoring Program

The water quality monitoring program currently consists of weekly samples at:

- QUR-1 (Quesnel River at the Quesnel River Research Centre).
- HAC-08 (Hazeltine Creek upstream of the sedimentation ponds and the confluence with Edney Creek).
- HAC-01b (Hazeltine Creek at the outlet of the sedimentation ponds, just upstream of Quesnel Lake).

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. All scheduled sampling was completed this week.

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.

Figure 3 shows a time series graph of turbidity at site QUR-1. Turbidity data up to December 23rd are from laboratory analysis completed by ALS Environmental. Data from December 24th onward are laboratory turbidity values from weekly samples supplemented by field data.



Figure 3. Turbidity time series at sample location QUR-1 (August 6th – February 10th)

Publication of Environmental Monitoring Results & Remediation Updates

Mount Polley will continue to present interpreted environmental monitoring results and updates on remediation work on the <u>Mount Polley Updates</u> page of the Imperial Metals website (www.imperialmetals.com). The information notice <u>Early Life Stage Toxicity Test – Quesnel</u> River Test Results was published on February 10th.