



Mount Polley Mining Corporation

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August 13th, 2015

Ministry of Environment
 Mining Operations Environmental Protection
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 Nanaimo, BC
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WEEKLY POST-TSF BREACH REPORT – AUGUST 5TH – 11TH, 2015

Government, First Nations and Stakeholder Engagement

<p>Publications and Website Updates</p>	<p>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). No updates were posted this week</p>
<p>Engagement Activities and Communications with Regulators</p>	<p>Activities relating to government, First Nations, and stakeholder communication and engagement this week included:</p> <ul style="list-style-type: none"> • The weekly Ministry of Environment (MoE) update call on August 5th. • A Mine Development Review Committee meeting on August 6th. • An Environmental Working Group Meeting on August 7th. • Scheduling of a Habitat Objectives meeting and site tour for September 1st and 2nd. <p>On July 16th Mount Polley Mining Corporation (MPMC) submitted a permit amendment application to MoE for a short-term water discharge to Quesnel Lake. The public comment period will be open until August 23rd. The Environmental Protection Notice can be viewed in the Williams Lake Tribune (July 22nd, page A23). Community meetings are scheduled as follows.</p> <ul style="list-style-type: none"> • August 24th – Likely, Likely Community Hall, 7 – 9pm • August 25th – Xat’sùll First Nation (for the Williams Lake and Soda Creek Indian Bands) • August 26th – Williams Lake, Gibraltar Room, 7 – 9pm • August 27th – Quesnel, Royal Canadian Legion, 7 – 9pm

TSF Construction

Construction Update	The amendment to permit M-200 approving repair of the TSF breach to manage 2015 freshet was received from the Ministry of Energy and Mines (MEM) on December 17 th , 2014. Buttress placement for the Perimeter Embankment and all other work associated with the 2015 Freshet Management Embankment construction is complete; aesthetic work and establishment of final controls is being completed. This section will be removed from subsequent reports.
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Water Management

Polley Lake	Polley Lake water elevation = 922.26m (August 11 th) The Polley Lake weir valve remained open this week to allow approximately 0.15 m ³ /s of outflow from Polley Lake into Hazeltine Creek.
Water Management	All water from the Tailings Storage Facility (TSF) water collection system continues to be transferred to the Springer Pit via the Central Collection Sump (CCS). No releases of water to the environment occurred this week. Dewatering from the Springer Pit to the CCS via the West Ditch is ongoing to supply water for: the turbomisters at the Main Seepage Pond; dust suppression sprinklers on the TSF; and, process water to the Mill. Please refer to the May 28th, 2015 weekly report for an overview map of the TSF water management system.
Springer Pit	<p>Permit amendments from MoE and MEM were received on July 9th allowing MPMC to return to restricted mining and milling operations with tailings deposition into the Springer Pit. Restricted milling operations commenced on August 4th.</p> <p>Total volume of tailings deposited as of August 11th = 139,384 tonnes (101,003 m³ including water retained in tailings)</p> <p>Water Elevations (August 11th):</p> <ul style="list-style-type: none"> • Springer Pit = 1018.16m (+0.73m from last week) • Groundwater well GW12-2a = 1013.12m (-0.01m from last week) • Groundwater well GW12-2b = 1013.22m (+0.01m from last week) • Groundwater well GW15-1a = 1018.57m (+0.23m from last week) • Groundwater well GW15-1b = 1018.47m (+0.23m from last week) • Groundwater well GW15-2a = 1021.80m (-0.04m from last week) • Groundwater well GW15-2b = 1022.07m (-0.05m from last week) <p>A map of the groundwater well locations is included as Figure 1 of the July 23rd weekly report. Note that the suffix “a” indicates the deep well in the pair, and the suffix “b” indicates the shallow well in the pair.</p> <p>Monthly water quality results for parameters of interest from the Springer Pit supernatant and adjacent groundwater wells will be included in this report as they become available. Results received this week for the Springer Pit supernatant (station E11) and all of the adjacent groundwater wells are provided in Table 1.</p>

Table 1. Water quality results for key parameters from the Springer Pit Supernatant (E11) and adjacent groundwater wells

Sample ID	GW12-2A	GW12-2B	GW15-1A	GW15-1B	GW15-2A	GW15-2B	E11
Date Sampled	27-Jul-2015	27-Jul-2015	23-Jul-2015	23-Jul-2015	27-Jul-2015	27-Jul-2015	29-Jul-2015
Parameter	Water	Water	Water	Water	Water	Water	Water
Physical Tests							
Conductivity (uS/cm)	226	484	299	520	261	344	1090
Hardness (as CaCO3)	47.1	243	24.8	231	71.8	134	579
pH (pH)	8.02	8.29	9.31	8.17	8.23	8.12	8.12
Anions and Nutrients							
Nitrate (as N)	0.0068	2.94	<0.0050	1.19	<0.0050	0.0225	7.58
Sulfate (SO4)	53.2	63.3	64.8	114	48.9	72.8	472
Dissolved Metals							
Aluminum (Al)	0.0085	<0.0030	0.0062	<0.0030	0.0047	0.0038	0.0048
Arsenic (As)	0.00233	0.00051	0.00485	0.00131	0.00299	0.00269	0.00117
Cadmium (Cd)	0.0000083	0.0000113	<0.0000050	0.0000054	<0.0000050	<0.0000050	<0.0000050
Copper (Cu)	<0.00050	<0.00050	0.00109	0.00063	<0.00050	<0.00050	0.0286
Iron (Fe)	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead (Pb)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum (Mo)	0.0402	0.0247	0.0281	0.00535	0.0359	0.0409	0.124
Selenium (Se)	0.000080	0.00816	0.000997	0.0172	0.000171	0.000148	0.0389
Total Metals							
Aluminum (Al)	-	-	-	-	-	-	0.0791
Arsenic (As)	-	-	-	-	-	-	0.00138
Cadmium (Cd)	-	-	-	-	-	-	<0.000060
Copper (Cu)	-	-	-	-	-	-	0.0804
Iron (Fe)	-	-	-	-	-	-	0.124
Lead (Pb)	-	-	-	-	-	-	0.000185
Molybdenum (Mo)	-	-	-	-	-	-	0.000185
Selenium (Se)	-	-	-	-	-	-	0.128

Note: Units in mg/L unless otherwise specified

Sediment and Erosion Control Measures

<p>Silt Curtain</p>	<p>The turbidity barrier (silt curtain) installed in Quesnel Lake near the outlet of the constructed Edney (Hazeltine) Creek channel was moved this week so that it better encompasses areas where shoreline rehabilitation work is ongoing.</p>
<p>Monitoring</p>	<p>Environmental monitors are monitoring ongoing sediment and erosion control and rehabilitation work. This monitoring is being conducted by MPMC staff.</p> <p>One incident occurred this week, during which an excavator became stuck at the mouth of Edney Creek. Precautionary installation of spill containment booms was carried out; however, the excavator was removed without any hydrocarbon releases.</p>
<p>Hazeltine Creek Rehabilitation</p>	<p>Phase one of re-contouring in Hazeltine Creek in Reach 3 was completed this week, with the exception of the canyon “blow-out” zone. Some work spreading woody debris remains.</p> <p>This week, setting of minnow traps in the lower Hazeltine Creek sedimentation ponds commenced to remove any minnows that have managed to navigate around the installed fish barriers.</p>
<p>Edney Creek and Adjacent Quesnel Lake Shoreline</p>	<p>This week work continued on construction of the new Edney Creek channel outlet and additional Edney Creek fish habitat features including:</p> <ul style="list-style-type: none"> • Hauling of gravel, rip rap, and boulder materials to the work area for use in construction of habitat features. • Reinforcement and armouring of select locations in the lower Edney Creek channel and placement of rip rap. • Continued installation of habitat features in the constructed Edney Creek channel, including rock features, and spawning gravels. • Falling of dead trees adjacent to work areas, and placing and bolting in of these trees in the creek for habitat features. <p>Work also continued along the Quesnel Lake shoreline adjacent to the Edney Creek channel outlet, including:</p> <ul style="list-style-type: none"> • Stripping of the beach and placement of rip rap and gravel. • Construction of a causeway to the “island”, where sloping and placement of riprap and gravel commenced. <p>Consultants from Golder Associates Ltd. and Envirowest Consultants Inc. were on site this week supervising rehabilitation work.</p> <p>Edney Creek continues to be diverted into Hazeltine Creek upstream of the upper sedimentation pond to dewater the channel for construction purposes, and Hazeltine Creek continues to flow into Quesnel Lake via the temporary diversion channel out of the lower sedimentation pond.</p>

Environmental Monitoring Program

Water Quality Monitoring Program

The current water quality monitoring program is outlined in the table below. All monitoring was completed as scheduled this week. Because of the temporary flow pattern changes associated with the Edney Creek and adjacent Quesnel Lake shoreline habitat rehabilitation work, sampling at some stations has been temporarily adjusted as follows:

- Station EDC-01 is not being monitored, because there is no flow in this section of the creek (lower Edney Creek has been diverted into Hazeltine Creek upstream of the upper sedimentation pond).
- Station EDC-02 is not being monitored because there is no outflow into the lake from the Hazeltine/Edney outflow channel (water has been diverted out of a temporary channel from the lower sedimentation pond).
- Stations QUL-54, QUL-55, and QUL-56 have been shifted from the mouth of the combined Edney/Hazeltine outflow channel to the mouth of the temporary outflow channel from the lower sedimentation pond into Quesnel Lake. These temporary stations are named QUL-54a, QUL-55a, and QUL-56a.
- Station HAC-01b at the outflow of the lower sedimentation pond has been moved to station HAC-01c at the temporary outflow from the lower sedimentation pond in the diversion channel.
- The continuous monitoring sonde at HAC-01b has been temporarily removed.

Area	Monitoring Type	Frequency	Stations
Polley Lake	Samples	Monthly	P1, P2
	Profiles	Bi-monthly	P1, P2
Hazeltine Creek	Samples	Weekly	HAC-01b
		Monthly	HAC-05, HAC-08, HAC-10
	Field Parameters	Continuous	HAC-01b
Edney Creek	Samples	Weekly	EDC-02
		Monthly	EDC-01
Quesnel Lake	Profiles	Weekly	QUL-54, QUL-55, QUL-56
	Profiles	Bi-monthly	QUL-21a, QUL-18, QUL-66a, QUL-2a, QUL-79
	Profiles	Monthly	QUL-40a, QUL-120a
	Samples	Weekly	QUL-55
	Samples	Monthly	QUL-2a, QUL-18, QUL-40a, QUL-120a
Quesnel River	Samples	Bi-monthly	QUR-1
	Field Parameters	Continuous	QUR-1

Please refer to previous weekly reports, such as the [May 7th, 2015](#) report, for a map of these sampling locations.

Water Quality Monitoring Results

Figure 1 shows a time series graph for this week of daily field turbidity readings in lower Hazeltine Creek upstream and downstream of the sedimentation ponds (stations HAC-09 and HAC-01c, respectively). Figure 2 shows turbidity levels at these sites over a longer time period to provide context for this week's data.

Figure 3 shows a turbidity and temperature profile from this week at site QUL-55a, near the mouth of the temporary diversion channel from the lower Hazeltine Creek sedimentation pond to Quesnel Lake.

Figure 4 shows a time series graph of turbidity at site QUR-1. Turbidity data are from laboratory analysis completed by ALS Environmental. This chart will be updated every second week, as per the monitoring frequency of this station in the sampling program.

**Other
Monitoring
Programs**

Following completion of the [Post-Event Impact Assessment Report](#), MPMC has moved on to the next phase monitoring following the tailings dam failure, which includes carrying out recommendations made in the Post-Event Impact Assessment Report. Minnow Environmental commenced a sediment monitoring program on site this week.

MPMC's hydrology contractor was on site this week to re-install the lower Edney Creek hydrological monitoring station, after it was removed to allow fish habitat construction work to be carried out.

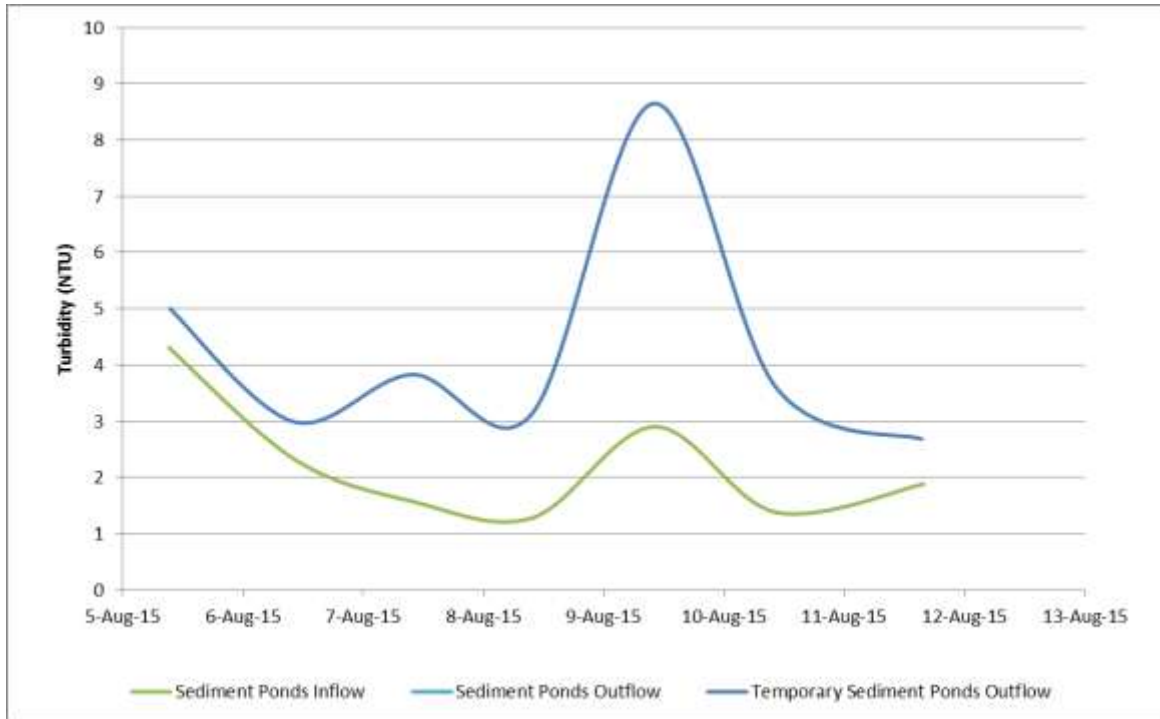


Figure 1. Time series graph for August 5th – August 11th showing turbidity levels at monitoring locations in Hazeltine Creek

Note: Edney Creek has temporarily been diverted into Hazeltine Creek (upstream of the sedimentation ponds) and outflow from the lower sedimentation pond diverted to Quesnel Lake in a temporary channel to allow Edney Creek channel and adjacent shoreline rehabilitation for fish habitat.

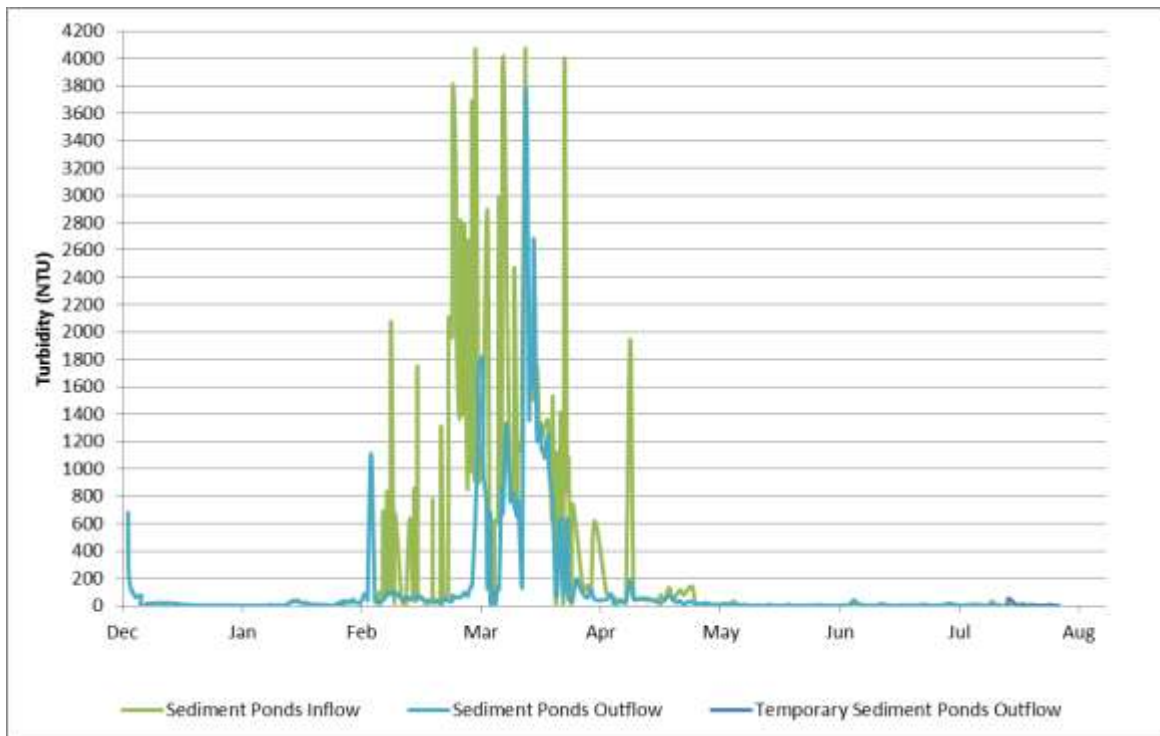


Figure 2. Time series graph for December 12th, 2014 – August 11th, 2015 showing turbidity levels at monitoring locations in Hazeltine Creek

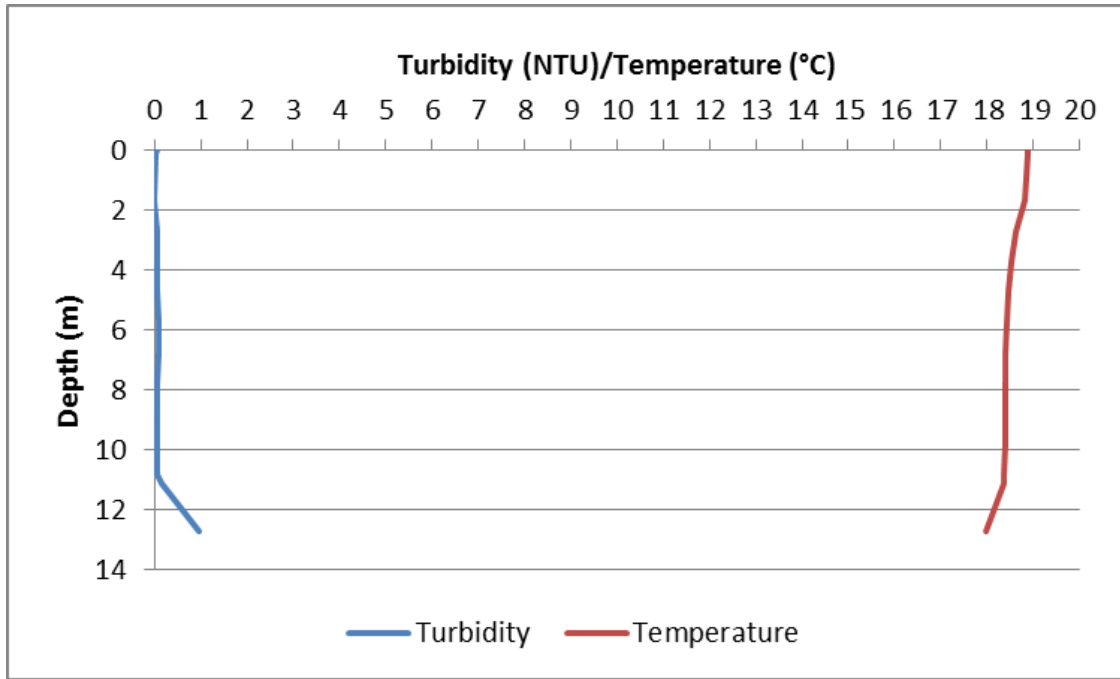


Figure 3. Turbidity and temperature profiles at station QUL-55a on August 10th



Figure 4. Turbidity time series at station QUR-1 (August 6th, 2014 – July 29th, 2015)