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2AM-MEL1631 Water Management Working Group (WMWG)

Date: October 2nd, 2020

Attendees	
Name	**Organization**
Sergey Kuflevskiy	NWB
Luis Manzo	KivIA
Richard Nesbitt	KivIA (Consultant)
Anne Wilson	ECCC
Victoria Shore	ECCC
David Zhong	CIRNAC
Matt Gillman	AEM
Michel Groleau	AEM
Sara Savoie	AEM
John Faithful	AEM (consultant)

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Teleconference Water Management Working Group

Monitoring Program Data Review

Type “A” Licence No: 2AM-1631

October 2nd, 2020 1:00 pm – 2:20 pm ET

Teleconference Call-In Information: Phone: 1-888-305-5801; Meeting Number: 179 891 256#

1. Opening remarks
2. Presentation of the monitoring results
3. Closing remarks

1. Opening Remarks

Sergey Kuflevskiy opened the fourth meeting of the Water Management Working Group (WMWG) by asking participants if everyone had received the information package shared Wednesday September 30th, 2020. Participants confirmed they had well received the information package.

Matt Gillman mentioned to participants that after the presentation of the monitoring results, AEM would also like to take the opportunity to discuss the stop of the discharge, planned for October 3rd, 2020 as well as proposed key messages Agnico had drafted for the WMWG’s review.

Sergey passed the floor to AEM to present the updated monitoring results.

2. Presentation of the monitoring results

Slide 2

John Faithful showed the tables summarizing the monitoring and testing program and mentioned that he would quickly go over slides which have been shared on previous meetings and invited participants to stop him at anytime if they had any questions or wanted to further discuss the content of these slides.

Slide 3

John presented the monitoring sampling station locations.

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Slide 4

John presented the water chemistry data (specific conductivity, TDS calculated, TDS measured, and chloride), as well as the cumulative discharge volume up to September 28th.

John underlined the following key points:

- There was a slight increase in the daily discharge volumes since the last WMWG meeting, peaking up to 16,000 m^3 per day;
- Cumulatively, approximately 980,000 m^3 were discharged as part of the Emergency Amendment in 2020;
    - Matt specified that more than 980,000 m^3 were removed from CP1, given recirculation of water to the mill, closer to around 1.03 million m^3 were removed from CP1
- The changes in season is reflected in the discharge's specific conductivity data, which shows transition through the ice-free period with the expected reduction followed by a minor increase from beginning of July throughout beginning of September;
- Composition of the effluent appears to remain consistent as per the relatively consistent chloride proportion in the calculated TDS (chloride concentrations show a similar trend to TDS).

Slide 5

John presented the key indicator data (specific conductivity, TDS calculated, TDS measured and chloride) from the edge of mixing zone, the mid-field, and the reference stations for the duration of discharge.

John explained that the relationship between the key indicators over time is generally consistent throughout the year, and that there were no surprise for these results as well; specific conductivity, TDS (calculated) and chloride display spatial attenuation.

Anne Wilson mentioned she noticed there was inconsistency in which TDS levels were higher between the calculated and measured numbers and would have expected measured to be higher which it isn't much of the time.

John agreed that there is variability on both sides of the TDS numbers calculated and measured. John mentioned that this isn't necessarily worrisome since the chloride levels don't show similar variability and the proportion of chloride to calculated TDS has remained consistent.

Richard Nesbitt asked about the sampling methods, Matt confirmed that they are not surface grab samples and are taken at the depth of highest conductivity.

Slide 6

John presented the water column profiles at each the edge of mixing zone, mid-field, and reference stations and mentioned an updated graph would be sent as two water column profiles were missing from the edge of mixing zone station, MEL13-01.

John explained that there is general gradation of specific conductivity over the year at each edge of mixing zone station, reflecting the transition between under-ice conditions, early discharge, and the lower discharge through to September. There is also a relatively consistent attenuation f specific conductivity from the edge od mixing zone stations to the reference stations. With the exception of under-ice conditions and the most recent discharge at the edge of mixing zone stations, well mixed conditions are generally seen at all the stations in open water conditions.

John also explained that the water column profiles at the edge of the mixing zone on September 13 show a relative increase in specific conductivity because of the recent higher discharge rates. The increase is evident at all stations, with the plume evident in the bottom few metres of the water column. This is not unexpected, with maximum specific conductivity values through the water column below 185 µS/cm.

Anne mentioned that the new format of the graphs and colors made it easier to follow.

Slide 7

John reminded participants of the toxicity testing program which includes weekly acute toxicity tests and monthly chronic toxicity tests.

Slide 8

John presented a summary of the acute toxicity results; the results show the discharge is consistently non-acutely toxic.

Slides 9-16

John presented preliminary chronic toxicity testing results for Duckweed, *Hylella azteca* and confounding results for the Fathead Minnow tests.

For Duckweed and *Hylella azteca,* results do not suggest adverse effects in mid-field and edge of the mixing zone station relative to the reference area. For *Hylella azteca,* there is more variability,

further details on potential explanations will be provided when more results become available within the next weeks.

Anne asked if the laboratory is using the same strain of *Hylella azteca,* John mentioned he would follow-up on that.

John mentioned that the results for the Fathead Minnow tests were surprising that seemed to be caused by pathogenic bacteria or fungal infections (due to the water being collected in August with warmer temperature). In order to address this issue, a follow-up test with samples disinfected with ultraviolet filtration is being conducted pre-treatment.

Richard asked if the test were being rerun with residual water that was shipped south or if an additional set of samples was sent for rerun.

Matt confirmed that the analysis is being rerun with the residual samples.

Anne asked if it was possible to conduct an early life stage on the rainbow trout to confirm that that chronic test would be passed.

John mentioned that AEM would consider and follow-up on this question.

Slide 17

John proceeded to present the main findings discussed during the meeting:

- Measured TDS concentrations continue to be less than permitted levels of 3,500 mg/L in the MEL-14 effluent and 1,000 mg/L at edge of mixing zone stations during each of the sampling events;
- Results suggest high assimilation of the effluent in the receiving environment;
- The discharge has not been acutely toxic;
- Chronic toxicity at the edge of the mixing zone has not been observed.

Key Messages

Matt presented the proposed key messages to participants, after discussion the following changes were made.

Bullet number	Initial Key Message Presented in the Power Point	Proposed Rewording Following Comments from Parties
1	The monitoring data confirms that the diffuser is working as planned and that	The monitoring data confirms that the diffuser is working as planned and that water being

	discharged water being released in Meliadine Lake is safe.	released in Meliadine Lake is safe to the environment, fish and other aquatic life.
2	The release of the water is going as planned, and testing and continuous monitoring shows that the discharge of water is safe to the environment, fish and other aquatic life. Based on monitoring data, accumulation of total dissolved solids (TDS) is not occurring in Meliadine Lake.	Based on the monitoring data, there is no evidence of a build-up (accumulation) of TDS in Meliadine Lake as a result of the discharge.
3	Discharge to Meliadine Lake is planned to be stopped for the year on October 3, 2020. The total volume discharged for the year was less than planned as precipitation has been lower than average this year and due to recirculating CP1 at the Process Plant.	On October 3, 2020, water discharged into Meliadine Lake stopped for the year. The total amount of water discharged into Meliadine Lake was 55% lower than initially planned. The lower volumes resulted from lower than expected rainfall and because Agnico Eagle used the water from CP1 at the Processing Plant.
4	Meliadine Lake is the source of freshwater for the camp and we have not observed changes in the drinking water quality at the camp.	*No changes proposed*

3. Closing Remarks

Sergey asked about the next meeting date; Michel Groleau proposed participants wait to have the full set of data for the next meeting which would be the last one.

Anne suggested not to wait for final results in order to hold a meeting and that preliminary data might be sufficient to hold the next meeting in order to have as much information as possible for the Water Licence Amendment process.

Matt mentioned that the likely timeline would be early November, and that a proposal would be sent to the group.

Anne asked about sampling in the mixing zone this weekend. Matt mentioned that the discharge would be stopped but mixing zone could still be sampled on Sunday. Reference area would be

more difficult. Richard mentioned he would be interested in those results, as did Anne. Matt confirmed that the weekly water quality sampling event would be conducted in the mixing zone.

Luis Manzo asked if after discharge it's possible to bring elders to Meliadine Lake for sampling. Michel mentioned that AEM could look into it, that verifications would have to be made with regards to COVID-19 conditions and that AEM would follow-up on this.

Participants agreed with the proposed date and the meeting concluded at approximately 2:20 ET.

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Addendum

AEM wishes to follow-up regarding the two following questions asked during the meeting.

1. Have water quality analyses been completed on aliquots of the chronic toxicity samples being applied to the fathead minnow re-run with UV filtration, to assess for sample drift?

Regarding aliquots of the chronic toxicity samples being applied to the re-run, AEM confirms that aliquot samples for TDS have been collected and analyzed for the three edge of mixing zone stations, as well as the MEL-14 effluent sample.

2. Please provide an explanation of why lab-based specific conductivity readings for samples collected at depths of greatest SpC do not agree with the water column profiles (i.e., lab SpC does not agree with field SpC readings).

The difference is expected to be related to the hold time between sample collection and lab measurement for the field measured parameters. Furthermore, at low range conductivity, this level of variability can be considered normal when measuring specific conductivity with differing instrumentation, separate calibrations, differing temperatures of water, and aforementioned hold times. The field data record confirms that the samples collected for toxicity testing (and lab analysis) were collected from the depth of highest specific conductivity.