December 4th, 2023

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Re: Follow-up Report Spill #2023-462 – MEL-SR-1 Surface Water Runoff at the Meliadine Gold Mine, Itivia Site

On November 5th, 2023, as due diligence, the Nunavut Spill Line was notified by Agnico Eagle personnel via email (spills@gov.nt.ca) of a potential Total Suspended Solids (TSS) exceedance at the Meliadine Gold Mine, Itivia site (spill location coordinates: 62 47'59.94'' N, 92 5'35.74" W).

This follow-up report provides supplemental information based on the results of the event assessment and is being provided in accordance with:

- Nunavut Water Board Licence Water Licence 2AM-MEL1631, part H, item 8c; and
- The Fisheries Act, subsection 38(7).

Analytical results of samples collected on November 4th and November 5th show TSS concentrations below the allowable TSS criteria listed under Part D, Item 18 of the 2AM-MEL1631 Water Licence.

Thus, the event was reported as due diligence and is not an exceedance under Part D Item 18 of the 2AM-MEL1631 Water Licence.

Description of Event

On November 4th, 2023, construction work was underway to replace two culverts at the Itivia laydown area which sustained damage following a significant rainfall event on June 7th, 2023. To

facilitate the placement of riprap on the upstream side of the partially installed culverts, an area of ice and soil was excavated, resulting in the upwelling of unfrozen water present beneath the ice.

Figure 1: MEL-SR-1 monitoring location.

A submersible pump was installed in the excavation upstream of the culverts to dewater the area, and the discharge stream was directed into one of the partially installed culverts (Figure 2). Approximately 6 m^3 of water was pumped from the excavation.

Figure 2: Dewatering of excavated area upstream of new Itivia culverts.

Sampling Results

A water sample was collected from runoff at station MEL-SR-1, downstream of the culverts (Figure 3), November 4th. The sample was brought back to the mine site and measured for turbidity, yielding a reading of 69.7 NTU. The sample was internally analyzed for TSS at the mine site Assay Laboratory and results reported a TSS concentration of 43.5 mg/L, well below the 100 mg/L-TSS effluent quality limit identified in Part D, Item 18 of the Licence.

An assessment of a TSS to turbidity ratio was conducted specific to the composition of water present at the MEL-SR-1 station. Using pairs of field turbidity readings and laboratory assessed TSS concentrations for historic sample events at MEL-SR-1 and MEL-SR-7 (these stations represent a similar flow path), a linear rating curve was established to estimate TSS concentration from an input turbidity measurement. Using the rating curve, the November 4th MEL-SR-1 measurement of 69.7 NTU resulted in an approximate TSS concentration of 42.5 mg/L.

As shown in Table 1, the results of both assessment methods have a low percent difference, providing confidence that the runoff at MEL-SR-1 did not exceed the TSS effluent quality limit identified in Part D, Item 18 of the Licence.

Table 1: Results from internal analysis of November 4th sample.

Assessment Method	Total Suspended Solids (mg/L)
Assay Lab	43.5
TSS:Turbidity Relationship*	42.5
% Difference	2.3 %

** TSS calculation of 69.7 NTU from TSS:Turbidity rating curve, derived from historic MEL-SR-1 + MEL-SR-7 data.*

On November 5th, a sample was collected for analysis of group 1 parameters at monitoring station MEL-SR-1, per table 2 of the Licence.

Laboratory analytical results for the MEL-SR-1 sample reported a concentration of 14 mg/L TSS, which is below the TSS effluent quality limit listed under Part D Item 18 of the 2AM-MEL1631 Water Licence.

Figure 3: Discharge of pump dewatering downstream of Itivia culverts.

Sedimentation Controls

As per the Sediment and Erosion Management Plan, mitigation measures were installed to control potential sedimentation issues prior to further dewatering of the sump upstream of the culverts.

On November 5th, 2023, a sediment dewatering bag was installed on the end of the pump discharge hose, and straw and woodchip wattles were installed downstream of the culvert prior to resuming dewatering (Figure 4).

Figure 4: Sediment dewatering bag and straw/wood chip wattles installed downstream.

Following the resumption of pumping, a series of turbidity measurements were collected at MEL-SR-1, downstream of the culverts, and their results are indicative of efficient sedimentation control measures.

Table 2: Turbidity readings of November 5th monitoring.

Time (November 5th)	Turbidity (NTU)
09:44	29.6
09:58	22.7
10:13	9.38

Should you have any questions or require further information, please do not hesitate to contact the undersigned.

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Appendix A – Certificate of Analysis

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