Richard Dwyer

From: Bedingfield, Robert [Robert.Bedingfield@dfo-mpo.gc.ca]
Sent: Friday, June 03, 2011 11:59 AM
To: licensingadmin@nunavutwaterboard.org
Cc: Amanda Hanson; Ryan Vanengen; Moggy, Derrick
Subject: DFO 2009 Meadowbank Annual Report Comments
Attachments: 2009 DFO Annual Report Comments Meadowbank.pdf

Hi Richard,

Attached are DFO's Annual Report comments for the **2009** Annual Report that was submitted by Agnico Eagle for the operations conducted at the Meadowbank Gold Mine. DFO did not provide comments at the time that the 2009 Annual Report was submitted. Comments are being submitted at this time for the sake of completeness.

Please note that DFO will be providing comments on the **2010** Annual Report before June 30, 2011.

If there are any comments or if you would like to discuss DFO's comments in further detail please let me know.

Thank you,

Bobby Bedingfield

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June1, 2011

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Via E-mail to: licensingadmin@nunavutwaterboard.org

Re: Agnico-Eagle Mines Limited – Meadowbank Project- 2009 Annual Report

Dear Mr. Dwyer:

On behalf of Fisheries and Oceans Canada (DFO) I have reviewed Agnico-Eagle Mines Meadowbank Project's 2009 Annual Report submission with consideration to DFO's mandate to protect fish and fish habitat.

DFO provides the following comments specific to the 2009 Annual Report and in particular those Appendices that pertain to DFO's mandate that are itemized below.

2009 Annual Report
Section 7.1.12 (Blasting Activities) mentions that blasting activities at the mine were able to meet DFO's guidelines pertaining to use of explosives with the exception of during the fisheries window of August 15 – June 30. During this period the peak particle velocity (PPV) monitoring data exceeded DFO's explosives guidelines during 11 out of 149 blasting events. DFO recommends that if PPV values can not be consistently reduced it may be necessary to limit blasting activities in the vicinity of fish habitat during the fisheries window in order to prevent impacts to incubating eggs and larvae.

Appendix F2: Aquatic Effects Monitoring Program – Core Receiving Environment Monitoring Program, 2009 Meadowbank /Gold Project, March 2010.

In *Methods 2.4 Sediment Chemistry* (pg 12) DFO again recommends that the top 1cm of sediment be sampled rather than the top 3-5 cm in order to document recent impacts from sediment disruption and deposition. Further it will be important to determine the concentration of metals from mine development in recent deposition as there may be potential impacts to the aquatic biota of the impacted lakes.

DFO recommended in its review of the 2008 Annual Report for Meadowbank that much of the data presented for the current year should be presented in figures and compared to data collected from previous years, reference areas and to baseline data, as opposed to comparing to CCME

guidelines. DFO notes that this has not been addressed in the 2009 Report and would recommend this approach as it would be particularly useful in an analysis of the sediment data as described above.

Section 4 of this report discussed the implementation and synthesis of the ground survey with the aerial surveys for determining the habitat value and the overall amount of habitat units present in the northwest arm of Second Portage Lake. DFO acknowledges that the ground survey provides valuable "ground truthing" of the habitat data and would recommend that this practice continue where fish habitat will be de-watered during future activities. The ground survey method is particularly accurate at distinguishing the high and moderate quality habitat regions, and becomes particularly useful in determining the appropriate measures to prevent, mitigate and compensate impacts to fish and fish habitat.

Section 7 of this report discusses the relationship between fish habitat and fish biomass. Once more information and data is gathered to correlate the quality of fish habitat with fish biomass the potential exists to develop a useful tool/model to accurately calculate fish biomass in a given area. The report states that incorporating fish habitat quality into existing models will be especially beneficial for accurately predicting fish biomass in future projects involving nutrient limiting lakes in the northern environments. The potential to increase the accuracy of existing methods is important to predict and evaluate potential impacts to fish and fish habitat for all parties involved in project development and resource management in northern environments.

Appendix F3: Meadowbank Gold Project 2009 All Weather Private Access Road Fisheries Report, January 2010

This report presents a good summary of fish movement and fish population size distributions during 2009 in streams that may have been potentially impacted by crossings R02, R06, R09 and R15. The Length – Frequency Histograms should include the previous year's data.

The report (*Introduction*, paragraph 1) mentions that round whitefish use the streams in the area, however in *Section 4, Creel Survey*, lake whitefish are mentioned. DFO recommends that this apparent inconsistency be reviewed and corrected or further explained, if necessary.

In review of the 2008 Annual Report, DFO recommended that creel surveys should include the collection of specific meristic and morphometric characteristics to facilitate determination of fish population characteristics. This is particularly important for the fish population of Whitehills Lake.

Appendix C1, Meadowbank Gold Project All Weather Private Access Road: 2009 Water Quality Management Report

DFO agrees that the sampling and inspection regime for 2010 should maintain the status quo and follow the same methodology as the monitoring performed in 2009. If any maintenance or construction activities are performed in 2010 on any of the authorized crossings, event specific water quality monitoring should be performed to identify any sediment or water quality related issues originating from construction or maintenance activities.

Appendix F5, Aquatic Effects Monitoring Program, Habitat Compensation Monitoring 2009, March 2010.

Dissolved aluminum exceeded CCME guidelines for one sample at one location (PW-1) during monitoring of the interstitial (pore) water quality at the East Dike. Because the elevated value occurred in one sample, it is appropriate to wait until the results from the 2010 monitoring to determine if Tier 2 monitoring should be initiated. The 2010 monitoring results should confirm if the elevated levels of dissolved aluminum is an outlier due to low pH of the sample or if the result is associated with elevated TSS levels from East Dike construction. Further sampling in 2010 should confirm if metals are leaching from the rock that was used to construct the dike. If metals levels are exceeded in 2010, the monitoring regime should transition into the Tier 2 monitoring program.

DFO supports the recommendation made in this report to abandon minnow trapping and visual observations in favor of snorkeling surveys and electrofishing to determine fish use of the habitat compensation structures.

The qualitative peripyhton assessment results (section 3.3.4) showed that periphyton at some high value habitat locations within several hundred metres of the East Dike were somewhat impaired by settled sediment, presumably from the dike construction in 2008. Quantitative sampling of the total periphyton biomass also showed that the sample location within 200 metres of the East Dike (SP-BL) had decreased periphyton biomass. DFO recommends that follow-up periphyton monitoring should be performed in 2010 to determine whether periphyton health and abundance has recovered following the construction of the East Dike.

Appendix A4-2, Aquatic Effect monitoring Program, Targeted Study, Dike Construction TSS Effects Assessment Study 2009, Meadowbank Gold Project, April 2010

It is important to continue with the studies where effects were identified to determine if the reduction seen in periphyon biomass and benthic invertebrate abundance will persist temporally. Another important aspect of monitoring that is vital to continue in 2010 is the sediment monitoring relating to increased sedimentation in high value fish habitat areas and the possibility of increased metals associated with the deposited sediment that was identified in these areas.

Appendix A4-3 Aquatic Effect Monitoring Program – Targeted Study: Dike Construction Monitoring 2009, Meadowbank Gold Project, March 2010

It is important to note that there were challenges containing the mobilized sediment within the East Basin of Third Portage Lake during the construction of Bay-Goose Dike in the fall of 2009. Strong winds during the construction of the Bay-Goose Dike caused maximum monthly mean and short term maximum TSS trigger values to be exceeded at Bay-Goose West (BGW), Bay-Goose East (BGE) and Bay-Goose High Value Habitat (BG-HVH) sampling stations from early August to early October. As mentioned previously, DFO recommends that effects assessment studies proceed for variables that have been identified as being affected by sedimentation. This continued monitoring will be vital to determine if the effects are present in subsequent years.

Should you have questions, or require clarification please do not hesitate to contact Bobby Bedingfield at (403) 292-8675 or by email at Robert.Bedingfield@dfo-mpo.gc.ca.

Sincerely,

Bobby Bedingfield
Fish Habitat Biologist
Fisheries and Oceans Canada
Eastern Arctic Area

copy Derrick Moggy, Fisheries and Oceans Canada
Ryan Vanengen, Agnico-Eagle Meadowbank Division
Amanda Hanson, NIRB