

YUKON WATER BOARD

Pursuant to the *Waters Act* and *Regulation*, the Yukon Water Board, hereinafter referred to as the Board, hereby grants to

Ketza River Holdings Ltd.
Suite 540 - 688 West Hastings St.
Vancouver, BC V6P 1P1

hereinafter called the Licensee, the right to use water and deposit a waste subject to the restrictions and conditions contained in the *Waters Act* and *Regulation* made hereunder and subject to and in accordance with the conditions specified in this licence.

Licence Number: QZ04-063

Water Management Area: 02 Yukon

Licence Type: A

Nature of Undertaking: Quartz Mining

Water Source: Cache Creek

Tributary of: Ketza River

Minimum Latitude: 61° 25'

Maximum Latitude: 61° 26'

Minimum Longitude: 132° 14'

Maximum Longitude: 132° 19'

Purpose: To store water in, and discharge water from, an existing tailings impoundment.

Effective Date of Licence: The date that the signature of the Chairperson of the Yukon Water Board is affixed.

Expiry Date of Licence: December 31, 2009

Approved this 27th day

of July, 2007


Witness


Minister, Executive Council Office

Issued this 27th day

of July, 2007


Witness

YUKON WATER BOARD


Chairperson

PART A - GENERAL CONDITIONS

1. Definitions

- a) "Act" means the *Waters Act* and any amendments thereto.
- b) "Application" collectively means Water Use Application QZ04-063 and any additional submissions and/or revisions submitted to the Board by the Licensee up to the date of the Board's decision to issue this licence.
- c) "Board" means the Yukon Water Board.
- d) "Inspector" means any person designated as an Inspector under the Act.
- e) "Regulation" means the *Waters Regulation*.
- f) "Spill Response Plan" means the Emergency Response Plan (ERP), Ketza River Mine Site, that was submitted as a component of the Application and included in Water Use Register QZ04-063 as exhibit 1.5.5, and any subsequent revisions.
- g) "Waste" means any substance defined in Section 2 of the *Act*.
- h) "Dam Safety Guidelines" means the Dam Safety Guidelines issued by the Canadian Dam Association (1999) or its most recent revision.

Representations, Warranties and Undertakings

- 2. The Board has relied on the representations, warranties and undertakings provided by the Licensee in the material filed in the Application. Such representations, warranties and undertakings are considered by the Board to be a part of the licence, but shall be subject to, and may be modified by, the conditions of the licence.
- 3. Where there is a discrepancy between the Application and the conditions of this licence, the conditions of this licence shall prevail.

Other Uses

- 4. If, subsequent to the issuing of this licence, the Licensee uses water and/or deposits waste in one or more ways not authorized in this licence, and the combined effect of those uses and/or deposits of wastes, as determined by an Inspector:
 - a) has no potential for significant adverse environmental effects;
 - b) does not interfere with existing rights of other water users or waste depositors; and

c) satisfies the criteria set out in column 2 of Schedule 7 of the *Regulation*,

then no amendment to this licence will be required for that use of water and/or deposit of waste.

Other Laws

5. No condition of this licence limits the application of any other federal, territorial, first nation or municipal legislation.
6. All work authorized by this licence shall occur on property that the Licensee has the right to enter upon and use for that purpose.

Correspondence

7. Where any direction, notice, order, or report under this licence is required to be in writing, it shall be given:
 - a) To the Licensee, if delivered, faxed or mailed by registered mail to the following address:

Ketza River Holdings Ltd.
Suite 540 - 688 West Hastings St.
Vancouver, BC V6P 1P1

fax: 604 688 9426

and shall be deemed to have been given to the Licensee on the day it was delivered or faxed, or seven days after the day it was mailed, as the case may be.

- b) To the Board, if delivered, faxed or sent by registered mail to the following address:

Yukon Water Board
Suite 106, 419 Range Road
Whitehorse, Yukon Y1A 3V1

fax: 867 456 3890

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or seven days after the day it was mailed, as the case may be.

Non-Compliance

8. In the event that the Licensee fails to comply with any condition of this licence, the Board may, subject to the *Act*, cancel the licence.

Deleterious Substances

9. Except as otherwise authorized by this licence, deleterious substances shall be used, transported, stored and disposed of in such a manner that they are not deposited in, or allowed to be deposited in, any waters.

Term of Licence

10. The term of this licence is from the effective date to December 31, 2009.

Reports

11. All monitoring data, reports, plans, studies, study results, designs or manuals required by this licence shall be submitted to the Board in an unbound printed form that is reproducible by standard photocopier and shall be accompanied by 5 copies.
12. All monitoring data, reports, plans, designs or manuals shall also be submitted in digital form, using an IBM compatible format that is readable using commonly available software.

Annual Reports

13. Annual reports shall be submitted to the Board by the Licensee. The first report shall be for the period from the effective date of the licence to December 31, 2008, and the next report will be for the calendar year 2009. Annual reports will be submitted to the Board on or before February 28 of the following year.
14. Annual reports shall include the information required by this licence and by the *Regulation*, including, but not necessarily limited to:
 - a) summaries of all data generated as a result of the monitoring requirements of this licence, including analysis and interpretation by a qualified individual or firm and a discussion of any variances from base line conditions or from previous years' data; and
 - b) a detailed record of any major maintenance work carried out or planned to be carried out that could have an impact on water.

Monthly Reports

15. Unless otherwise specified in this licence, the Licensee shall forward to the Board a copy of all data collected as part of the monitoring programs of this licence no more than 30 days after the conclusion of the month in which that data was collected.

Spills and Unauthorized Discharges

16. The Licensee shall keep the Spill Response Plan current. Any revisions to the plan will be submitted to the Board within 10 days of the revision.
17. The Licensee shall immediately contact the 24-hour Yukon Spill Report telephone number (867) 667-7244 and implement the most recent spill contingency plan that has been filed with the Board, should a spill or an unauthorized discharge occur. A detailed written report on any such event, including but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be delivered to the Board not later than 10 days after its occurrence.

Hazardous Materials Storage

18. A complete inventory of chemicals, fuels, oils, lubricants and other hazardous materials relating to the water uses authorized by this licence shall be maintained by the Licensee.
19. Hazardous materials shall be stored or transferred a minimum of 30 metres from any watercourse.

Care and Maintenance

20. Throughout the term of this licence, the Licensee shall maintain all works in good order.

PART B - SECURITY

21. Within 60 days of the effective date of this licence, the Licensee shall provide security in the amount of three million, eighty seven thousand, six hundred dollars (\$3,087,600). The form of security shall be in accordance with the Regulation.

PART C - OPERATING CONDITIONS

22. The Licensee is hereby authorized to store water within an existing tailings impoundment and to deposit a waste in the form of controlled discharge from the tailings impoundment, as described in the Application, and subject to the conditions of this licence. Where there is a discrepancy between the Application and this licence, the terms of this licence shall prevail.
23. Except as authorized by this licence, no Waste shall enter any watercourse as a result of any operation carried out by the Licensee.

PART D - EFFLUENT QUALITY STANDARDS

24. At monitoring stations KR-04-N3, KR-05-S2 and KR-9a, no waste discharge shall exceed the following limits:

Parameter	Maximum Concentration in a Grab Sample
Total Arsenic	0.5 mg/L
Total Copper	0.3 mg/L
Total Cyanide	1.0 mg/L
Total Lead	0.2 mg/L
Total Nickel	0.5 mg/L
Total Zinc	0.5 mg/L
Total Ammonia	1.0 mg/L
Total Suspended Solids	15.0 mg/L
pH	>6.5

25. Any discharge to a watercourse must meet a bioassay standard of a 96-hour LC₅₀ bioassay using Rainbow Trout.

PART E – MODIFICATION AND CONSTRUCTION

26. Where modifications are required to be made to existing facilities and structures authorized by this licence, and providing that those modifications would not otherwise require a water use licence, then the Licensee shall submit plans, specifications and construction schedules for any such modifications no less than 90 days prior to the start of the construction work.

27. All designs shall be sealed by a Professional Engineer licenced to practice in Yukon.

28. At least 10 days prior to the proposed date of commencement of construction of minor modifications, the Licensee shall submit to the Board a written notification, together with a detailed construction schedule and the name and contact number(s) of the construction superintendent.

29. Where site conditions require minor modifications to the designs submitted to the Board, the Licensee shall notify the Board, in advance, of the details of the modifications or variations from final detailed designs, specifications and quality assurance/quality control procedures previously submitted to the Board. The notice shall include an explanation of the

reasons for the change and an assessment of the potential impact on the performance of the works. The notice shall be sealed by a Professional Engineer licenced to practice in Yukon.

30. As-constructed (record) drawings and construction reports, including quality assurance and quality control documentation, for all structures and facilities shall be submitted to the Board within ninety days of the completion of construction. Each submission shall be sealed by a Professional Engineer licenced to practice in Yukon.
31. No later than September 30, 2008, the Licensee shall complete the construction of a supporting toe berm along the North Dam, as described in the Application.

PART F - DECOMMISSIONING

Final Closure and Reclamation Plan

32. A Final Closure and Reclamation Plan shall be prepared and submitted to the Board by January 31, 2009. The plan shall define the conditions under which final closure and reclamation will commence. The plan shall be premised on the following objectives:
 - a) Maintain the long term physical stability of the North and South Dams;
 - b) Maintain the long term physical stability of water diversions; and
 - c) Ensure that effluent standards required by this licence are met at all discharges to any receiving waters.
33. Subject to required assessments, authorizations or approvals, the Licensee shall implement the Final Closure and Reclamation Plan.
34. In the event that final closure occurs prior to the submission of the Final Closure and Reclamation Plan, then the Licensee will, at a minimum, and subject to the appropriate authorizations and approvals:
 - a) drain the tailings pond;
 - b) recontour the tailings to promote surface shedding of precipitation;
 - c) construct a dry cover over the tailings;
 - d) lower the spillway invert to allow the tailings pond to be free draining; and
 - e) upgrade the diversions to accommodate extreme precipitation events.

PART G - MONITORING AND SURVEILLANCE

35. The Licensee shall comply with the water quality monitoring program contained in Schedule A of this licence.

36. Monitoring and sampling shall be carried out in accordance with the procedures and standards described in:
- a) Guidance Document for the Sampling and Analysis of Metal Mining Effluents, April 2001, (Report: EPS 2/MM/5), Minerals and Metals Division, Environment Canada, and
 - b) Guidance Document for Flow Measurement of Metal Mining Effluents, April 2001, (Report: EPS 2/MM/4), Minerals and Metals Division, Environment Canada, and.
 - c) Standard Guide for Sampling Ground-Water Monitoring Wells, ASTM D4448-01, ASTM International, PA, USA.
37. Within 60 days of the effective date of this licence, the Licensee shall provide coordinates for any monitoring points listed in Schedule A, Part 1 for which coordinates are not already indicated.

Sediment, Periphyton and Benthic Invertebrate Monitoring

38. Once during the term of the licence, the Licensee shall carry out a sediment, periphyton and benthic invertebrate monitoring program, with sampling and analysis conducted as described below at sampling stations KR-08, KR-10, KR-11, KR-12 and KR-14. The study will be carried out by persons qualified to do so by education and/or experience. The results of the program will be included in the next annual report.
- a) Sediment sampling shall be carried out as follows:
 - i) sediment samples shall be collected in replicates of three from within the active channel, directly into high density plastic sample jars, using an aluminum or Teflon scoop.
 - ii) Samples shall be dried and screened, using sieves at ASTM mesh numbers 10, 20, 40, 60, 100, 140 and 270 (ASTM-E11-61) and the fraction weights shall be recorded.
 - iii) A sub-sample composed of material passing through the 100 mesh number sieve shall be analyzed for metals by a 33 element ICP scan. Loss on ignition shall also be determined by heating the sample to 600 degrees C.
 - b) Benthic invertebrate sampling shall be carried out as follows:
 - i) Three replicate samples shall be taken by a circular Hess sampler (0.0934 m²) or Waters and Knapp sampler (0.089 m²) equipped with a 250 µm mesh net.
 - ii) Samples shall be preserved with 10% formalin solution, and identified to the lowest possible taxon (usually genus) and counted.

- iii) Stream information collected at the time of the benthos collection shall include velocity, depth, temperature, substrate conditions and riparian conditions.
- c) Periphyton sampling shall be carried out as follows:
- i) Samples shall be collected from rock by surface scraping (3 or more rocks combined) and the total surface area of rock scraped at that station shall be recorded.
 - ii) Each sample shall be preserved with Lugols solution.
 - iii) Each sample shall be enumerated and identified to the lowest taxonomic level.
 - iv) The results shall include the date of completion, the company performing the identification, enumerations and identifications per station, method used to perform sorting and analysis of data, and resources used for identifications.

Physical Inspections and Monitoring

39. An annual inspection of all earthworks shall be carried out in accordance with the Dam Safety Guidelines by a Professional Engineer licenced to practice in Yukon. A report on the inspection, prepared by the Professional Engineer, shall be submitted as a part of the annual report. The report shall document the inspection locations and methodologies, the results of the inspection, all problems identified, and remedial measures recommended. The status of any remedial measures recommended in the previous year's report shall be appended to the report together with an explanation regarding any recommendation not implemented.
40. Details of any maintenance, inspection and/or surveillance activities undertaken in the previous year in relation to dam safety shall be included in the annual report.

QZ04-063 SCHEDULE A

SCHEDULE A, PART I
 MONITORING STATIONS

Surface Water Monitoring Stations

Station	Description	Latitude	Longitude
KR-01	Cache Creek, upstream of mill and tailings pond	61° 31.7912'	132° 16.1384'
KR-04-N2	North Dam seepage discharge to Cache Creek	61° 32.2104'	132° 14.6078'
KR-04-N3	South Dam seepage discharge to Cache Creek	61° 32.21'	132° 15.2'
KR-05-S1	Surface discharge to Cache Creek	61° 32.0582'	132° 14.9534'
KR-05-S2	Surface discharge to Cache Creek	61° 32.052'	132° 15.157'
KR-08	Cache Creek, downstream of Oxo Creek	61° 32.5808'	132° 14.0366'
KR-09	Tailings Impoundment	61° 32.0204'	132° 15.1976'
KR-09A	Discharge from Tailings Impoundment		
KR-10	Cache Creek, upstream of Ketza River	61° 32.8995'	132° 9.7545'
KR-11	Ketza River, upstream of Cache Creek confluence	61° 33.9895'	132° 9.6051'
KR-12	Ketza River, downstream of Cache Creek confluence	61° 34.5685'	132° 10.1996'
KR-13	Cache Creek adjacent to mill/tailings	61° 32.0174'	132° 15.2018'
KR-14	Oxo Creek above Cache Creek	61° 32.0102'	132° 14.7302'
KR-15	Peel Creek above Cache Creek	61° 32.552'	132° 14.7062'
KR-16	Unnamed tributary of Cache Creek, above mine site	61° 32.0192'	132° 17.0486'
KR-50	Cache Creek at upstream end of Campbell Highway culvert		

Groundwater Monitoring Stations

Station	Description	Latitude	Longitude
P90-7A	South Dam		
P90-7B	South Dam		
P90-7C	South Dam		
P90-8	Knoll between dams		
P90-9	Knoll between dams		
P96-11A	North Dam		
P96-11 B	North Dam		
P96-11C	North Dam		
P96-12A	South Dam		
P96-12B	South Dam		
P96-12C	South Dam		

SCHEDULE A, PART II
MONITORING SCHEDULE FREQUENCY LEGEND

Symbol	Frequency
W	Weekly
WD	Weekly when discharging
BW	Bi-weekly
M	Monthly
BM	Bi-Monthly

SCHEDULE A, PART III
 MONITORING SCHEDULE

Monitoring Stations	Parameters		
	Metals and Water Chemistry *	Water Level	Flow
KR-01	M	-	-
KR-04-N2	BW	-	BW
KR-04-N3	BW	-	BW
KR-05-S1	BW	-	BW
KR-05-S2	BW	-	BW
KR-08	M	-	-
KR-09	M	W	-
KR-09A	WD	-	WD
KR-10	M	-	-
KR-11	M	-	-
KR-12	M	-	-
KR-13	M	-	-
KR-14	M	-	-
KR-15	M	-	-
KR-16	M	-	-
KR-50	M	-	-
P90-7A	M	BM	-
P90-7B	M	BM	-
P90-7C	M	BM	-
P90-8	M	BM	-
P90-9	M	BM	-

Monitoring Stations	Parameters		
	Metals and Water Chemistry *	Water Level	Flow
P96-11A	M	BM	-
P96-11B	M	BM	-
P96-11C	M	BM	-
P96-12A	M	BM	-
P96-12B	M	BM	-
P96-12C	M	BM	-

* ICP Total Metals by Low Method Detection Limits, ICP Dissolved Metals by Low Method Detection Limits, Hardness, Total Suspended Solids, Total Dissolved Solids, Total Alkalinity, Total Sulphate, Nitrogen-Nitrate, Nitrogen-Nitrite.