YUKON WATER BOARD

REASONS FOR DECISION

WATER USE APPLICATION QZ09-089
Emergency Amendment Application to QZ96-006
Minto Exploration Ltd.
Minto Creek

On August 5, 2009 the Yukon Water Board ("the Board") received an application for emergency amendment # 6 to water use licence QZ96-006.

The Board has concluded deliberations pertaining to Water Use Application QZ09-089, an application for an emergency amendment of type 'A' licence QZ96-006.

In making licensing decisions pertaining to this application, the Board took into account the *Waters Act*, *Waters Regulation*, the application, recommendations from the interveners, the Board's standard licence requirements and the *Yukon Water Board Guidelines for Processing an Application for Emergency Amendment.*

Background

Minto Explorations Ltd. had undergone an environmental screening under the Environmental Assessment and Review Process Guidelines Order ("EARPGO") which was completed on April 8, 1997. In this assessment the storage of excess water, from spring freshet and rain run-off, in the Pit was not assessed. The only water assessed through EARPGO in the Pit would be seepage water that was identified as being stored in a sump in the Pit.

As it was determined that storage of water in the Pit had never undergone an environmental screening, there was no information or studies related to the impact of water storage in the pit.

In regards to the effluent quality discharge standards that the Board included in licence QZ96-006, the reasons for decision for Licence QZ96-006 clearly indicate that the Board agreed with the recommendation of Fisheries and Oceans Canada and Environment Canada to include effluent quality discharge standards that were more restrictive than the *Metal Mining Effluent Regulations* ("MMER").

Application QZ09-089 (amendment #6)

In application QZ09-089 for an emergency amendment, Minto Explorations Ltd. ("the Licensee") requested to discharge 930,000 m^3 of water at levels less restrictive than amendment 5 of the licence from the Water Storage Pond and/or Pit prior to October 15, 2009 in order to comply with an Inspector's Direction issued to the company on August 3, 2009, to remove all water stored in the Pit.

Notice of Application

Section 19(3)(c) of the *Waters Act* ("the Act") allows the Board to dispense with the requirement to hold a public hearing on a type A licence pursuant to which the use flow or quality of waters would be altered, where the Board, with the consent of the Minister, declares the amendment to be required on an emergency basis.

Section 21(4) of the *Waters Act* ("the Act"), the Yukon Water Board may grant an emergency amendment to a water use licence without a public hearing or providing a notice of public hearing.

As indicated in section 6 of the *Yukon Water Board Guidelines for Processing an Application for Emergency Amendment*, it was determined that sufficient time was available for potentially interested parties to provide comments to the Board.

The Board distributed the application and invited input from the following parties:

- Selkirk First Nation;
- Selkirk Renewable Resource Council;
- Yukon Government;
- Environment Canada;
- Department of Fisheries and Oceans; and
- Yukon Conservation Society.

The Board received interventions from all of the parties identified above.

Furthermore, as provided in the *Yukon Water Board Guidelines for Processing an Application for Emergency Amendment*, the Board invited the Licensee and intervening parties to be available at the time of the Board meeting should the Board require additional information and/or clarification in its determination. The Licensee was requested to participate in the meeting. Robert Holmes and Josef Hanrath - Yukon Government also appeared before the Board as Inspectors via conference call.

Determination of an Emergency

The *Waters Act* does not set out the criteria for the determination of an emergency. The *Yukon Water Board Guidelines for Processing an Application for Emergency Amendment* state that an economic hardship is not, on its own, an emergency. The Board has, by practice, accepted the principle that an emergency is a sudden condition, calling for immediate action, and where there is some probability of adverse environmental impact. These guiding principles were reaffirmed and agreed upon by the Board when determining if the amendment requested was an emergency.

As part of the Application, the Licensee provided a copy of the Inspector's Direction dated

August 3, 2009, which was issued under section 146 of the *Quartz Mining Act*. The Inspector's Direction stated that Minto Exploration Ltd. must remove all water from the Pit by October 15, 2009. The letter also stipulated that Minto Exploration Ltd must abide by Water Use Licence QZ96-006 and remain in compliance with the *Waters Act* and the *Fisheries Act*. It is the decision of the Board that the Inspector's Direction has no authority under the *Waters Act* and that any decision regarding an emergency discharge is the jurisdiction of the Board. It was also determined by the Board that an Inspector's Direction did not constitute an emergency under these guidelines. It is the Licensee's responsibility to provide evidence that the situation at the mine site meets the Board's definition of "emergency" using the Board's Guidelines for an Emergency Amendment.

After reviewing the application, the interventions and the testimony of the Licensee and representatives of Yukon Government, the Board determined that an emergency did exist. However; the emergency identified by the Board is not the emergency that was described by the Licensee in the application.

The Licensee, in its application, advised the Board that an updated Water Management Plan has been included in a separate application for amendment to the licence. This application, however, requires a YESAA assessment and it will be some time before the Board deliberates on that water use application. The Board took this information into account and its decision was based on a precautionary approach in that, if no immediate actions were taken, water would continue to accumulate in the Pit during fall rain events and slumping of the Pit walls was likely to continue. It was the decision of the Board that a controlled discharge that meets appropriate effluent standards be amended in the Licence as opposed to a later possibility of an uncontrolled discharge that did not meet effluent standards.

The Board also determined that the effluent's continued exposure to the wall of the Pit during slumping would further affect the quality of water within the Pit. The Board was satisfied that it may not be possible for any treatment, in the short term, to be capable of achieving the effluent quality discharge standards required by the licence. The Board determined that, for the protection of the downstream receiving environment, the current situation at the mine site constitutes an emergency. The Board is satisfied that the Licensee is currently able to achieve the effluent quality discharge standards and further discharge can be authorized. Details of the Board's decisions are included later in this document.

Water Quantity

Although the stated capacity of the pit is 4.6 million cubic meters, the Licensee's perceived critical level of rock/overburden interface has been reached. The Licensee stated that seepage through the overburden and destabilization of permafrost has occurred increasing the risk of further contaminating the stored effluent water and potentially resulting in water being untreatable in the future due to the continued interaction with the slumping ice rich overburden.

The Licensee and interveners also stated that one event of pit wall failure had already occurred

on July 27, 2009, causing an increase in turbidity levels of the effluent water. There is a glacial, ice rich, overburden section of the South wall that is continuing to move into the pit causing slumping of the pit wall into the stored effluent water causing further contamination with prolonged interaction.

In its application, the Licensee advised the Board that, in order to comply with the Inspector's Direction, water would have to be transferred from the Pit to the Water Storage Pond. The Licensee further advised the Board that there is insufficient room in the Water Storage Pond to contain all of the water and therefore an uncontrolled release of water to the environment would occur. The Licensee indicated in the application that, at the time of application, there is approximately 630,000 cubic metres of water stored in the Pit and estimated the need to store and discharge approximately 300,000 cubic metres of fall rain water.

The estimated quantity of fall rain water is based on the previous year's rain fall which is noted to be an extreme event. Although, in its application, the Licensee proposed to transfer water from the Pit to the Water Storage Pond prior to conducting a controlled release to Minto Creek, the Licensee verbally requested the Board consider affording some flexibility for discharge of water. The Licensee requested the Board consider authorizing the ability to discharge directly from the Pit to Minto Creek, provided that the water met all applicable discharge standards, or alternatively to pump water from the Pit to the Water Storage Pond should additional settling be required to meet the Total Suspended Solids (TSS) standard required in the licence and if so, to discharge from the Water Storage Pond (WSP) to Minto Creek, with the latter option being the Licensee's main option. The Board determined that the licence will be amended to authorize the discharge of water from the Pit and/or from the Water Storage Pond into Minto Creek to ensure that the Pit is drained of water and to forgo the probability of any future emergency situations within the Pit.

Regarding the quantity of water to be discharged, the Board heard testimony from the Licensee during the Board meeting that the Water Storage Pond can store 275,000 cubic metres of water while allowing for a 1 metre freeboard. The Licensee further clarified that the Water Storage Pond is currently storing approximately 50,000 cubic metres of water with space available to store an additional 225,000 cubic metres during the fall rain events. Based on the evidence provided by the Licensee, the Board determined that the Licensee is authorized to discharge water to Minto Creek from the effective date of the licence to October 31, 2009. The October 31, 2009 date was selected as this is nearing the time of season when freeze-up may occur. This date also provides approximately 10 days as contingency should there be any onsite delays to the discharge. The maximum quantity that the Licensee is authorized to discharge during this period of time is 705,000 cubic metres of water. The Board determined this amount based on the fact that there is approximately 630,000 cubic metres of water in the Pit and an additional 75,000 to ensure that any additional inflow to the Pit during this time is discharged and the remaining water in the Water Storage Pond is discharged should the Licensee determine that the water is not necessary for the mill operations.

Discharge Rate and Visual Inspections

The Licensee proposed a discharge rate of 25,000m³/day. In their intervention, the Department of Fisheries and Oceans stated that a discharge rate of 10,000m^3/day is unlikely to harm fish habitat. However, if the proponent was to raise the discharge rate above this, mitigation measures, such as fish barriers, would have to be implemented under the guidance of DFO. Environment Canada and the Selkirk First Nation noted that Minto Creek would have a very low quantity of water in it, if any, at this time of year and water quality would be affected due to the lack of dilution available to the effluent flow if the discharge rate was increased to 25,000m³/day. The Licensee provided testimony to the Board during the Board meeting that the current rate of discharge of 10,000m³/day has shown to have no effect on the downstream environment of Minto Creek. The Board determined a maximum discharge rate of 10,000m^3/day would be protective and incorporated the Government of Yukon's recommendation for the applicant to conduct visual inspections of the downstream environment prior to, during and after discharge to ensure that potential scouring, erosion or stranding of fish would be mitigated.

Effluent sampling point

It was noted that W3 is 50 metres downstream of the discharge. It has been a longstanding practice of the Board to include points of compliance in the licence at locations, which are at the last point of control prior to entering the watercourse. In this application the final point of control would be the siphon discharge point located at the bottom of the WSP dam. This point of control includes the siphon discharge point for the discharge of the effluent water siphoned from the Pit into the water storage pond, as well as, the siphon discharge of effluent water siphoned from the Pit. It was identified that 50 metres of movement through the watercourse prior to the sampling point could report inaccurate results for water quality leaving the WSP, as it will allow for further settling prior to sampling. This decision has been included in Clause 95 of the Licence.

Term of Amendment

The Board determined that the duration of the discharge events shall not exceed October 31, 2009. Although the Inspector's Direction was to have the Pit drained on or before October 15, 2009, the Board did not consider the Inspector's Direction to have authority under the Act and it was therefore not considered as part of the decision of the Board. Upon completion of the discharge, this amendment will cease to exist and the conditions of the current Licence QZ96-006 will apply.

Effluent Quality Standards

The Licensee proposed that the effluent quality standards reflect those in the *Metal Mine Effluent Regulation* (MMER). The amendment includes the full suite of parameters taken from Schedule 4 of the MMER, as well as the requirements for pH and acute toxicity testing requirements from section 4.0 of the MMER.

Interventions from GY Environment recognized that levels of discharge standards for Iron and Ammonia are not included in MMER and recommended discharge standards for these as both are toxic to fish. The Board recognized this as a requirement to protect fish and implemented discharge standards. Also, based on information received from GY Environment and the Licensee, the Board has issued a discharge standard for total Aluminum and a separate discharge standard for dissolved Aluminum. Dissolved Aluminum is toxic to fish where total Aluminum is not toxic to fish. Based on the requirement to protect fish, the Board issued a more stringent discharge standard for dissolved Aluminum than for total Aluminum.

Manganese is not required to be sampled as part of this amendment, as manganese is non-toxic to fish. Radium was also not required as part of the sampling for this amendment, as historical measured radium is negligible on site.

In order to prevent the entrance of spawning and rearing Chinook Salmon from entering Minto Creek, DFO did suggest that a fish barrier be placed at the mouth of Minto Creek where it enters the Yukon River. This suggestion was discussed and the Board determined that these activities may require permitting through other government agencies, as well as an authorization from DFO. The Board did not reflect the suggestion of having a fish barrier in the licence. The Board does recommend that Minto Explorations Ltd. seek out these authorizations and recommends they also seek guidance from DFO in order to place a fish barrier for the further protection of salmon in the Yukon River system.

For water quality monitoring during discharge, the client is required to do profile monitoring in the WSP or Pit at 0.1 metre increments. Although the applicant proposed a 0.5 metre increment, the Board decided to remain at a 0.1 metre increment because with a large depth interval, particularly at depths where there starts to be a significant change (the Chemocline or Thermocline) an interval of 0.5 metres may not be adequate. Due to the reliance on profile data for threshold values for discharge, the Board determined that a 0.1 metre interval is more suitable.

Discharge timing

Given flow control and discharge strategy presented in the application, the Board allowed for discharge to commence immediately after the approval and issuance of the amendment.

Monitoring

The monitoring requirements during discharge listed in Clause 95 have been adopted based on the application and recommendations from the interveners. The Board incorporated the Licensee's request to lower the frequency of monitoring to the longer duration of the discharge proposed in the application.

In Clause 94 (a) there was a requirement for laboratory toxicity testing prior to discharge. However, this was a requirement of the previous amendment 5 and considering the data prior to

discharge has already been supplied as part of that requirement, the Board decided that further delaying the discharge due to toxicity testing would not be required as part of this amendment.

Although chronic toxicity testing is not a requirement under MMER, the Licensee has committed to include it in their monitoring program.

Clause 96 was a recommendation of Environment Canada to conduct sediment monitoring at W2. Sediment monitoring is a requirement of the existing licence; however, its incorporation into this amendment will ensure it is performed in a timely basis.

Conclusion:

The Board determined that an emergency did exist and approved the issuance of an emergency amendment, subject to the Minister's approval, to mitigate probable negative impacts to the environment.

Bruce Willis, Chairperson
YUKON WATER BOARD

August 20, 2009
Date