



QZ08-083

Mineral Resources Branch
Box 2703 K-9
Whitehorse, YT
Y1A 2C6

March 23, 2009

File: QZ08-083

Yukon Water Board
106-419 Range Road
Whitehorse, YT
Y1A 2S5

Sir,

RE: Hudson Bay Mining and Smelting Co. Ltd. : Tom Property – Adit Plug

In December, it was anticipated that a Mining Land Use approval would be necessary for this project to proceed. Upon further review, it has been decided that no thresholds are being met and the project will be proceeding as a Class 1. The operating conditions of the Quartz Mining Land Use Regulation apply and the proponent must comply with these.

As we believed we would need an Adaptive Management Plan (AMP) from Hudson Bay Mining and Smelting Co. Ltd., we contracted an environmental consultant to review the proposal and write a report outlining what should be included in the plan.

I submit this to you and hope that you find it useful in relaying to the client what needs to be submitted as a AMP.

It is unclear to me exactly who will be receiving this AMP as the decision document states that it will be submitted to the Decision Body (Mineral Resources).

Please feel free to call me at (867) 456-3961 should you have any questions regarding the above.

Sincerely,

A handwritten signature in black ink, appearing to read "Judy St. Amand".

Judy St. Amand
Regional Mining Lands Officer

c Nancy Moore, Mining Lands Officer
Kai Woloshin, Environmental Scientist, AECOM
Stephen West, Superintendent, Environmental Control, Hudson Bay Mining and Smelting Co. Ltd.

OUTLINE FOR AN ADAPTIVE MANAGEMENT PLAN FOR THE INSTALLATION OF AN ADIT PLUG AT THE TOM VALLEY PROPERTY

January 25, 2009

Objectives

Hudson Bay Mining and Smelting Company (HBMS) have submitted a proposal for the installation of an adit plug at the Tom Valley Property located at Macmillan Pass area, Yukon. The company holds a Type B water licence QZ08-080 issued September 19, 2008 for the deposit of waste from a quartz mining undertaking. The deposit of waste is a result of water with elevated metals and low pH discharging from underground workings to Sekie Creek #2.

The water licence specifies that adit discharge must meet specific water quality criteria after March 12, 2009. The purpose of the adit plug and associated modification of the discharge channel over waste rock is to reduce metal concentrations to a point that meets licence requirements if possible.

The formulation of an adaptive management plan (AMP) in order to assess, and if required, modify mitigation methods would be a preferred approach to improve water quality. This document will present a proposed outline of elements that should make up the adaptive management plan.

Background

Hudson Bay Mining and Smelting received a Type B water licence (QZ99-046) effective January 1, 2003 for discharge from the Tom Valley project exploration adit. This licence required HBMS to submit a plan to the Board by December 31, 2003 for the study of contaminant loadings in Sekie Creek #2.

This study was to include:

- Contaminant loadings to Sekie Creek #2 and the South Macmillan River from natural and anthropogenic underground and surface waters;
- Changes in loadings since exploration activity commenced in the area;
- Predictions of future conditions;
- Provide proposals to diminish flows and concentrations from anthropogenic sources;
- Identify conditions that would warrant further mitigation of contaminant loadings.

The company was also required to meet the following water quality standards from effluent at a distance no more than 10 metres from the adit portal by September 30, 2005:

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Parameter	Concentration (mg/l)
Arsenic (dissolved)	1.0
Copper (total)	0.6
Lead (total)	0.4
Nickel (total)	1.0
Zinc (total)	1.0

On June 29, 2005 HBMS received an amendment (QZ04-068) to the licence, extending the date to meet water quality standards to September 30, 2007.

A second amendment (QZ07-077) issued on September 12, 2007 granted a further extension to meet water quality standards to September 30, 2008.

On February 5, 2008 HBMS submitted a project proposal under the *Yukon Environmental and Socio-Economic Assessment Act* (YESAA) (project 2008-0037) to "...install an adit plug and associated workings at the Tom Valley property located in the Macmillan Pass area for the purposes of improving the long term water quality of the adit discharge.". After submission to YESAA, HBMS would seek an amendment to their water licence for site specific effluent quality standards at the property. The assessment underwent two extensions during the "seeking views and information" stage until it was withdrawn by HBMS on August 4, 2008 in order to allow adequate time to collect all the requested information.

A new YESAA assessment (project 2008-0242) was commenced on October 16, 2008 and the Designated Office Evaluation Report was released on December 21, 2008. The Evaluation Report recommended that a number of items be covered in an Adaptive Management Plan (AMP) to be submitted to the appropriate Decision Body for approval. The content of the AMP will be discussed in the next section.

Adaptive Management Plan References

A) YESAA Designated Office Evaluation Report Project 2008-0242

Section 22 of the Evaluation Report specifies that an Adaptive Management Plan be prepared and submitted to the Decision Body. It is specified that the plan include:

- Trigger thresholds based on predictive modelling for the following:
 - surface water quality in the receiving environment;
 - adit discharge water quality and quantity;
 - presence of seepage;
 - groundwater levels;
 - temporary sludge containment pond;
 - waste rock cover and lined channel.

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- Routine review of results from the monitoring program and comparison to the thresholds.
- Should monitoring show that thresholds are exceeded then:
 - determine likely cause and assess impacts to the receiving environment;
 - develop an appropriate response plan to address the problem;
 - seek regulatory approval for proposed actions in the event that a change to the water licence is required;
 - implement the response plan as approved.

Suggested Content of Adaptive Management Plan

A) The following elements should form the basis of an Adaptive Management Plan specific to the discharge from the Tom Valley adit:

Assessment and Indicators

- Definition of problem and objective;
- Identify key indicators that are practical and measurable for each objective;
- Select indicators that will provide appropriate short and long term responses;
- Identify sensitivity of indicators to changes in parameters being measured;
- Identify uncertainties;
- Define frequency of indicator measurement;
- Identify who is responsible for collecting indicator data.

Actions and Implementation

- Outline the predicted effects of the actions;
- Actions must be linked to indicators;
- Evaluate possible alternative actions should predictions be exceeded;
- Describe the possible unknown or detrimental effects of the actions;
- Identify emergency responses to quick changes in indicators.

Monitoring

- Identify frequency and duration of monitoring once action is implemented;
- Identify additional indicators that may be measured once action implemented;
- Describe analytical methods, laboratories and expected result turnaround times;
- Identify any changes to monitoring schedule should outcomes vary greatly from predictions, or changes are made to actions;
- Identify monitoring frequency once actions are ceased.

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Evaluation and Reporting

- Outline frequency of reporting data;
- Identify data that will be documented;
- Identify the timeframe for reporting data once it is received;
- Identify methods of distribution of data and to whom data will be reported;
- Describe how and when effectiveness of actions will be reported.

Adjustment of AMP

- Describe how modifications to possible future actions will be evaluated and documented;
- Reevaluate and document new predictions of performance;
- How often will AMP be reviewed and updated.

B) In addition to the specifics raised in the YESAA Evaluation Report and the Decision Document, the following items specific to the Tom Valley Project have been identified by reviewers as key elements and unknowns for the project and should be discussed in the AMP.

- failure of bulkhead;
- monitoring of pressure behind bulkhead;
- monitoring changes in water quality and quantity from existing seeps and drillholes;
- development of new seeps;
- effectiveness of waste rock cover;
- need to modify waste rock cover to maximize coverage;
- damage to waste rock cover and maintaining its structural integrity;
- insuring sludge remains physically and chemically stable;
- possible need for treatment during initial filling and flushing of underground workings;
- monitoring effects of avalanches and slides from steep slopes on mitigative works.

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