

REASONS FOR DECISION

WATER USE APPLICATION QZ09-086
EMERGENCY AMENDMENT TO WATER USE LICENCE QZ01-051
YUKON ZINC CORPORATION
WOLVERINE PROJECT

The Yukon Water Board (“the Board”) has concluded deliberations pertaining to Water Use Application QZ09-086 to amend Type B Licence QZ01-051 for a quartz mining undertaking. The application is for amendment 1 to the licence and it was processed by the Board on an emergency basis.

Environmental Assessment

Applications for amendment of a licence are subject to an environmental assessment under the YESAA. However, section 49 of YESAA allows for emergency actions to be taken without being subject to an environmental assessment. Therefore, the Board was satisfied that a Decision Document would not be issued and was able to proceed in issuing the amendment to the licence.

Public Notice

The *Waters Act* requires the Board to provide an opportunity for public review of all applications and, in some cases, to provide an opportunity for a public hearing. The Board may dispense with this requirement where the amendment is required on an emergency basis and the Minister has consented to the emergency.

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

Notice was provided to the following parties:

- Government of Yukon:
 - Energy, Mines & Resources- Mineral Resources Branch and Client Services & Inspections Branch
 - Environment - Environmental Affairs Section and Water Resources Branch-Water Inspections Section and Water Quality Section (“GY”);
 - Executive Council Office- Development Assessment Branch
 - Tourism & Culture-Yukon Archaeology
- Liard First Nation
- Ross River Dena Council
- Environment Canada
- Fisheries and Oceans Canada

The Board received interventions from Environment Canada and GY. The Licensee chose not to respond to the interventions. Representatives of the Licensee were present and available at the Board's office, should the Board have required additional clarification. The Board did not ask for additional presentations from the Licensee.

Determination of Emergency

The Board was satisfied that the Licensee provided sufficient detail in explaining that the storage sumps had filled to capacity and the underground workings were flooding. If the underground workings continued to flood there was a probability that the underground workings would be unsafe and require substantial effort on behalf of the Licensee to ensure a safe working environment within the underground workings of the mine. The Board also agreed that an uncontrolled discharge would probably occur if the underground workings flooded which would result in wastewater being discharged that would exceed licence discharge standards and negatively impact Wolverine Creek.

In making licensing decisions pertaining to this application, the Board took into account the *Waters Act*, *Waters Regulation*, Chapter 14 of the Umbrella Final Agreement ("UFA"), the *Yukon Environmental and Socio-economic Assessment Act* ("YESAA"), the application, recommendations from the interveners and the *Yukon Water Board Guidelines for Processing an Application for Emergency Amendment*.

Effluent Quality Standards

The Board is aware that after the issuance of type B licence QZ01-051, problematic issues were discovered with the licence and a letter was sent by the Secretariat to the Licensee on June 10, 2005. The effluent quality discharge standards that are included in clause 41 of licence QZ01-051 inaccurately reflect the decision of the Board. This error was noted in the June 10, 2005 letter to the Licensee; however, the Board's records show no evidence that a response to this letter was received by the Board, from the Licensee.

The Board did note that the application for emergency amendment reflected the discharge standards that the Board intended to be included in the licence. The Board acknowledged the efforts made by the Licensee to ensure that the water from the underground workings was treated to ensure any discharge was in compliance with the effluent standards referenced in the June 10, 2005 letter. The Licensee proposed that the effluent standards included in licence QZ01-051 be amended to reflect the quality of water that is currently being achieved by their treatment process.

Selenium and Ammonia:

The Licensee has noted that despite increased treatment efforts, the discharge limits have not been consistently met for Selenium and Ammonia and exceed the limits set out in the licence. Both interveners indicated their support of the proposed amendments to the effluent quality discharge standards. The Board was satisfied with the supporting information provided by the Licensee in its application and approved the amendment to the standards for Selenium and Ammonia.

Cadmium, Copper and Lead:

The Licensee proposed to amend and lower the standards for Cadmium, Copper and Lead as analysis has shown that the current standards for these parameters are not stringent enough for protection of the Go Creek receiving environment.

The Board, in its deliberations of applications for emergency amendment, typically only considers the critical changes necessary to resolve the emergency situation. In further deliberation of this matter, the Board recognized that the standards proposed for Cadmium, Copper and Lead are more stringent than the standards required by licence QZ01-051. The Board would have typically advised the Licensee to seek an amendment regarding the 3 parameters at a later date. However, under this unique circumstance and due to the relatively short period of time that the effluent quality discharge standards will be in effect prior to the commencement of use of the tailings impoundment by October 15, 2009, the Board determined that the licence will be amended as proposed by the Licensee.

Pumping Rates and Storage Volumes

The Board sought clarification from the Licensee regarding the volume of water being stored in the above ground sumps and the underground workings, at the time of application, including the pumping rates. The Licensee provided a letter in response, dated July 9, 2009, which provided the additional information that the Board was seeking.

The Licensee proposed 2 phases where the Licensee would discharge the treated water that was stored in the above ground sumps at the time of application and the rate at which the Licensee would pump and treat the water from the underground workings. The Board has referred to Phase I and Phase II in the amended licence based on the following definitions of each phase:

Phase I shall be carried out over a maximum of 6 consecutive days. Within, this period of time, the Licensee must discharge the existing treated effluent from the above ground sumps, followed by the pumping of water from the underground workings to prevent further flooding and temporarily storing the water in the above ground sumps until it can be discharged. The Licensee provided the Board, in its July 9 letter, with a detailed list of the quantities and rates which were included in item 1 and 7. As it pertains to Phase I, the Board authorized the Licensee to discharge 6,000 m³ from the above ground sumps. The

Board also authorized the Licensee to pump, treat and temporarily store the water with eventual discharge of 4,500 m³.

Phase II will commence after the completion of Phase I and cease on or before October 31, 2009 which is the latest date that the Licensee has committed to have completed the construction of the tailings impoundment. After the completion of the tailings impoundment, treated water will be discharged to the tailings impoundment and the effluent discharge standards included in licence QZ04-065 will be effective for any future discharges from the tailings impoundment.

The Board determined that during Phase II, the Licensee will be authorized to discharge treated water at a maximum rate of 200 cubic metres per day. Although the Licensee indicated in the evidence before the Board that the maximum rate of discharge to provide concentrations that would protect the environment was equivalent to 432 cubic metres per day, the Licensee went on to indicate that the rate of discharge cannot exceed the rate of inflow on a continuous basis. The rate of inflow that was provided by the Licensee is approximately 185 cubic metres per day. The Licensee provided a conservative rate of discharge of 200 cubic metres per day. The Licensee calculated the volume of water required to be discharged based on the discharge of 200 cubic metres per day. The Board determined that the maximum rate of discharge shall be 200 cubic metres per day and reflected this in clause 41(b) of the amended licence.

Overall, the Licensee requested the Board authorize a maximum effluent discharge of 31,000 cubic metres during phases I and II, which is reflected in clause 41(c) of the amended licence. For clarity, this maximum is the combined total of all effluent discharged from the date the amendment is approved by the Minister up to and including October 31, 2009. It is the view of the Board that upon the date that all effluent is directed to the tailings impoundment, which at the latest must be by October 31, 2009, any effluent discharge will be subject to the effluent quality standards that are included in the type A licence.

The Board noted that clause 19 of type B licence QZ01-051 authorizes the Licensee to obtain water at a maximum quantity of 203m³/d from several sources, one of which is the underground workings. For clarity, the Board did not amend this clause as it is deemed to be an operating condition. The Board has provided conditions within clause 41 of the amended licence for the purpose of dealing with the emergency situation.

Coordinates

The Board has included the requirement, in clause 41(d), for the Licensee to provide the Board with the longitude and latitude coordinates for the final point of discharge from the above ground sumps, as depicted in Drawing No.: 1614, titled *Effluent Discharge Point* that was submitted as part of the application.

The Licensee made the assertion that type B licence QZ01-051 does not include a point of compliance for achieving the effluent standards that are required by the licence. The Board would like to confirm for all parties that the type B licence does include points of compliance within clause 40, which remain in effect.

Date for Submission of Materials

The Board held a meeting to deliberate the application for emergency amendment to licence QZ01-051 on July 10th, 2009. The Board determined that the Licensee has adequate technical expertise available to expedite the submission of materials required by the Board. The Board determined that for consistency throughout the amendment, the date of August 14 shall be used. In the deliberations leading to this decision, the Board considered allowing 4 days following the Board meeting for the Ministers review of the Board's decision and if so approved by the Minister, the Board determined that the Licensee would have a further 30 days in which to submit the materials detailed in the licence amendment.

The Board further determined that the August 14, 2009 date is the first of a recurring 14th of the month submission date for all monitoring results of the previous month (i.e. 1 – 31). The Board determined that two weeks would be sufficient time for the Licensee to compile and prepare all data and laboratory results of the previous month for submission to the Board.

Water Balance and Water Management Plan

As noted by the Licensee in its application, increased flows are being experienced in the underground workings since April 2009. Since the mine site is regulated under 2 distinct licences (QZ01-051 and QZ04-065), the Board determined that it is imperative for the Licensee to continue to be proactive by submitting an updated water balance, as well as, an updated Water Management Plan that takes into account the increased flows to ensure onsite storage and treatment capacity can be achieved.

The Board recognized that the activities conducted in accordance with the type B licence are going to overlap with the activities authorized by the type A licence for the Wolverine mine site. The Board recommends that the Licensee review both the updated water balance and Water Management Plan, the type A water use application and licence QZ04-065 to ensure that the water balance and Water Management Plan are consistent with the proposal set out in the type A application and the conditions of the type A licence QZ04-065, otherwise the Licensee may require an amendment to the type A licence.

To reduce the likelihood for the requirement to seek further emergency amendments to this licence, or to the type A licence, the Board requires an updated water balance and Water Management Plan be submitted on an annual basis.

Environment Canada provided general recommendations for information that should be included in the updated water balance and Water Management Plan. The Board reflected Environment Canada's recommendations in clause 50 of the amended licence.

Although the Board combined the requirement for submission of the water balance and the Water Management Plan in clause 50 of the amended licence, the Board recognized that clause 53 of the licence pertained to the submission of a Water Management Plan and requires the Licensee to consider that list of requirements when providing an updated Water Management Plan on August 14, 2009, including the annual updates to the plan.

Surveillance Network Program

The original licence for type B licence QZ01-051 was issued on April 4, 2005. Clause 44 included a typographical error, in that it referenced an Appendix B. There was no Appendix B at the time of issuance of the original licence. The Chairperson of the Board issued a letter of correction to clause 44 of the licence on April 28, 2005.

During the deliberation of the application QZ09-086 for emergency amendment the Board determined to add an Appendix B to the licence to accommodate the addition of the Monitoring and Surveillance Program for the Emergency Discharge Event of 2009.

Flow Monitoring – End of Pipe:

The Licensee proposed to monitor flow on a continuous basis using in-line flow meters.

Environment Canada agreed with the Licensee's proposal.

GY recommended that flow during Phase I be monitored pre-discharge and continuously during discharge at end-of-pipe.

The Board determined that the licence will not require pre-discharge flows to be monitored at end-of-pipe. At the time of submission of the application for emergency amendment, the Licensee clearly indicated that the emergency amendment was required in order for the Licensee to proceed to discharge. It is the Board's understanding that there will be no pre-discharge flow to monitor; therefore this was not included in the licence.

The Board determined that the Licensee will be required to monitor flows at end-of-pipe on a continuous basis during Phase I and Phase II.

Flow Monitoring – W80:

The Licensee proposed to monitor flows at station W-80, which is a monitoring station described as “Go Creek” in type A licence QZ04-065. The monitoring will be conducted on a continuous basis via a pressure transducer.

Environment Canada recommended that flows at station W-80 should be monitored on a continuous basis.

During Phase I, GY recommended that flows at station W-80 should be monitored daily and during Phase II, flows should be monitored weekly at station W-80.

The Board decided that since station W-80 is on Go Creek, monitoring will be conducted pre-discharge and continuously during both Phase I and Phase II.

Water Quality:

Environment Canada recommended that the effluent water quality be sampled on a daily basis. The water quality at station W-80 should be sampled on a weekly basis.

GY recommended that Water Quality sampling should be conducted pre-discharge at end-of-pipe only. GY further recommended that sampling should be conducted at both end-of-pipe and at station W-80 on a daily basis during Phase I and weekly during Phase II.

The Board determined that it would be sufficient to require daily samples to be collected during Phase I and weekly samples during Phase II.

Sediment Sampling:

The Board only received a recommendation for sediment sampling from Environment Canada for station-W80. The Board agreed that sediment sampling will be included in the licence but in addition to the recommendations provided by Environment Canada, the Board decided that samples will also be taken during Phase II.

Benthic Sampling:

Environment Canada recommended that the Board require benthic sampling at station W-80 prior to Phase I and post Phase II completion. The Board agreed with the recommendation and included this requirement in the licence.

Bioassay Testing:

In its June 10, 2009 letter of intervention, GY provided recommendations and frequencies for bioassay testing; however, insufficient information was provided that would assist the Board in making licence decisions. GY was able to provide detailed clarification which assisted the Board


in reaching a decision regarding the bioassay testing. The Board accepted the recommendations of GY and included the requirements for bioassay testing in the licence.

Acknowledgement

The Board would like to express their appreciation to the Licensee and to the interveners for making themselves available to the Board during deliberation of this application which facilitated the Board's ability to make informed decisions in regards to this application.

Conclusion

Based upon the reasons described herein, the Board has approved the issuance of amendment 1 to Water Use Licence QZ01-051.


Chairperson
Yukon Water Board

August 7, 2009
Date