KGHM AJAX MINING INC.
AJAX PROJECT

PROJECT DESCRIPTION

PREPARED FOR

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PREPARED BY

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AJAX PROJECT

PROJECT DESCRIPTION
(REF. NO. VA101-246/8-1)

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Knight Piésold
CONSULTING

KGHM AJAX MINING INC.
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PROJECT DESCRIPTION
(REF. NO. VA101-246/8-1)

EXECUTIVE SUMMARY

The Ajax Project ("the Project") is a proposed open pit copper and gold mine located 10 kilometres southwest of Kamloops, British Columbia. The Project is comprised of eight 100% owned Crown grants including the historic Ajax East and West pits. The Project contains a pit inventory of 2.6 billion pounds of copper and 2.4 million ounces of gold. With an expected mine life of 23 years, the Project will provide jobs and economic opportunities for the Tk'emlups Indian Band and the Skeetchestn Indian Band, and the people of BC and Canada. In addition, the Project will contribute financially to provincial and federal tax revenues through provincial net proceeds and taxes. The total capital cost estimated during the preliminary economic assessment was $535 million. Since that time, several engineering trade-off studies have been completed which will improve the project economics, and may influence / change project capital.

The proponent, KGHM Ajax Mining Inc. (KAM), is a Joint Venture between Abacus Mining and Exploration Corporation (AME); a mineral exploration and development company, and KGHM Polska Miedź S.A (KGHM), a leading global copper and silver producer. KAM currently controls approximately 8,124 ha of land in the Project area, previously part of the Afton-Ajax Mine operated by Teck (Afton Operating Corporation). In the immediate Project area, KAM has ownership of eight Crown Granted claims and acquired portions of 14 additional mineral claims that were part of a joint venture agreement with New Gold Inc. (New Gold). New Gold has retained a 10% net present interest (NPI) on these mineral claims. KAM has ownership of an additional 20 Crown Grants and 27 contiguous mineral claims in the Project area and an additional eight mineral claims and three Crown Grants that are near but not contiguous with the Project.

In June 2009, AME completed an NI 43-101 compliant positive Preliminary Economic Analysis (PEA) on the Ajax property, after a series of successful drill programs from 2005 to 2008. The results of the PEA indicate the potential for a robust mining operation capable of processing 60,000 tonnes of ore per day.

Average annual production of the mine is estimated at 106 million pounds of copper and 99,400 ounces of gold in concentrate, based on a conceptual mine plan supplying 21.9 Mt of ore per year (60,000 tonnes per day) to the mill. Restored and expanded mine components from previous operations are expected to be utilized to the fullest extent possible.

The ore and waste will be drilled for blasting utilizing electric drills capable of drilling 311 millimetre diameter blast-holes. Blasted material will then be loaded into 228 tonne haul trucks with 35 cubic metre electric rope shovels and 19 cubic metre front-end loaders.

The ore will be delivered from the mine utilizing a combined in-pit and out-pit gyratory primary crusher system. The crushed ore will feed to a conventional copper concentrator. The concentrator design includes a secondary crushing circuit, feeding two high pressure grinding rolls followed by two 7.62 x 12.5 m ball mills. Copper and gold will then be recovered in concentrate through a conventional flotation circuit. The concentrate will then be filtered and shipped by truck to the Port of Vancouver.

Project components are expected to include the following:

- Open pit
- Processing plant
- Thickened tailings plant
- Tailings storage facility
- Waste rock management facilities
- Water management facilities
- Road and bridge upgrades
- New access and haul road
- Borrow sources
- Transmission line and transformer upgrades
- Explosives storage facility
- Process and potable water system
- Concentrate storage and shipping area, and
- Concentrate transport to Port of Vancouver.

Project impacts will be primarily concentrated on sites previously disturbed by historical mining activities. No modifications to the Port of Vancouver will be required to receive the concentrate. The Project site has been intensively studied as a result of monitoring activities of the old mine sites, and more recent studies and monitoring activities to address Project concerns.

KAM is currently active on First Nation and public consultation as part of the pre-Application phase of the Project. Baseline environmental studies and exploration drilling, condemnation drilling, preliminary engineering, and site surveys will continue throughout the pre-Application phase.

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LIST OF ABBREVIATIONS

AEA	Advanced Exploration Agreement
AIA	Archaeological Impact Assessment
AME	Abacus Mining and Exploration Corporation
AN	Ammonium Nitrate
ANFO	Ammonium Nitrate Fuel Oil
ARD/ML	Acid Rock Drainage / Metal Leaching
BC	British Columbia
BCEAA	BC Environmental Assessment Act
BCEAO	BC Environmental Assessment Office
BCFS	British Columbia Forest Service
CEA Agency	Canadian Environmental Assessment Agency
CEAA	Canadian Environmental Assessment Act
CSR	Comprehensive Study Report
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EC	Environment Canada
HC	Health Canada
HCA	Heritage Conservation Act
HPGR	High Pressure Grinder Roll
ILMB	Integrated Land Management Bureau
KAM	KGHM Ajax Mining Inc.
KGHM	KGHM Polska Miedź S.A
KP	Knight Piésold Ltd.
kWh/t	Kilowatt hour per tonne
MIBC	Methyl Iso Butyl Carbonal
MOE	Ministry of Environment
MPMO	Major Projects Management Office
Mt	Million tonnes
NPI	Net Present Interest
NRCan	Natural Resources Canada
PAX	Potassium Amyl Xanthate
PEA	Preliminary Economic Analysis
Project	Ajax Project
ROM	Run of Mine
ROW	Right-of-Way
TC	Transport Canada
TNRD	Thompson Nicola Regional District
TSF	Tailings Storage Facility
t	Tonne
t/h	Tonnes per hour
SSN	Stk'emlupsemc of the Secwepemc Nation
STS	Stk'emlupsemc te Secwepemc

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SECTION 1.0 - INTRODUCTION

1.1 KGHM AJAX MINING INC – CORPORATE OVERVIEW

The proponent, KGHM-Ajax Mining Inc. (KAM), is a mineral exploration and development company with an advanced-stage project located in the prolific Afton Mining Camp near Kamloops, British Columbia. KAM is a joint venture company between KGHM Polska Miedź S.A. and Abacus Mining and Exploration Corp (AME).

KGHM Polska Miedź S.A. is Polish copper mining and smelting company, the ninth largest copper producer in the world. It was created as a state-owned company in 1961, but in 1991 it was privatized, and since 1997 it has traded publically on the Warsaw Stock Exchange under the symbol “KGHM”. It currently employs over 18,000 people in its three mines, two copper smelters, its wire rod plant, and various auxiliary business units.

AME is a British Columbia-registered company, incorporated on October 17, 1983. It has engaged in mineral exploration in the province, with its primary focus being the deposits associated with the Ajax Project. It is registered company in British Columbia and a Tier One issuer that trades on the TSX Venture Exchange under the symbol “AME”.

KAM holds a 100% interest in eight mineral resource properties in the Afton Mine Camp (Afton) near Kamloops, British Columbia. The Company also holds the rights to acquire 24 km^2 of land and earn a 100% interest in mining infrastructure and related permits in the Afton area.

The Ajax Project will largely be developed using expertise from AME. A précis of each of the AME key management team members is provided below.

James Excell
President and CEO
Mr. Excell is a Metallurgical Engineer with extensive senior executive, mine management, and process engineering experience. His career includes more than three decades with BHP Billiton in Canada and internationally, serving as President and COO of BHP Billiton Diamonds Inc. from 1999 to 2003, and as its Chairman to June 2005. He has been responsible for overseeing the management and development some of the world's premier mining projects, including the EKATI diamond mine in the Northwest Territories, where he led the construction, commissioning and subsequent operation of the $700 million development. Jim has also managed copper operations in British Columbia, as well as metallurgical and thermal coal mines in Australia and the U.S. In addition to his outstanding industry experience, he is recognized for fostering goodwill relations with government and aboriginal groups.

Andrew Pooler

Executive Vice President and Chief Operating Officer

Mr. Pooler has more than 30 years of experience as a mining engineer and operations executive working in North, Central, and South America. Prior to joining Abacus, Mr. Pooler was the Senior Vice President, Mine Operations, for Pan American Silver Corp. with responsibilities for six producing mines. Prior to Pan American Silver, Mr. Pooler held executive positions with several international mining companies, including Amax Gold Inc. where he was Vice President of Operations. Mr. Pooler holds a Bachelor of Science degree in mining engineering from the University of Idaho.

Jim Whittaker

Project Manager

Mr. Whittaker joined the Abacus team in late 2008, coming from the CRU Strategies regional office in Santiago de Chile, where his work was focused on business improvement for their mining sector clients. Jim was the leader of the Performance Improvement practice area, and he lead consulting projects in the realms of operational asset productivity, risk evaluation in strategic mine planning, and the audit of Greenfield and Brownfield capital investments. Prior to this, Jim worked for the Placer Dome group for 12 years, and during that time he held responsibility for process operations in copper, gold and molybdenum operations in Canada and Chile, and enhanced shareholder value through improvements in operational productivity, project start-up, and resource protection.

Gordon Frost

Chief Mine Engineer

Mr. Frost has more than ten years' experience in the mining industry working for mining and consulting companies based in British Columbia. For the last five years, Mr. Frost was with AMEC Americans Limited ("AMEC") where he worked on projects and mines in Latin America, Central Asia and Canada, including Abacus' Ajax Project. Prior to joining AMEC Mr. Frost held various positions with Imperial Metals including that of Mine Engineer at the Huckleberry Mine. Mr. Frost holds a Bachelor of Science degree in Mining Engineering from Queen's University and a Diploma in Mining Technology (Honours) from the British Columbia Institute of Technology.

Dianna Stoopnikoff

Environmental Manager

Ms. Stoopnikoff has more than 15 years' experience managing environmental programs within BC. Prior to joining AME, Dianna led the successful issuance of an EA Certificate which included a pilot project to allow for concurrent permitting of the Galore Creek Project. Dianna has also worked for several mining companies including Myra Falls, New Gold, and Premier Gold, which were in various phases of start-up, construction, operation or closure. She also has extensive experience managing sustainable community relations, management systems for construction and operations, and the development of policies and procedures.

1.2 CORPORATE POLICIES

KAM has adopted the following comprehensive Environmental, Health, and Safety Policy:

KAM is committed to meeting or exceeding the requirements of the environmental and occupational health and safety legislation for each authority in which it operates. KAM is committed to protecting the health and safety of the public, its employees, and the natural environment. Where project activities may affect people and/or the environment, KAM is committed to eliminating or mitigating the extent and magnitude of potential impacts. To achieve this, KAM is committed to:

- Implement, and continually improve upon, an effective health, safety, and environmental management system
- Identify, assess, and manage risks to employees, contractors, communities, and the environment in which it operates
- Provide and ensure understanding of the health, safety, and environmental risks through effective risk assessment and training to all its employees and contractors
- Reduce, re-use and recycle waste in order to minimize waste and encourage the efficient use of resources
- Use appropriate technologies to prevent and reduce waste and pollution
- Ensure financial preparations are made throughout the life of the Project to ensure decommissioning is implemented appropriately
- Meet, and where practical, exceed legal requirements for health, safety, and the environment
- Maintain transparent relationships and consultation with all stakeholders and indigenous peoples
- Support the fundamental human rights of all people potentially affected by a project, including employees, contractors, and communities
- Respect the traditional rights of indigenous peoples, and
- Contribute to the long-term socioeconomic and institutional development of employees and the communities within which projects occur.

1.3 CONTACT INFORMATION

1.3.1 Proponent

KGHM-Ajax Mining Inc.
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Phone:	604-682-0301
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Email:	info@amemining.com
Web:	www.amemining.com

Company Representatives:

Mr. James Whittaker	Project Manager

Ms. Dianna Stoopnikoff Environmental Manager

1.3.2 Consultant

AME has engaged Knight Piésold Ltd. (KP) to conduct environmental assessment coordination. Contact information for Knight Piésold Ltd. is provided below.

Name:	Knight Piésold Ltd.
Address:	1400 – 750 W Pender Street Vancouver, BC, V6C 2T8,
Phone:	604-685-0543
Fax:	866-685-0417
Email:	info@knightpiesold.com
Web:	www.knightpiesold.com

Company Representative:

Mr. Chris Brodie, R.P.Bio. Manager – Environmental Services

SECTION 2.0 - PROJECT HISTORY

Mineral exploration and production in the Ajax Project area can be traced back over 100 years with exploration beginning in the 1880s and continuing intermittently until the 1980s. Copper, gold, and iron mineralization was discovered at the Iron Mask Mine near Kamloops in 1896. Nearby properties including the Wheal Tamar, Ajax, and Monte Carlo claims were explored in the following years.

Claims in the Ajax Project area include Afton, Karen, Galaxy, Lucky Strike, Rainbow, Rogers, No. 7, Ajax, Gold Plate, Windsor, Buda, Lone Tree, Iron Mask, Iron Cap, Crescent, Winty, DM, Ned, Cliff and Big Onion. Copper and gold are the main deposits of interest in the area.

In the Project area, underground exploration began on the Wheal Tamar claim in 1898 and development work was completed on the Monte Carlo claim as early as 1905 and on the Ajax claim in 1906. Exploration continued in the Wheal Tamar, Ajax, and Monte Carlo areas, becoming sporadic after 1914.

In 1928, the Consolidated Mining and Smelting Company of Canada Ltd. (CM&S) obtained options on claims in the Project area and completed surface drilling on the Ajax and Monte Carlo claims. Sparse mineralization was reported.

In 1952, the Ajax property was optioned to Berens River Mines Ltd. and later in 1954, CM&S and its successor, Cominco Limited (Cominco), entered into option agreements and explored the area until 1980. More recently, the area has seen production through five open pit deposits: Afton, Ajax East, Ajax West, Crescent, and Pothook.

In the 1980s, Afton Operating Company, then owned in majority by Teck Cominco (Teck), defined a mineral resource. Mining operations were initiated by Afton in 1989 on the Ajax East and Ajax West claims and were suspended in 1991 due to unfavourable metal prices. Operations resumed in 1994 and were again suspended in 1997. During these periods of production, it is estimated that 17 million tonnes (Mt) of ore was mined and 13 Mt of ore was milled.

In 2002 and 2004, AME signed option agreements with Teck and Discovery Enterprises Corp. to earn a 100% interest in 52 mineral claims and 20 patented claims, which encompass the Crescent and Ajax pits. In 2004, AME fulfilled the terms of the agreement to a hold a 100% interest in the Afton area claims, subject to a Teck Cominco back-in right.

In June 2009, AME completed an NI 43-101 compliant positive Preliminary Economic Analysis (PEA) on the Ajax property, after a series of successful drill programs from 2005 to 2008. The results of the PEA indicate the potential for a robust mining operation capable of processing 60,000 tonnes of ore per day.

As illustrated on Figure 2.1, KAM, by virtue of its joint venture agreement with AME, currently has approximately 81 km^2 of mineral tenure holdings in the Project area. In the immediate Project area, KAM has ownership of eight Crown Granted claims and portions of 14 additional mineral claims that are part of a joint venture agreement with New Gold Inc. (New Gold). KAM has ownership of an additional 20 Crown Grants and 27 contiguous mineral claims and an additional eight mineral claims and three Crown Grants that are near but not contiguous with the Project.

SECTION 3.0 - PROJECT LOCATION AND MAPPING

The Project is located 10 kilometres west of Kamloops, in the South-Central Interior of British Columbia, southwest of the junction of the Trans-Canada Highway No. 1 and the Coquihalla Highway (No. 5) (Figure 3.1). The coordinates for the centre of the Project area are approximately 50°38' N latitude and 120°28' W longitude. The property is situated immediately south of Kamloops city limits and is located on mineral titles reference map M092I068 (NTS 92I/9), in the Kamloops mining division. The proposed infrastructure will be located primarily on private land, with some utilisation of crown land (Figure 3.2).

The regional economy is largely resource and service oriented with a major emphasis on forestry, mining, agriculture, and range use. Kamloops is a central transportation hub for the region with a population of 86,376 and has connections to Highways 5, 97C, the Trans-Canada, and Yellowhead Highways, direct access to deep sea ports, communication infrastructure, and amenities typical of a city of this size. The infrastructure that presently exists near the Ajax property is significant. Power and water are readily available, with infrastructure built to service the historic Afton mine camp that was operated by Teck between the 1970s and 1990s.

The Project is located within the Thompson River watershed and the Thompson-Okanagan Plateau Ecoregion. Retreat of glacial ice during the Pleistocene resulted in a landscape of gently rolling plateaus, incised river valley systems and large glacial lakes such as Kamloops Lake and Okanagan Lake. The peaks in the vicinity of the Project consist of rock including areas of outcrop, and valleys characterized as morainal deposits consisting of drumlinized glacial till. Remnant glaciolacustrine deposits occur just north of the Afton pit and coarse colluvium deposits occur near Sugarloaf Hill.

SECTION 4.0 - PROJECT PURPOSE AND RATIONALE

4.1 PROJECT JUSTIFICATION

KAM is proposing to develop a 502 (Mt) ore project. With an expected mine life of 23 years, the Project will provide jobs, economic opportunities for local First Nations (the Tk'emlups Indian Band and the Skeetchestn Indian Band), and the people of BC and Canada. In addition, the Project will contribute financially to Provincial and Federal tax revenues through provincial net proceeds and taxes. The Project is situated on a site with over 100 years of mining history and will be constructed, operated, and decommissioned in compliance with modern environmental best practices. The Project will contribute positively to the sustainability of Kamloops and British Columbia, by providing economic stimulus and facilitating the acquisition of job skills that can be applied to mining and other sectors in the future.

4.2 ESTIMATED RESOURCE

The mineral resources of the Ajax deposit were classified in accordance with CIM definition standards and best practices referred to in NI 43-101 which have a reasonable expectation of economic extraction. The qualified person for the mineral resource estimate was Thomas C. Stubens, P.Eng., an employee of Wardrop Engineering Inc. The mineral resource estimate has an effective date of June 18, 2009.

The mineralization of the Project satisfies criteria to be classified into Measured, Indicated, and Inferred mineral resource categories, the results of which are presented in Table 4.1. At a 0.13% copper equivalent cut-off, the Measured and Indicated resource totals 422 Mt at an average grade of 0.30% Cu and 0.19 g/t Au, with an additional 80.6 Mt of Inferred at 0.22% Cu and 0.16 g/t Au.

These resources are sufficient for approximately 23 years of operation at an annual production rate of 60,000 tonnes per day.

The economic model for the base case assumes a Life of Mine (LOM) average gold price of 800 US$/oz and copper price of 2.00 USD/lb for revenue purposes.

The pre-tax net present value (NPV) at 8% discount rate over the estimated LOM is $192.7 M over the capital investment of $535 M. The after-tax internal rate of return is 12.4%. Payback of the initial capital is estimated to be achieved in the 6th year of production.

4.3 CAPITAL COST AND TAXATION

The preliminary economic assessment estimated the project capital would be $535 million. Since that time, several engineering trade-off studies have been completed which will improve the project economics, and may influence / change project capital.

Included in the capital estimate are costs for the initial mining equipment, pre-production stripping, a 60,000 tonnes per day copper concentrator, shop, warehouse, infrastructure, indirect costs associated with the design engineering procurement, and construction, commissioning, spare parts, contingency and owner's cost. A summary of preliminary economic assessment capital costs for the Project is presented in Table 4.2.

The Project will contribute financially to the Provincial (BC) and Federal Governments through corporate taxes, provincial net proceeds and net revenue taxes, and sales taxes.

SECTION 5.0 - PROJECT OVERVIEW

5.1 PROJECT COMPONENTS

Major Project design criteria are presented in Table 5.1. On-site Project components are expected to include the following:

- Open pit
- Processing plant
- Thickened tailings plant
- Tailings storage facility
- Waste rock management facilities
- Water management facilities
- Road and bridge upgrades
- New access road
- Borrow sources
- Transmission line and transformer upgrades
- Explosives storage facility
- Concentrate storage and shipping area, and
- Concentrate transport to Port of Vancouver.

5.2 MINING METHOD

Average annual production of the mine is estimated at 106 million pounds of copper and 99,400 ounces of gold in concentrate. A detailed open pit mine plan was completed to supply 21.9 Mt of ore per year (60,000 tonnes per day) to the mill over an expected mine life of 23 years. Mine site development at years 5, 10, 15 and end of mine are shown on Figure 5.1. Restored and expanded mine components from previous operations will be utilized to the fullest extent possible.

The Ajax ore and waste will be drilled for blasting utilizing electric drills capable of drilling 311 mm diameter blast-holes. Blasted material from the Ajax pit will then be loaded into 228 tonne haul trucks with 35 m^3 electric rope shovels and 19 m^3 front-end loaders for delivery to the in-pit gyratory crushers and conveyor systems and conveyor systems. The crushed ore will feed to a conventional copper concentrator. The concentrator design includes a secondary crushing circuit, feeding two high pressure grinding rolls followed by two 7.62 x 12.5 m ball mills. Copper and gold will be recovered in concentrate through a conventional flotation circuit. The concentrate will then be filtered and shipped by truck to the Port of Vancouver. The crushed waste will be conveyed to the waste rock management facilities.

Metallurgical recovery equations were based on a series of lock-cycle recovery tests performed by G&T Labs of Kamloops, BC. The expected recoveries were determined to be 81.5% copper and 81.1% gold providing a 25% copper concentrate at the average mill feed grade.

5.3 SITE LAYOUT AND FACILITIES

The Project area has an array of existing and proposed infrastructure, services, facilities, and access roads. This includes approximately 6 km of existing power line, 5 km of existing water supply line, 53 km of existing mine access road, the historical east and west pits (152 ha), and various reclaimed waste dumps (112 ha). The Project will be comprised of the following components, as illustrated on Figure 5.2: Ajax open pit, processing plant, tailings storage facility (TSF), and thickened tailings plant (TTP) as well as ancillary facilities, including fresh, fire, and potable water supply; reagent handling and storage, assay and metallurgical, air supply, power supply and distribution; explosives magazine; water management and solid and waste water management facilities; sewage collection and treatment facilities; communications; fuel storage; and buildings including administration building and truck shop and maintenance yard. The Project will have a footprint of approximately 2,500 ha, which represents a roughly 300% increase (>750 ha) in footprint with respect to historical mining activities. The current Project infrastructure requirements reflect the most advanced mine plan, and will be revised as feasibility studies proceed.

5.3.1 Ajax Open Pit

Excavation of the deposit and development of the open pit will be accomplished with a stripping ratio of approximately 2:1 (waste to ore tonnes) in a sequence that maximizes ore production and prioritizes the non-reactive/Non Acid Generating (NAG) materials that will be deposited in the north and east waste rock management facilities. Excavation of the deposit will result in a smoothed pit design for the ultimate pit, by completing six internal phases with 35 m wide, 10% grade ramps. The designs will utilize double benching of 12 m benches with variable width berms. A batter angle of 70° will be used to achieve the overall smoothed pit shell. The exception will be the 65° batter angles in the picrite rock unit to the southwest highwall. The Ajax pit will have an area of 169 ha after five years of operation, to a maximum extent of 261 ha at the end of the 23 year mine life. Pit development phases are shown on Figure 5.3.

Removal of the ore and waste will be accomplished by developing blast holes with electric drills and subsequent blasting. The blasted material will be loaded into haul trucks with electric rope shovels and front-end loaders for delivery to the in-pit gyratory crushers and conveyor systems.

Measures will be undertaken to prevent water from Jacko Lake and Peterson Creek from entering the open pit area. At present, it is assumed that measures will be taken to keep wall slopes dry to avoid the requirement for pit dewatering.

5.3.2 Processing Facility

The Processing Facility will be situated as shown on Figure 5.1 and is designed to process 60,000 t/d of run-of-mine (ROM) ore. The plant will operate 24 hours per day, 365 days per year. Over the 23 years of operation, the plant will process approximately 442 Mt of copper and gold ore. The concentrate will be produced via the following processes:

- Primary Crushing

- Secondary Crushing
- Grinding and Classification
- Flotation Circuit
- Concentrate Thickener, and
- Concentrate Filter.

A schematic representation of the process is provided on Figure 5.4.

5.3.3 Tailings Storage Facility and Process Water

Fresh water will be pumped into the Fresh Water Tank in the Thickened Tailings Plant (TTP). From the Fresh Water Tank the water will either be distributed throughout the TTP via the gland water pumps or mixed with dry flocculant in flocculant tanks. The resulting flocculant dilution water will be mixed with tailings from the mill in the feed box and the tailings feed will then be discharged into the tailings thickener. Thickener underflow will be pumped to the tailings storage facility via thickener underflow pumps and tailings discharge pumps. Thickener overflow will be discharged from the tailings thickener to the process water tank and then to the Process Water Pond for recycling, or directly to the Processing Plant. During an accident or malfunction of the thickener underflow pumps or in the event of excess process solution or build-up of flotation reagent, a re-circulation pump will direct the thickener underflow to the Thickened Tailings Emergency Pond. The Thickened Tailings Emergency Pond will be situated at the present location of a low-lying seasonally wetted area north of the TSF.

The shallow Inks Lake, located to the east of the TSF (Photo 1), will be used as a Process Water Pond, as well as collecting tailings bleed water and surface runoff from the outer wall of the TSF embankment during rain events. No sediments or solids will be placed within the pond. Water from the TSF Process Water Pond will be pumped back to the Process Water Tank in the TTP where it will be used in the tailings or milling process.

Some process water generated in the flotation circuit as concentrate thickener overflow solution will be re-used in the grinding circuit. Excess water will be discharged to the process water tank. Reclaimed water will be pumped from the Process Water Pond to the process water tank for distribution to the points of usage. The gland and seal water will be pumped and distributed to the slurry pumps from the fresh water tank.

The primary source of milling water is anticipated to be fresh water supplied from Kamloops Lake and recycled water from the TTP. Water will be pumped directly to the Process Water Tank adjacent to the plant facility and to the Fresh/Fire Water Tank.

5.3.4 Fresh Water Supply

Fresh water will be required for start mill and plant facilities, drilling water, fire suppression, gland seal water, reagent, flotation cleaning stages, process water makeup, and other site activities (e.g., dust control).

Fresh water will be supplied from Kamloops Lake, a section of the Thompson River, to the facilities using the existing infrastructure as much as possible (Photos 2, 3, and 4) with some modifications and replacement of the existing pumps, piping, and electrical systems. The pump house basin size and geometry will be evaluated in the detailed design phase. The existing arrangement consists of an intake filter structure, which is located in the elevation of 323 m on the lake bed. Water from this intake is transferred to the existing pump house on the shore of Kamloops Lake (pump invert elevation 336 m) by a 36" pipe, embedded in the lake bed. Water is pumped through an embedded steel pipeline to booster pump station 1 located at elevation 580 m, and from here to the proposed booster pump station 2 located at the New Gold fresh water tank area.

The existing pump stations are head driven and may not be adequate to provide the volume of water needed for the Ajax Project, and as such an alternative water supply system shall be provided. A new pumphouse will be built on the shore of Kamloops Lake adjacent to the existing lake pump station. The new pumphouse will contain two in-line pumps to transfer water to the lake pump station (Figure 5.5) and new pumps will be installed in booster pump station 1. No modifications to the existing intake filter structure on the lake bed are anticipated and the new pumphouse will be situated above the normal high water mark.

Water will continue to be pumped to the New Gold fresh water tank via existing pipelines and to the Ajax property through a new water supply line.

5.3.5 Reagent Handling and Storage

Various chemical reagents will be added to the process slurry stream to facilitate the copper flotation process. Preparation of the various reagents will require the following components:

- A bulk handling system
- Mix and holding tanks
- Metering pumps
- A flocculant preparation facility
- A lime slaking and distribution facility
- Eye-wash and safety showers, and
- Applicable safety equipment.

Various chemical reagents will be added to the grinding and flotation circuit to modify the mineral particle surfaces and enhance the flotability of the valuable mineral particles into the copper-gold concentrate product. Fresh water will be used in the make up for the dilution of the various reagents that will be supplied in powder/solid form, or which require dilution prior to the addition to the slurry. These solutions will be added to the addition points of the various flotation circuits and streams using metering pumps. The PAX collector reagent will be made up to a solution of 10% strength in a mixing tank, and then transferred to the holding tank, from where the solution will be pumped to the addition point. The frother reagent, MIBC, will not be diluted and will be pumped directly from the bulk containers to the point of addition using metering pumps.

Flocculent will be prepared in the standard manner as a dilute solution with 0.30% solution strength. This will be further diluted in the thickener feed well. Lime, as quick-lime, will be delivered in bulk and will be off-loaded pneumatically into a silo. The lime will then be prepared in a lime slaking system as 20% concentration slurry. This lime slurry will be pumped to the points of addition using a closed loop system and the valves will be regulated by pH monitors that will control the amount of lime added.

To ensure spill containment, the reagent preparation and storage facility will be located within a containment area designed to accommodate 110% of the content of the largest tank. In addition, each reagent will be prepared in its own bounded area in order to limit spillage and facilitate its return to its respective mixing tank. The storage tanks will be equipped with level indicators and instrumentation to ensure that spills do not occur during normal operation. Appropriate ventilation, fire and safety protection, and Material Safety Data Sheet (MSDS) stations will be provided at the facility.

Each reagent line and addition point will be labelled in accordance with Workplace Hazardous Materials Information Systems (WHMIS) standards. All operational personnel will receive WHMIS training, along with additional training for the safe handling and use of the reagents.

5.3.6 Assay and Metallurgical

The assay laboratory will be equipped with the necessary analytical instruments to provide all routine assays for the mine, the concentrator, and the environmental departments.

The metallurgical laboratory will be utilized to conduct testwork to monitor metallurgical performance and improve process operations and efficiencies.

5.3.7 Air Supply

The following identifies the types of air supply systems and areas of use throughout the proposed mine site:

- Low-pressure air provided by air blowers for flotation cells
- High-pressure air provided by dedicated air compressors for the filter press and concentrate drying, and
- Instrument air from the plant air compressors will be dried and stored in a dedicated air receiver.

Details with regards to air supply systems and requirements will be provided in the Application.

5.3.8 Power Supply and Distribution

Preliminary discussions with BC Hydro suggest that the power distribution system in the area should be able to provide sufficient power for the mine's approximate running load of 90 MW, requiring only a few upgrades to increase power supply reliability.

Two options for the 138 kV overhead power line are currently being considered: one from the west with interconnection at the substation in Savona (SVA) located approximately 40 km from the Project, and one from the east that will tap into the BC Hydro line 2L265 near Knutsford.

Any watercourse crossings associated with the new line are intended to be constructed in accordance with the criteria for "minor works" as outlined in Section 5 of the Minor Works and Waters (*Navigable Waters Protection Act*) Order so as to be exempt from approval under Section 5(3) of the NWPA.

The plant's main substation will consist of 138 kV to 25 kV step-down power transformers with the 25 kV line being the plant's main distribution voltage. This plant's substation will consist of 25 kV switchgear line-ups that will be used to distribute power to the various plant areas as required by either overhead line or land based cable tray/conduit. The High Pressure Grinding Rolls and both dual pinion ball mills will also be powered at 25 kV.

Each major plant area will require an electrical room where the 25 kV distribution voltage will be stepped down to the process level distribution voltages of 4.16 kV and 600 V. There will be a selection of 4.16 kV switchgear (breakers and starters) and 600 V motor control centres (MCCs) throughout the facility. A critical process MCC in each electrical room (where critical loads are identified) connected to a stand-alone generator system will transfer power from one source to another via an automatic transfer switch.

5.3.9 Staff Accommodations

A construction camp is not anticipated as a result of the proximity of the Project to existing accommodation infrastructure in the City of Kamloops. A feasibility study will be undertaken to ensure that accommodations for all staff are available in Kamloops throughout the life of the Project.

Once in operation, the projected personnel requirements are 385 persons, including 61 staff for management and professional services, 302 operators and maintenance labour, and 22 personnel for laboratories, quality control, process optimization, and assaying.

5.3.10 Explosives Magazine

It is proposed that the primary explosive used during operation will be a combination of heavy ANFO and emulsion. All required explosives would be obtained through an explosives supply contractor and stored in areas close to the Ajax open pit. Bulk ammonium nitrate (AN) and bulk emulsion would be delivered to site and stored in dedicated silos away from the explosives magazine complex. An ANFO/emulsion truck, operated by the explosives supply contractor would be used to deliver bulk explosives to the blasting locations. No explosives will be manufactured on-site.

The secured facilities would include AN silos, an emulsion silo, a blasting accessories magazine, and a blasting detonators magazine, which would be designed and operated in compliance with applicable legislation and regulations.

5.3.11 Water Management

A water management plan will be developed to control all surface water within the mine area. Goals of the plan include preservation of water quantity and quality downstream of the Project, optimization of water use, maximization of water re-use, minimizing mixing of clean and mine-contact water, managing seepage, utilizing water diversion, and eliminating uncontrolled releases.

Key aspects of water management include the following:

- Ajax pit water and runoff from the waste rock management facilities will be transferred to the site process water ponds during pre-production and throughout the mine life
- The site is in a water deficit. This deficit can be made up through fresh water supply from Kamloops Lake via an upgraded system, and
- All affected site water will be captured in the site process water ponds or seepage collection ponds for containment. All unaffected water will be diverted around the site except as required to make up the water balance deficit.

Tailings bleed water and runoff from external slopes of the TSF will be diverted through ditches to the Process Water Pond that will be established in Inks Lake. Water from this pond will be pumped to the TTP or to the processing facility as needed.

5.3.12 Solid and Waste Water Management

Solid waste management
The standard approach of segregating waste streams for recycling or disposal will be adopted on site. Recyclable materials will be collected on site and shipped to Kamloops for recycling. Other waste materials that are anticipated to be generated onsite include lubricants, waste oils, spent reagents, spent hydrocarbons, and combustibles. These items will be transported to an approved off-site waste receiver for disposal.

Waste water management
The sewage treatment plant will be a pre-packaged Rotating Biological Contactor (RBC) system. The plant will be manufactured off site and containerized for simple connection to the collection system on-site. Once treated, the sewage treatment plant effluent will be discharged in accordance with applicable legislation and regulations.

5.3.13 Communications

An optical fibre backbone will be incorporated throughout the plant in order to provide a path for the data requirements for voice, data, and control system communications. A fibre backbone for a site Ethernet-type system will also be developed to provide data and voice bandwidth.

5.3.14 Fuel Storage

Diesel fuel requirements for the mining equipment and haul trucks will be supplied from above-ground diesel fuel storage tanks located near the truck shop. Diesel storage will consist of above-ground tanks and a containment pad, complete with loading and dispensing equipment conforming to applicable regulations. The diesel fuel storage tank will have a capacity sufficient for approximately three days of Project operations. A dedicated service truck will transport diesel fuel to the mining equipment as required.

5.3.15 Buildings and Structures

It is anticipated that the following buildings and structures will be required for the Project, and will be included as part of the processing plant complex:
Concentrator building
- Stockpile
- Primary crushing building
- Concentrate load-out building
- Secondary crushing building
- Administration building
- Maintenance/truck shop
- Assay and metallurgical laboratory
- Cold warehouse, and
- Temporary construction facilities.

5.4 MINERAL PROCESSING

5.4.1 Primary Crusher Systems

The primary crushing and process plant will be designed to operate on the basis of two 12-hour shifts per day, 365 days per year. The primary crusher overall availability will be 70% and the grinding and flotation circuit availability will have a running time of 92%. This will allow for a potential increase in crushing rate, and will allow sufficient downtime for scheduled and unscheduled maintenance of the crushing and process plant equipment.

A conventional gyratory crusher facility will be designed to crush ROM ore or waste up to a processing rate of 10,000 t/h, to reduce the size of the material in preparation for the grinding process and waste stacking (Figure 5.4). The proposed equipment and facilities in the crusher area include the following:
- Dump pocket
- Stationary grizzly
- Hydraulic rock breaker
- Gyratory crushers – 1,525 mm x 2,794 mm (60″ x 110″)
- Apron feeders
- Crushed ore stockpile, 60,000 t capacity

- Reclaim apron feeders
- Conveyor belts, metal detectors, self-cleaning magnets, and belt tear detectors
- Belt scale, and
- Dust collection system.

The ROM ore will be transported in the open pit to the in-pit primary crusher using 240-tonne haul trucks. There the ore will be reduced to 80% minus 150 mm using a gyratory crusher, and a rock breaker will be used to break oversize rocks. The crusher product will be discharged into a dump pocket, and then onto a conveyance system, which transports the ore to the coarse ore stockpile.

The coarse ore stockpile will be designed to have a live capacity of 60,000 t and ore will be reclaimed from this stockpile by apron feeders at a nominal rate of 2,717 tonnes per hour (t/h). The apron feeders will transport the crushed ore to a 960 mm wide conveyor belt (equipped with a belt scale) that leads to the Secondary Crushing and High Pressure Grinding Roll (HPGR) system.

The crushing facilities and crushed ore stockpile will be equipped with a dust collection system to control fugitive dust that may be generated during conveyor loading and transportation of the ore.

5.4.2 Grinding and Classification

The grinding circuit will consist of a HPGR/ball mill combination circuit as a two-stage operation with the HGPR in closed circuit with vibrating screens, and the two ball mills in closed circuit with the classifying cyclones. The HPGR will be conducted as a dry process at a nominal rate of 2,717 t/h of material. The grinding circuit will include the following equipment and facilities:

- Conveyor feed belt
- Conveyor belt weigh scale
- Two 750 KW secondary cone crushers
- Two intermediate secondary crusher screens
- Two HPGR mills – 2.4 m diameter x 1.7 m long
- Two ball mills – 7.62 m diameter x 12.5 m long
- Ball mill feed distributor box
- Two ball mill discharge pumpboxes
- Two sets of cyclone feed slurry pumps
- Two cyclone clusters
- Mass flow meter
- Particle size analyzer, and
- Sampler system.

Ore from the crushed ore stockpile will be reclaimed under controlled feed rate conditions using apron feeders and will be discharged onto the conveyor belt feeding double deck screens, with the oversize material feeding the two secondary cone crushers, and the undersize material feeding the HPGR surge bin. The crushed material will be returned as feed to a second set of double deck screens. The HPGR units will be fed from the surge bin using belt feeders. The

HPGR product will be screened with oversize material returned to the HPGR feed surge bin. Screen undersize material will be fed to the Ball Mill cyclone feed pumpboxes.

Each ball mill will be operated independently in a closed-circuit with a cyclone cluster, with the product from each ball mill being discharged into its separate cyclone feed pumpbox to become the cyclone feed. The slurry in each mill discharge pumpbox will be pumped to a cyclone cluster for classification. The cut size for the cyclones will be a P80 of 150 µm, and the circulating load to the individual ball mill circuits will be 300% with the cyclone underflow returning to the ball mill as feed material.

The new feed to each ball mill circuit will be 1,359 t/h and the combined total of the two mills (2,717 t/h) will constitute the feed rate to the copper flotation circuit. The ball mills will operate at a critical speed of 75%. Dilution water will be added to the grinding circuit as required.

The cyclone overflow from both classification circuits will be discharged into the copper flotation conditioning tank ahead of the flotation process where the pulp density of the cyclone overflow slurry will be approximately 33% solids.

Provision will be made for the addition of lime to the ball mills for adjustment of the pH of the slurry in the grinding circuit prior to the flotation process. Grinding media will be added to the mills in order to maintain the grinding efficiency. Steel balls will be periodically added to each mill using a ball charging kibble.

5.4.3 Flotation Circuit

The milled ore will be subjected to flotation to recover the targeted minerals into a high-grade copper concentrate containing gold. The copper flotation circuit will include the following equipment (Figure 5.4):

- Conditioning tank – 7.7 m diameter x 8.3 m
- Flotation reagent addition facilities
- Rougher flotation tank cells – 6 x 300 m^3 each
- Scavenger flotation tank cells – 6 x 300 m^3 each
- Regrind ball mill – 5,030 mm diameter x 6,400 mm long
- Two classification cyclone clusters (one for each regrind stage)
- First cleaner flotation tank cells – 5 x 50 m^3 each
- First cleaner scavenger flotation tank cells – 4 x 50 m^3 each
- Regrind tower mill – 13.46 m high x 4.09 m long x 4.52 m wide
- Second cleaner flotation tank cells – 5 x 10 m^3 each
- Third cleaner flotation tank cells – 4 x 10 m^3 each
- Pumpboxes and standpipes
- Slurry and concentrate pumps
- Two particle-size analyzers (one for each regrind stage), and
- Sampling system.

The cyclone overflow from the grinding circuit will be combined to feed the flotation circuit conditioning tank by gravity flow from the cyclone clusters. The slurry will be conditioned in the copper conditioning tank at the design feed rate of 2,718 t/h. The first cleaner scavenger tailings will be directed to the conditioning tank for reprocessing. Flotation reagents including the collector, PAX, the frother (MIBC) and lime, will be added to the conditioning tank as defined through testing. Provision will be made for the staged addition of the reagents in the cleaner stage of the flotation circuit.

The conditioned slurry will overflow from the conditioning tank into the rougher flotation tank cells. Rougher and scavenger concentrates will be processed and discharged into the first regrind ball mill circuit cyclone feed pumpbox from where it will be pumped to the regrind classification cyclone. The scavenger tailings will be sampled automatically prior to discharge into the final tailings pumpbox. This stream will constitute the final tailings leaving the plant.

To completely liberate the fine-sized grains of the copper minerals from the gangue constituents and to enhance upgrading of the copper concentrate, stage regrinding and cleaning will be incorporated in the cleaner flotation circuit. The rougher regrind circuit cyclone will separate the finely ground flotation concentrate into a cyclone overflow product according to the design particle size P80 of 60 µm. The coarser cyclone underflow will be the feed for the rougher regrind mill (ball mill). The ball mill will discharge into the cyclone feed pumpbox together with the rougher and scavenger flotation concentrates and the first cleaner scavenger tailings, constituting the feed for classification by the cyclone.

The cyclone overflow from the rougher/scavenger regrind circuit will combine with the second cleaner tailings as feed to the first cleaner stage. The first cleaner concentrate will report to the cleaner regrind cyclone feed pumpbox where it will join the regrind mill discharge for pumping to the cleaner regrind cyclone for sizing. The cleaner regrind mill will be a tower mill. The cyclone overflow product will have a design particle size P80 of 20 µm. The concentrate from the first cleaner stage will feed the second cleaner flotation stage with the second cleaner concentrate reporting to the third cleaner flotation stage. The concentrate from the third cleaner flotation stage will be the final copper concentrate and will feed directly to the copper concentrate thickener. The tailings from the third cleaner stage will be returned to join the feed to the second cleaner stage. Tailings from the second cleaner flotation stage will be recycled back to the first cleaner flotation stage. Tailings from the first cleaner scavenger flotation stage will report to the conditioning tank. Operationally, there will be the option of directing the first cleaner scavenger tailings to the final tailings pumpbox. Conventional tank flotation cells will be used for the entire copper flotation circuit.

Provision will be made for the use of copper concentrate thickener overflow water to be re-used in the grinding circuit as dilution water providing this does not have a deleterious effect on the flotation of the copper and gold minerals.

5.4.4 Concentrate Thickening

The cleaner flotation concentrate will be thickened, filtered, and stored prior to shipment to the smelter. The concentrate handling circuit will be comprised of the following equipment:

- Concentrate thickener
- Concentrate thickener overflow standpipe
- Concentrate slurry pumps
- Process water tank and pump
- Concentrate stock tank
- Concentrate filter press, and
- Concentrate storage and dispatch facility.

The concentrate will be pumped from the final cleaner flotation stage to the concentrate thickener. Flocculant will be added to the thickener feed to aid the settling process. The thickened concentrate will be pumped to the concentrate stock tank using thickener underflow slurry pumps. The underflow density will be 60% solids. The concentrate stock tank will be an agitated tank that will serve as the feed tank for the concentrate filter. The concentrate filter will be a filter press unit. Since filtration with a filter press unit will be a batch process, the concentrate stock tank will also act as a surge tank for the filtration operation. The filter press will dewater the concentrate to produce a final concentrate with a moisture content of about 8%. The filtrate will be returned to the concentrate thickener. The filter press solids will be discharged to the concentrate stockpile. The dewatered concentrate will be stored in a designated storage facility. The concentrate will periodically be loaded into trucks for dispatch off the property.

The thickener overflow solution from the concentrate thickener will be collected in the process water tank for recycling within the grinding circuit. Excess overflow solution will be discharged to the process water pond.

5.4.5 Tailings Management

The tailings delivery and reclaim systems have been routed to suit the arrangement of the major components of the tailings facility. The tailings delivery system is as follows:

- A tailings pipeline will transport slurry tailings from the mill to the TTP
- Slurry will be thickened into a paste and deposited in the TSF, and
- A land based pump station and pipeline will re-circulate the process water back to the mill.

The tailings delivery and reclaim systems will consist of the following:

- A mill tailings pipeline
- A thickener overflow pipeline
- A thickened tailings plant
- A sedimentation pond
- Thickened tailings emergency pond, and
- A water management plan.

The principal design objectives for the TSF will be to ensure protection of the regional groundwater and surface waters during operations and post closure, and to achieve effective reclamation at mine closure.

Design objectives for the TSF are as follows:

- Utilize the available area to construct the TSF
- Minimize the area required for the TSF
- Utilize locally available fill materials for construction
- Allow for ease of construction
- Allow for ease of operation
- Allow for relatively simple water control
- Prevent water ponding on the facility, which is considered to be the primary risk factor for any tailings storage facility, and
- Provide a long term, stable dry stack of tailings that can be covered at closure to prevent water ponding, provide dust control, and allow for vegetative cover.

Final plant tailings will be thickened and directed into the TSF, located in a relatively flat area of the site. The TSF will be a single impoundment with raised embankments to create a zero discharge facility, with process water reclaim and pump-back capture of any seepage. Detailed geotechnical and groundwater investigations will be completed to identify appropriate seepage control measures.

A thickened tailings plant will be constructed adjacent to the TSF. Slurry tailings will be pumped from the mill to the thickener. Overflow from the thickener will be directed to the process water tank and the thickened tailings will be pumped to the TSF for surface discharge. Tailings will be thickened to produce a non-segregating material that will be capable of flowing from the discharge pipe down a 2% to 3% gradient while maintaining its consistency. Dearth bleed water is anticipated during deposition; this water will be collected in the TSF Runoff Pond. The slope angle was selected to minimize erosion from runoff, while preventing ponding on the facility. In an emergency situation when the thickener has to be emptied, a recirculation pump will pump the thickener content into the Thickened Tailings Emergency Pond located on the site of an alkali pond north of the TSF.

The tailings storage facility will be constructed in an upstream manner, with thickened tailings discharged from the west side of the facility to form a slope towards the east of the facility. Tailings will be placed in thin, uniform lifts (0.5 m – 1.0 m) which will be allowed to partially desiccate prior to placement of subsequent lifts.

Waste rock from the Ajax open pit will be used to construct an initial pipeline berm to facilitate tailings discharge and to contain the thickened tailings on the east side of the TSF. The TSF embankments will be constructed in stages throughout the life of the mine with the start-up impoundments providing storage for the first year of mine production. The final embankment configuration will be raised to an elevation that provides sufficient capacity to store the thickened tailings and associated site water.

The outer shell of waste rock will be constructed partly on the tailings beach and partly on the previous waste rock berm. The waste rock berm is designed to serve the following purposes:

- Pipeline support berm
- Pipeline and spigot access
- Tailings containment
- Allows for steepening the tailings stack (minimize height of pile and surface area disturbance)
- Allows for easy access of construction equipment to raise the berm and pipeline
- Allows for drainage of the tailings pile and seepage control
- Provides outer slope stability
- Provides downstream erosion protection
- Provides dust control
- Allows for staged construction, and
- Allows for progressive closure.

The maximum elevation of tailings is 995 masl along the west side of the facility. The TSF will have an area of 283 ha after five years of operation, and a maximum footprint of 376 ha at the end of mine life.

5.5 WASTE ROCK MANAGEMENT FACILITIES

Currently, it is proposed that potentially reactive waste rock and non-reactive waste rock would be stored in two waste rock management facilities located to the north and east of the pit. These waste rock management facilities are identified on Figure 5.6. The east waste rock management facility will have an area of 260 ha, and the north waste rock management facility will have an area of 403 ha. The waste rock handling arrangement includes gyratory crushers, belt conveyors, and stacking systems. It is assumed that semi mobile systems will be used to reduce the waste size to 80% <101.6 cm, before feeding the conveyors. The crushers used for the 10,000 t/h system will be 152.4 cm x 279.4 cm, and the conveyors are assumed to have a width of 152.4 cm. The stacking system includes extendable conveyor equipment with caterpillar crawlers, tripper and a spreader.

The waste rock crushing system will significantly reduce the carbon footprint of the mine site due to reduced diesel consumption. The use of conveyance systems on the waste piles will also reduce noise and dust contamination.

5.6 ACCESS ROADS

The Ajax Project is currently accessed via the old Afton mine haul road. The old haul road crosses the Lac Le Jeune Highway approximately 8.3 km south of the intersection of the Lac Le Jeune Highway and Copperhead Drive off Highway 1, west of Kamloops. A new access road will be built from the mill area to Lac Le Jeune Road, from whence commercial traffic will travel on to Highway 1 to the north (see Figure 5.1

A gated maintenance track will be constructed adjacent to the proposed water line and the west power line option between La Le Jeune Highway and the Coquihalla Highway. The water line and power line will continue west of the Coquihalla Highway alongside existing mine roads to the proposed booster pump station 2.

Site roads will be built to access the mine facilities. The site road to access the explosives storage area will cross Peterson Creek downstream from Jacko Lake. Peterson Creek adjacent to the proposed Ajax pit and east waste rock management facility is a narrow (approximately 2 m wide), dredged channel with flows controlled at the outlet of Jacko Lake for irrigation downstream. The alignment for the haul road and site roads will be determined during the detailed design phase. Any additional perennial watercourse crossings will be identified during this phase.

5.7 CONCENTRATE TRANSPORT

At the mine site, concentrate will be transferred from the concentrate load-out building onto appropriately sized tractor-trailers. Before leaving the site, each transport trailer would be weighed to ensure compliance with private and public road requirements. The concentrate will be transported to the Port of Vancouver before it is loaded onto ships for its final destination in Asia.

Concentrate will be transported by truck from site along the Lac Le Jeune Highway to the Coquihalla Highway (Highway 5) to Hope, then along the Trans-Canada Highway (Highway 1) to the Port of Vancouver. No modifications to Port of Vancouver infrastructure will be required to ship Project concentrate from the port.

Wet concentrate production in the peak production years will be 556 t/d, and highway trucks have a capacity of 40 t. Therefore, it is anticipated that at peak production, fourteen 40 t highway trucks per day would haul wet concentrate to the Port of Vancouver. Transport activities will require applicable permits from the Ministry of Transportation and Infrastructure.

5.8 ALTERNATIVES ASSESSMENT

KAM is currently completing alternatives assessments of proposed infrastructure and processes (e.g., tailings storage facilities, access roads, concentrate transport, etc.). All technological refinements of the design have been internally tested for technical, economic, social and execution risks. It is anticipated that a matrix rating system will be applied to each option, providing a transparent and reproducible alternatives assessment process and decision.

The following provides some examples of alternatives assessment considerations of the major Project facilities:

The mined materials from the Ajax pit will be delivered utilizing combined in-pit and out-pit gyratory primary crusher and conveyor systems. This option was the best alternative when cost and environmental considerations were evaluated. Use of the conveyor from inside the pit will reduce the haulage distance and cost, and also reduces the total carbon emissions and dust and noise emissions. Water management was considered a priority for siting the tailings storage facility and the waste rock management facilities in order to minimize the risk of environmental impacts.

The road alignment considered cost and the shortest distance from the mine site to the highway, once other project infrastructure was situated.

The proposed TSF represents the best location with respect to proximity to the pit and processing plant, cost, and risk. Consideration was given to using the historic Afton Mine TSF 10 km northwest of the Ajax project, but this alternative was not selected because of cost and risk of pumping the tailings over a greater distance. Additionally the historic facility would require significant expansion in order to accommodate the Project's tailings storage requirements.

The location of the waste rock management facilities was a function of topography and proximity to the pit. Alternative sites considered included the vicinity south of the pit, however, this alternative was considered to be less preferable because of greater terrain roughness, which would require more site preparation and cost. In addition, the southern option would transport waste rock across Peterson Creek, increasing cost and environmental risk.

Transport of the concentrate to Vancouver by rail was considered as an alternative to trucking the concentrate directly to the Port of Vancouver. This option would have included trucking the concentrate from the mine site via existing Afton Mine haul road to the Coquihalla Highway, and from here to the Trans Canada Highway (Highway 1) west to Cache Creek. From Cache Creek the trucks would turn south along the Okanagan Connector (Highway 97C) to the town of Ashcroft. The concentrate would then be loaded onto rail cars and transported by rail down the Fraser Canyon to the Port of Vancouver, where it would then be loaded onto ships. This option would require more materials handling than trucking the concentrate directly to the Port of Vancouver from Kamloops via the Lac Le Jeune Highway and Coquihalla Highway (Highway 5) south to Hope and then along the Trans-Canada Highway to Vancouver.

Several alternatives for the water intake system on Kamloops Lake to supply process and potable water to the site were considered, including:

- Using the existing water intake system
- Upgrading the existing water intake system
- Constructing a new water intake system
- Using a floating barge system
- Upgrading existing pump station and installing new pumps, and
- Constructing a new pump station.

The option of constructing a new pumphouse adjacent to the existing pumphouse on the shore of Kamloops Lake above the normal high water mark and installing new pumps in each pumphouse was the preferred alternative. No work within the lake will be required, reducing the potential impacts on fish and fish habitat, although some riparian vegetation may need to be cleared during construction of the new pumphouse. This configuration also minimizes the visual impact that a barge would have, and is not expected to impact any navigable waters.

5.9 CLOSURE AND RECLAMATION

It is estimated that mine closure will proceed over a period of two years and the reclamation and monitoring phase will follow for an additional three years.

5.9.1 Closure of Tailings Storage Facility

General considerations that are likely to be incorporated in the closure plan for the TSF include the following:

- Removal and restoration of disturbed areas including structure footprints, access roads, conveyance structures, pipelines, etc.
- Stabilization, shaping, contouring, and re-vegetation of disturbed surfaces, and
- Monitoring activities to confirm the design assumptions adopted for closure.

5.9.2 Waste Rock Management Facilities Closure

The current plan regarding the waste rock management facilities will be to leave the waste rock in place and construct an engineered cover complete with growth medium and vegetation. In order to accomplish this, suitable growth medium will be identified, salvaged, and stored during construction and operation for use during reclamation and closure.

5.9.3 Ajax Pit

Once mining has ceased, site drainage will be altered to allow each open pit to be filled with water. Water quality in the open pit will be modelled prior to filling to approximate effluent water quality once the pit has filled and overflows into the receiving environment. As the pit fills up, water quality sampling will be conducted to verify the accuracy of the model and define water treatment requirements to meet established discharge criteria. Passive and active treatment strategies will both be considered as a potential treatment option, if required. As a safety measure, an earthen berm will be constructed around the open pit to prevent accidental entry into the flooded area.

5.9.4 Processing Plant

All of the buildings and structures identified in the mine description above will be dismantled and/or demolished and then removed from the mine site. Salvageable material will be re-used, recycled, or transformed into other useful forms.

All materials removed from the site will be disposed of in accordance with applicable legislation and regulations. Any contaminated material (e.g., petroleum hydrocarbons or heavy metals) will also be stored, handled, and disposed of in accordance with applicable legislation and regulations. Once the buildings and structures have been removed, the areas will be shaped, covered with growth medium, and vegetated with appropriate plant species.

5.9.5 Access Road

At this stage in the Project, it is not clear whether access to the area will be required following closure, but in the event it is no longer required, closure will include the following:

- Reclamation of access roads
- Removal of bridges, culverts, and other watercourse crossing structures
- Restoration of affected stream banks and riparian areas, and
- Re-vegetation of affected areas with appropriate plant species.

SECTION 6.0 - PROJECT SETTING

6.1 EXISTING CONDITIONS

Mining and ranching have historically dominated the land use regime in the area, and have shaped the existing conditions of the landscape. The Project is located on the footprint of the previous, now deactivated and decommissioned, Ajax open pit mine. The site is characterized by anthropogenic disturbance including the old open pits (Photos 5 and 6), access and haul roads, reclaimed waste rock piles (Photo 7), and other mining infrastructure. Ten kilometres west, on the opposite side of the Coquihalla Highway, is the Afton mine site, currently being operated by New Gold Inc. The Afton site is characterized by two open pits, as well as other mine infrastructure including access roads, sewage lagoons, retention ponds, smelter site near Highway 1, TSF, and reclaimed waste rock management facilities. The TSF used by both historical mine sites is located approximately 1.1 km southwest of the Afton pit. Several structures remain in place at the Afton site, including the smelter foundation and adjacent facilities. As described in detail in Section 6.3 below, much of the area is vegetated by rolling grassland and shrubs, with coniferous forests growing at higher elevations.

6.2 GEOLOGY AND MINERALIZATION

6.2.1 Geology

The following sections describe the regional and local geology in the Project area focusing on mining aspects. The regional and local geological information presented below was obtained from the PEA developed for the Project by Wardrop Engineering in 2009.

6.2.1.1 Regional Geology

Figure 6.1 illustrates the regional geology in the Project area, dominated by the approximately 5 km wide and 20 km long Upper Triassic Iron Mask batholith, which trends northwest through the region. The Iron Mask batholith intruded a sequence of Nicola Group flows and volcaniclastic rocks of mafic and intermediate composition. Near the contact with the Iron Mask batholith, the Nicola Group rocks are commonly basalt to andesite flows and flow breccias. Stratigraphically above the Nicola Group is a series of serpentinized picrite basalts, which are present within the batholith and are apparently localized along major structural corridors.

Multiple phases are recognized in the Iron Mask Batholith. The Pothook diorite is the oldest phase and consists of a medium to coarse-grained biotite pyroxene diorite. A hybrid unit is recognized where Nicola Group rocks have been incorporated into the Pothook. The Hybrid phase consists of up to 80% Nicola Group fragments within Pothook intrusive breccia.

The Cherry Creek phase dominates the north and east margins of the batholith and forms a pluton northwest of the batholith. The Cherry Creek postdates the Pothook and consists of a monzonite to monzodiorite. Ubiquitous K-feldspar generally gives the Cherry Creek a pinkish colour.

The Sugarloaf phase dominates the western margin of the batholith and also postdates the Pothook phase. The age relationship with Cherry Creek is uncertain. The Sugarloaf phase is commonly a fine-grained porphyritic hornblende diorite. Albite alteration is common near zones of mineralization. The Kamloops Group contains the youngest rocks in the region and consists dominantly of tuffaceous sandstone, siltstone, and shale with minor flows and agglomerates of basaltic and andesitic composition.

Copper-gold mineralization associated with the Iron Mask batholith is classified as alkaline porphyry copper-gold deposits and is associated with the Cherry Creek and Sugarloaf phases. Mineralization is generally localized along major fault zones and associated with albite and K-feldspar alteration.

6.2.1.2 Local Geology

As many as 11 rock types have been recognized in the Project area, but these can generally be combined into three main rock types: Iron Mask Hybrid, Sugarloaf Diorite, and Nicola Volcanics, which are illustrated on Figures 6.1 for the Project area and 6.2 for the Ajax Pit.

Outcrops are generally abundant in the Project area. The contact between the Sugarloaf Diorite and the Iron Mask strikes southeasterly through the West Ajax area and changes to a northeasterly strike through the East Ajax area. The Sugarloaf-Iron Mask contact is truncated by a southeasterly striking fault at the north end of the East Project area. The contact between the Sugarloaf Diorite and Nicola Group generally strikes southeasterly through the Project area.

Sugarloaf Diorite is characteristically a fine to coarse-grained, light to medium gray porphyritic diorite containing euhedral hornblende phenocrysts. Unaltered Sugarloaf may contain up to 5% fine-grained magnetite. Locally, the Sugarloaf Diorite has assimilated rocks of the Nicola Group and is referred to as the Sugarloaf Hybrid. Albite and K-feldspar alteration is present in varying degrees. Strong albite alteration has commonly destroyed original textures locally. Sulphide mineralization is associated with albite alteration and consists predominantly of chalcopyrite and pyrite. Molybdenite, tetrahedrite, and bornite have been observed.

The Iron Mask Hybrid is considered to be an assimilation of the Nicola Group into the intruding Pothook Diorite. The Iron Mask is coarse-grained and dioritic to gabbroic in composition. Weak propylitic alteration is common with K-feldspar and albite alteration occurring locally. The Iron Mask Hybrid may contain up to 10% magnetite and locally chalcopyrite and pyrite are present. The Nicola Group consists of picrite and various fine-grained and pyroxene porphyritic mafic volcanic rocks. A variety of steeply dipping, unmineralized dykes up to 5 m wide intrude the main rock types. Dykes are composed of aplite, monzonite, latite, and fine-grained mafic rocks.

6.2.2 Mineralization

The Iron Mask Batholith is host to more than 20 known mineral deposits and occurrences and mineralization is commonly copper-gold. Chalcopyrite is the dominant sulphide mineral. The presence of accessory sulphide minerals is highly variable and can include tetrahedrite and molybdenite. Secondary copper oxides (bornite and chalcocite) and native copper have been observed locally. Mineralization is associated with regional fault zones that trend easterly or southeasterly through the area (Wardrop, 2009).

The mineralization in the Project area is associated with structural corridors of highly fractured sections of Sugarloaf and Sugarloaf Hybrid phases of the Iron Mask Batholith. Chalcopyrite is the dominant copper mineral and occurs as veins, veinlets, fracture fillings, disseminations, and isolated blebs in the host rock. Concentrations of chalcopyrite rarely exceed 5%. Accessory sulphide minerals include pyrite, magnetite, and molybdenite (Wardrop, 2009).

High-grade copper mineralization (>1.0% Cu) is confined to chalcopyrite vein systems. Copper grades decrease away from the chalcopyrite veins. High-grade mineralization can extend several metres from the vein structure. Low-grade copper mineralization (0.10% to 0.50% Cu) is generally associated with the Sugarloaf-Iron Mask contact. Mineralization extends to depths exceeding 400 m and has a strike length exceeding 2,000 m (Wardrop, 2009).

It is common for gold concentrations to be directly correlated with copper concentrations. Gold mineralization increases slightly in areas where strong albite alteration occurs. The albite alteration is in part controlled by fault and vein structures. Minor palladium mineralization is associated with copper near the contacts of the Iron Mask Hybrid and Sugarloaf units (Wardrop, 2009).

6.3 TERRAIN

The Project area consists of rolling grasslands surrounded by local relief that ranges from 800 to 1100 masl and forested areas at higher elevations. Sugarloaf Hill is the prominent landform in the area and has an elevation of 1130 masl. Extensive glacial action has created topography of low rolling hills with local deep accumulations of glacial till on the southeast flanks of larger rock outcroppings and drumlins.

The low annual precipitation level is reflected in the flora of the area. Bunchgrass, sagebrush, and cacti are abundant on the lower grassy slopes being joined by stands of ponderosa pine at higher elevations. Water is abundant in the spring in numerous small saline ponds and sloughs. However, year-round fresh water within the Peterson Creek drainage is restricted to Jacko Lake and Edith Lake, and these sources are heavily committed to irrigation use.

Drainage is somewhat disrupted resulting in numerous shallow ponds. Some of these are ephemeral and are bordered with precipitate encrustations. Several ponds have been raised with dams. The three principal watercourses run northeast; however, most of their courses are made up of north or east flowing sections following the minor lineation pattern. The most recent glaciation pushed southeast parallel to the

Kamloops Lake valley. Hilltops were largely denuded of soil while valleys were infilled with debris, thereby accentuating the northwest grain of the land terraces in the northeast section of the property.

6.4 CLIMATE

The climate of the Project area is semi-arid and continental, with low total precipitation and high evaporation compared to the rest of BC. Lying within the rain shadow of the Coast Mountains, the area has a semi-arid steppe climate characterized by generally cool, dry winters and hot, dry summers, with low humidity (Canadian Climate Normals, 2003). Convective storm cell events are frequent in the summer months creating occasional dry lightning conditions, which can ignite forest fires. The area receives an average of 279 mm of precipitation annually.

Summers are hot and dry. In July, the average high is 28.3 degree Celsius (˚C), with a record high of 40.6˚C. Humidity is generally low (<20%). Precipitation is generally greatest in June and July, with averages of 35.2 mm and 29.5 mm respectively.

Winters are generally mild and short, with periodic cold snaps where temperatures can drop significantly below average for several weeks. The winter mean temperature is -4.2˚C, with an average low of -7.6˚C in January, and a record low of -37.2˚C. Precipitation is lowest in February (14.4 mm), March (11.7 mm), and October (16.2 mm). Snowfall typically occurs from November to March.

6.4.1 Ajax Site Meteorology

Hydrometeorological values for the Project area were estimated on the basis of short-term site-specific data and long-term regional information. Meteorological data have been collected in the Project area from November 2006 and includes records of temperature, relative humidity, precipitation, and wind speed and direction. Active and inactive regional climate stations are located throughout the area, with several stations having two decades or more of climate data. Data presented here are collected by the Ministry of Environment (MOE) and British Columbia Forestry Service (BCFS) climate stations. Long-term regional climate data most suitable for comparison to Project area data are available from Afton (BCFS), Leighton Lake (BCFS), and Kamloops (MOE), which are all located within 30 kilometres of the Project area.

Below is a summary of a preliminary study on hydrometeorological site characteristics.

- The long-term average annual temperature is estimated to be 7.9˚C
- Relative humidity varies throughout the year, but it is typically highest in mid-winter and lowest in mid-summer
- Approximately 25% of precipitation at the Project Area is expected to fall as snow
- Approximately 75% of precipitation at the Project Area is expected to fall as rain
- Wind direction and magnitude vary throughout the year
- Runoff in the Project area results from rainfall and snowmelt, producing a unimodal annual hydrograph with a relatively large but brief surge of flows during the spring freshet period
- Unit runoff values are very low relative to most other areas in BC
- Flows exhibit extreme seasonal variability, and

- Most project area creeks likely have zero flow conditions for extended periods during the coldest winter months.

6.5 HYDROLOGY

The Project is located within the Peterson Creek and Cherry Creek watersheds (Figure 6.3). Peterson Creek drains into the South Thompson River near its confluence with the North Thompson River, to the east of Kamloops Lake. Cherry Creek is a relatively large perennial drainage within the Thompson River watershed, flowing northwest from Greenstone Mountain to Kamloops Lake. It drains an area of 56,000 km^2, carrying runoff from the Columbia and Monashee mountains. At Kamloops, the South Thompson River and the North Thompson River converge to form the Thompson River, the largest tributary of the Fraser River. From its confluence at the North and South Thompson Rivers, the Thompson River flows approximately 15 km to the west where it enters Kamloops Lake, a locally enlarged reach of the river. The lake has a catchment area of 29,050 km^2 and a surface area of 148 km$^{2.}$ Kamloops Lake is approximately 30 km long, and ends at the town of Savona. From Kamloops Lake the Thompson River continues to flow west and then southwest to its confluence with the Fraser River near Lytton.

Small, mostly alkaline lakes are relatively common in the Peterson Creek watershed. Jacko Lake, within the Peterson Creek watershed and located adjacent to the proposed pit, is the largest water body in the Project area.

Regional stream flow data were analyzed from Water Survey of Canada survey stations to the start of October 2008 (Knight Piésold 2009). Stream flow data for the Project area has been collected from April 2008 to present at five stream gauging locations installed by Knight Piésold as shown on Figure 6.4. The stations were installed to monitor continual water level at 15 minute intervals.

6.6 HYDROGEOLOGY

A groundwater investigation commenced at the Afton Mine property in 2007 by Knight Piésold. The investigation included 1) a preliminary review of historical groundwater data, 2) installation of groundwater monitoring wells, 3) hydraulic testing of monitoring wells, and 4) quarterly groundwater sampling. Collected data are being used to characterize the existing baseline groundwater regime to support the definition of potential impacts, mitigation measures, monitoring and contingency measures as mine planning proceeds. The baseline characterization of the groundwater regime will include:

- Characterization of the regional and Project area geology
- Examination of seasonal fluctuations and spatial variation of groundwater levels and water quality
- Description of the methodology, analysis and results of hydraulic testing
- Estimate of the rate and direction of groundwater flow, and
- Expected interaction of groundwater with surface water.

6.7 WATER QUALITY

Discharge from the Project has the potential to affect downstream water quality. Potential effects will be determined in advance of the Application for the construction, operation, and decommissioning phases of the Project.

6.7.1 Water Quality in Receiving Water Bodies

All Project infrastructure and Project related activities will occur in the Peterson Creek and Cherry Creek watersheds. The major receiving water bodies in these watersheds will be Peterson Creek, Jacko Lake, Inks Lake, and Cherry Creek. It is intended that the Project will maintain sufficient water quality and quantity in each of these water bodies.

6.7.1.1 Peterson Creek

Peterson Creek is a large drainage system within the South Thompson River watershed flowing north from Chuwhels Mountain to Jacko Lake, east through Knutsford, BC, then north again through the City of Kamloops to its confluence with the South Thompson River (Photos 8, 9, and 10). Peterson Creek has a mainstem length of 40 km and a watershed area of approximately 82 km^2 (Summit, 2006). It has been used for drinking water, irrigation, and as a drainage channel since European settlers colonized the Kamloops area. The majority of Peterson Creek in downtown Kamloops is contained in culverts and channelled in concrete waterways from Columbia Street to the South Thompson River (City of Kamloops, 2007). The average gradient of Peterson Creek is 3.2%. The major tributaries of Peterson Creek include Davidson Brook, Humphrey Creek, and Jacko Creek. Flows in Peterson Creek are regulated for irrigation purposes by a weir located at the outlet of Jacko Lake. Figure 6.3 shows the Peterson Creek and Cherry Creek watersheds.

The Peterson Creek outlet is through the southeast arm of Jacko Lake via a 17.4 m, 460 mm concrete culvert running through an earthfill dam (Ministry of Environment, 1980). The portion of the channel running through the old Afton minesite was lined with impervious till in 1990 to prevent seepage between the storage dam and the irrigation gates located downstream (Price 1991). No surface flow exists between the lake and the creek except during high flow years when water levels exceed the spillway crest elevation (891.1 m) and flow is channelled to Peterson Creek via the spillway channel (Ministry of Environment, 1980). Approximately 60 m downstream of the lake, the flow is confined within an open top concrete channel with a V-notch weir at the downstream end; a pressure transducer and datalogger installed at this location monitor water depths. A further 60 m downstream from the weir, the flow is channelled through two corrugated metal culverts embedded in concrete blocks. The culvert inlets are raised above the elevation of the channel bed, and at low flows downstream flow is via seepage under and around the concrete blocks. The creek is ponded upstream of the blocks and the right culvert is choked with small woody debris. The Kinder Morgan pipeline crosses Peterson Creek approximately 300 m downstream of the double culvert at a footbridge.

In 2007, water quality monitoring sites were established on Peterson Creek just below Jacko Lake (PC08,) and outside the property, approximately 2 km east of the Ajax West Pits (PC03). Two additional monitoring sites were added in April and May 2008 to supplement the information available: site PC02 was established (with permission of the local landowner) on agricultural property, downstream of the Long Lake Road Quarry in Knutsford, BC, approximately 6 km downstream of PC03. Monitoring site JC03 was established as a reference site, approximately 1.5 km upstream of Jacko Lake, and above any potential mining influence. The location of Project water quality monitoring sites is presented on Figure 6.4.

The natural hydrologic regime of Peterson Creek is affected by human use (extraction) permitted by numerous water licenses in the upper and mid-reaches. Flow from Jacko Lake into Peterson Creek is regulated to ensure sufficient water is available to license holders during periods of drought or water shortages. Analytical results for water quality monitoring sites on Peterson Creek, including PC02, PC03, PC08, and JC03, are provided in Tables 6.1 through 6.4.

6.7.1.2 Jacko Lake

Jacko Lake is a modified lake, approximately 0.4 km^2 in area, located immediately west of the Ajax Pits. It is generally ice-free from April through November, and stocked rainbow trout populations make it a popular local fishing destination, particularly in the spring and fall.

Historical records indicate that Jacko Lake has been impacted by human activity since at least 1949, when the outlet channel (Peterson Creek) was modified for irrigation. Bathymetry mapping from a survey in 1950 shows a lake with a perimeter of 3700 metres, surface area of 40 ha and volume of 3,575,304 m^3 (Fish and Game Branch, 1968). A lake survey form from 1949 and 1950 names both the inlet and outlet creeks as Peterson Creek, and notes that the outlet flows only during high water (Anon, 1950). The Peterson Creek inlet (now known locally as Jacko Creek) was described as a very small channel emptying into the lake through a large marshy area, flowing only in the spring, and filled with deadwood. The outlet contained the only suitable spawning area, although the inlet was noted to provide fair spawning habitat in wet years. Bathymetry mapping from 1978 shows an expanded lake, with creation of the current northeast and southeast arms and expansion of the two westerly arms. The lake then had a perimeter of 4925 m, surface area of 46.7 ha, and a volume of approximately 4,000,000 m^3. Survey drawings of the earthfill dam and spillway from 1980 show assumed original ground at 890 m and a high water level at 891.1 m with the dam at 892.300 m (Ministry of Environment, 1980). The storage dam was raised one meter in the fall of 1990 to double the amount of live storage for irrigation (Price 1991).

Monitoring sites established on Jacko Lake include shallow (JACL-S) and deep (JACL-D) locations at the approximate deepest part of the lake (23 m deep). In 2008 additional shallow samples were collected in the northwest (JACL-02) and northeast (JACL-03) arms of the lake. Analytical summary statistics for all Jacko Lake monitoring locations are provided in Tables 6.5 through 6.8.

The dissolved oxygen and temperature profiles for Jacko Lake in June 2010 are indicative of mesotrophic (moderately biologically productive) conditions where the dissolved oxygen concentration remains high in the epilimnion (the upper wind-mixed layer – from surface to a depth of 6 m on June 3, 2010), throughout the summer due to photosynthesis and diffusion from the atmosphere. A thermocline was noted between 6 m and 16 m depth. Dissolved oxygen tends to decline in the hypolimnion (bottom layer below which little or no wind-mixing occurs) due to the absence of oxygen inputs and the consumption of oxygen by organisms. Anoxic conditions were observed in the hypolimnion in June below 16 m deep, likely due to decomposition of organic matter.

6.7.1.3 Cherry Creek

Cherry Creek is a relatively large perennial drainage within the Thompson River watershed, flowing northwest from Greenstone Mountain to Kamloops Lake. Monitoring sites CC02 and CC08 were established on Cherry Creek downstream and upstream of the Project area, respectively. Project activities are not anticipated to influence water quality at CC08 due to its considerable distance upstream of the existing TSF area on Greenstone Mountain; therefore, this site may represent background conditions throughout the life of the Project. Monitoring site CC02 is located approximately 2 km west and down gradient of the impounded Afton Seepage Pond and TSF. Analytical results for water quality monitoring sites on Cherry Creek, including CC02 and CC08, are provided in Tables 6.9 and 6.10 respectively.

Almost 30 water licenses are currently active on Cherry Creek. Within the Project area these are predominantly for irrigation and stockwatering purposes, but also include domestic and commercial uses further downstream near CC02. Site CC08 is located in a forested area on Greenstone Mountain and is not heavily influenced by agricultural activity, although there are several water license points of diversion both upstream and downstream of the site, primarily for irrigation purposes but also for domestic and storage purposes.

6.8 VEGETATION

The Ajax Project is located in the Southern Interior Forest Region, in the Kamloops Forest District and Kamloops Timber Supply Area, southwest of the City of Kamloops. The Project is within the Thompson Basin (THB) ecosection. The THB ecosection is a warm and very dry, low-elevation area of predominantly gentle slopes (Demarchi, 1996). There are no management areas (e.g. Wildlife Habitat Areas, parks, or Old Growth Management Areas) present within the Project area, though the area is considered of value by the Grassland Conservation Council of BC.

The Project area is characterized by rolling grasslands with timber at higher elevations. Elevations range between 800 to 1130 masl. The area was previously glaciated as evidenced by numerous drumlins.

At lower elevations, the vegetation is typically bunchgrass, sagebrush, and prickly pear cacti. Vegetation surveys in 2007 and 2008 documented the following listed plant species (Keystone, 2008):

- Red listed:
  - Blue grama (*Bouteloua gracilis*), *and*
  - Hutchinsia (*Hutchinsia procumbens*).
- Blue listed:
  - Freckled milk-vetch (*Astragalus lentiginosus var lentiginosus*), *and*
  - Sheathing pondweed (*Stuckenia vaginata*).

Forested portions of the Project area, generally found at higher elevations, are mainly composed of Douglas-fir (*Pseudotsuga menziesii*), lodgepole pine (*Pinus contorta*), and ponderosa pine (*Pinus ponderosa*); although at present much of the pine is dead or dying due to the pine beetle epidemic.

Four biogeoclimatic subzones of three biogeoclimatic zones are present:

- Bunchgrass very dry, hot, Thompson variant (BGxh2). A small amount is present in the northeast portion of the Project area.
- Bunchgrass very dry warm, Nicola variant (BGxw1). This variant is found near the centre of the Project area.
- Ponderosa Pine very dry hot, Thompson variant (PPxh2). This variant is found between the IDF and the Bunchgrass zones, Interior Douglas-fir very dry hot, Thompson variant (IDFxh2). This variant is found in the southern end of the Project area and on Sugarloaf Hill.

Most of the forested portion of the Project area is structural stages 4 and 5 as a result of a frequent fire regime. A recent fire south of Ned Roberts Lake (south of Hughes Lake tailings pond) has removed most of the older forest in that portion of the Project area. Very little old forest is currently present in the vicinity of the Project.

6.8.1 Rare Plant Communities

The footprint of the proposed Project has been disturbed by mining, grazing, road building and agriculture. Many invasive species are present; however, no rare communities, as defined by the Conservation Data Centre, were located during surveys around Project areas.

6.9 FISH AND FISH HABITAT

Fish presence in the Project area is noted in Jacko Lake, Peterson Creek, and Cherry Creek. Jacko Lake is stocked with rainbow trout (*Oncorhynchus mykiss*) and used locally as a sport fishing venue. Peterson Creek has a fish barrier in proximity of its intersection with the Kamloops city limits (Bridal Veil Falls), and therefore fish use in the headwaters of Peterson Creek is mostly as a result of downstream movement of stocked rainbow trout from Jacko Lake. Rainbow trout have been found throughout Cherry Creek.

Downstream of the Project area, Peterson Creek flows into the South Thompson River and Cherry Creek flows into Kamloops Lake. The following species are present in the North and South Thompson River systems, Kamloops Lake and Thompson River (MOE, 2007):

- Bull trout (*Salvelinus confluentus*), Dolly Varden (*S. malma*), and lake trout char (*S. namaycush*)
- Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), pink (*O.gorbuscha*), and sockeye (*O. nerka*) salmon
- Rainbow trout, steelhead
- Burbot (*Lota lota*)
- Mountain whitefish (*Prosopium williamsoni*), round whitefish (*P. cylindraceum*)
- Western brook lamprey (*Lampetra richardsoni*), lamprey species
- Carp (*Cyprinus carpio*), redside shiner (*Richardsonius balteatus*), lake chub (*Couesius plumbeus*), peamouth (*Mylocheilus caurinus*), northern pike minnow *(*Ptychocheilus oregonensis*),* leopard dace *(Rhinichthys falcatus),* and longnose dace (*R. cataractae*)
- Bridgelip sucker (*Catostomus columbianus*), largescale sucker (*C. macrocheilus*), longnose sucker (*C. catostomus*), and northern mountain sucker (*C. platyrhynchus*), and
- Slimy sculpin (*Cottus cognatus*), and torrent sculpin (*C. rhotheus*).

Fish and fish habitat investigations were initiated in 2007 by Knight Piésold in the Peterson Creek watershed to: document fish presence/absence, abundance, and distribution in the Project area; quantify available habitat at fish sample sites; and to confirm and document fish migration obstructions within Peterson Creek and Cherry Creek.

Coho salmon fry were captured at the confluence of Peterson Creek and the South Thompson River in July and August 2008. In September 2008 both coho salmon and rainbow trout were captured at this site. No fish have been captured during electrofishing in Peterson Creek at sites between Jacko Lake and Goose Lake Road, but rainbow trout have been captured in Peterson Creek Park upstream of Bridal Veil Falls, located approximately 2 km upstream from the mouth. Rainbow trout have been captured in Cherry Creek during sampling by KP and in previous surveys (Rescan, 2006).

Fisheries and aquatic surveys are ongoing.

6.9.1 Rare and Endangered Fish Species

Rare and endangered fish with the potential to be in the Project area were determined using the BC Species and Ecosystem Explorer database (CDC, 2010). There are no records of rare or endangered fish species in the Project area; however, downstream of the Project in the Thompson River and Kamloops Lake, white sturgeon (*Acipenser transmontanus*), mountain sucker, and bull trout are present.

The Middle Fraser River population of white sturgeon is Red Listed in BC. White sturgeon have been documented in Shuswap Lake (McMynn, 1958), and in the Fraser River from Lytton to Lillooet (McKenzie, 1997).

Mountain suckers are Blue Listed in BC. The nearest recorded mountain sucker observation to the Project is outside the zone of influence of the Project on the North Thompson River, near its confluence with Heffley Creek (Carl, 1948).

Bull trout are Blue Listed in BC. Bull trout have been documented in both Kamloops Lake and the Thompson River (Galesloot, 1999).

6.10 WILDLIFE

The Project is in the Kamloops Forest District and the Thompson-Nicola Wildlife Management Unit. There are no Wildlife Habitat Areas (as legislated by the *Forest and Range Practices Act*) or parks present within the Project area. Critical deer and moose winter range has been mapped by the Kamloops Land and Resource Management Plan (LRMP), and does not overlap with Project footprints. Terrestrial wildlife species of concern potentially occurring in the Project area are listed in Table 6.11.

Wildlife surveys conducted during the 2007 and 2008 field seasons included breeding bird surveys, woodpecker surveys, bat detector surveys, waterfowl surveys, small mammal trapping, amphibian surveys, snake hibernacula surveys and owl call playback surveys. Notable results included the detections of a number of listed wildlife species in the Project area, including badger (Provincially Red-listed, SARA Schedule 1 Endangered), Great Blue Heron (Provincially Blue-listed), Swainson's Hawk (Provincially Red-listed), Peregrine Falcon (Provincially Red-listed, SARA Schedule 1 Threatened), Barn Swallow (Provincially Blue-listed), Great Basin Spadefoot (Blue-listed and SARA Schedule 1 Threatened) and Western Toad (SARA Schedule 1 Special Concern) (Keystone, 2008).

Wildlife surveys are ongoing.

6.11 LAND USE

The proposed Project is located within the boundaries of the Kamloops Land and Resource Management Plan (LRMP), adopted by the Province of British Columbia in 1995 and amended in 1996 and 2001. Implementation of the Kamloops LRMP is the responsibility of the Kamloops Interagency Management Committee.

Ranching is currently the dominant land use in the Project area. Most of the surface rights are privately owned with grazing leases granted on much of the outlying crown land. The area is close to all forms of infrastructure and is served by a network of roads including the gravel, all-weather Goose Lake Road, running between the Princeton-Kamloops Highway (5A) at Knutsford to the east of the Project and Lac Le Jeune Road to the south of the Project area.

Peterson Creek, which flows through the Project area, is designated by the Kamloops LRMP as a "Community Watershed Resource Management Zone". Community watershed management zones are regulated in terms of the conservation of water quality and quantity, and timing of flow. The primary objectives for Special Resource Management – Community Watershed Zones are to:

- Maintain the quality and quantity of community water supply
- Minimize risk to lives and property from flooding and erosion, and
- Maintain natural stream flow regimes within acceptable limits.

Resource development activities are permitted and encouraged as long as the community watershed zone objectives are achieved. Minimum standards are governed by Provincial Community Watershed Guidelines.

6.12 ARCHAEOLOGY

Archaeological work has been conducted under an *Heritage Conservation Act* permit for ongoing exploration work at the Project. An Archaeological Impact Assessment is being conducted to develop an understanding of the existence of historical or archaeological sites within the boundaries of the Project development activities.

6.13 COMMUNITY AND ECONOMY

6.13.1 Local Community

Kamloops is the largest city in the Thompson-Nicola Regional District. According to the Statistics Canada 2006 census, demographics of the City of Kamloops are as follows:

- Population: 86,376
- Total private dwellings: 34,163
- Land area: 297.30 km^2 (114.79 sq mi)
- Density: 270.4 /km^2 (700 /sq mi)
- Aboriginal population: 5,165 (6.43%), and
- Growth rate (2001–2006): 4.0%.

6.13.2 Local and Regional Economy

Major industries that support the Kamloops and Thompson-Nicola Regional District include forestry, tourism, mining, and fishing with the most notable employers being Domtar, Tolko-Heffley Creek Plywood and Veneer, LaFarge Cement, Highland Valley Copper Mine, and Thompson Rivers University. Other businesses that support the local and regional economy include health care & social assistance, accommodation & food services, construction, manufacturing, transportation & warehousing, educational services, administration & support, waste management and remediation, and public administration. The 2006 Census Profile prepared by Statistics Canada shows the regional labour force to be comprised of 51,065 individuals in the 15+ age category.

Other community profile statistics of interest such as transportation and communications, infrastructure and services, housing, employment, household income, dwelling values, health profile, social support services and crime and policing will be further investigated and included in the Application.

SECTION 7.0 - POTENTIAL EFFECTS

Project impacts will be restricted primarily to sites previously disturbed by historical mining activities. The site has been intensively studied as a result of monitoring activities of the old mine sites, and more recent studies and monitoring activities to address Project concerns.

Ongoing investigations and monitoring have commenced for the following:

- Surficial geology, topography, terrain, and soils
- Geochemistry (ARD/ML)
- Meteorology and climate
- Dustfall
- Surface hydrology
- Surface water quality
- Hydrogeology and groundwater quality
- Fisheries and aquatics
- Terrestrial ecosystems, vegetation, and wildlife
- Socioeconomic
- Land use, land status, and land capability, and
- Archaeological resources.

Results of these studies will be included in the Application.

7.1 PHYSICAL AND BIOLOGICAL ENVIRONMENTS

7.1.1 Air Quality

A number of airborne emissions may result from the Project including: particulate matter (including fugitive dust) from road use, crushing operation, screening, blasting, loading, conveyance, etc., and Green House Gases (CO2, CO, SO_X, NO_X) from fuel combustion by vehicles and back-up generators.

7.1.2 Noise

Health-based guidelines have been developed by the World Health Organization (WHO) and can serve as a framework for management of community noise. Community noise includes noise emitted from all sources, with the main sources being traffic, industry, construction and neighbourhood noise (WHO, 1999). WHO defines the potential health effects associated with noise to include hearing impairment, speech intelligibility, sleep disturbance, physiological impairment, mental illness, performance effects and social and behavioural effects. WHO-defined health effects associated with noise in large outdoor areas includes disruption of tranquillity, which can be managed by maintaining a low ratio of intruding noise to natural. Construction related noise in proximity to important wildlife habitat can result in decreased effectiveness and utilization by wildlife.

Noise will be considered for the Project at several levels:

- Proximity of Kamloops and its surrounding communities
- Worker health and safety, and
- Noise impacts on wildlife.

7.1.3 Watershed Drainage

The Project site is in a water deficit area. This deficit will largely be made up through fresh water supplied from Kamloops Lake via an upgraded system. All unaffected water will be diverted around Project facilities (e.g., waste rock management facilities, TSF, the open pit, process and infrastructure facilities, roads, protection berms, and thickened tailings plant) except as required to make up the water balance deficit. A short section of Peterson Creek near the outlet of Jacko Lake will be diverted where it runs adjacent to the Ajax pit and east waste rock management facility (see Figure 5.1). Any ephemeral streams or surface runoff that flows into Inks Lake will be diverted into the Process Water Pond in Inks Lake near the east TSF embankment. Water from Inks Lake, (Photo 1), a non-fish bearing water body, will be used as required in the thickened tailings plant. Ajax pit water and runoff from the waste rock management facilities will be transferred to site process water ponds during pre-production and throughout the mine life.

The waste rock management facilities will affect intermittent runoff drainages (gullies with no alluvial channels), alkali ponds, and seasonally wetted low-lying catchment areas, none of which provide fish or benthic invertebrate habitat or have any surface connection to fish-bearing waters. No waterbodies or perennial or ephemeral streams will be impacted by the TSF: surface drainages are indicated on provincial basemaps; however, field reconnaissance found no evidence of alluvial channels. Site components in relation to surface drainage features are illustrated on Figure 7.1.

7.1.4 Fish and Fish Habitat

Potential impacts to the aquatic environment include alterations to stream and lake habitat. Figure 7.1 illustrates the project infrastructure in relation to the existing lake and stream drainages. Below is a brief summary of the potential impacts of this habitat alteration on aquatic life.

7.1.4.1 Impacts on Stream Habitat

A 1500 m section of Peterson creek (1.5 ha of instream habitat) downstream of the outlet of Jacko Lake will be realigned to accommodate the Project pit and the east waste rock management facility. Fish habitat will be lost, which will likely be considered a Harmful Alteration, Disruption, or Destruction of Fish Habitat (HADD) by Fisheries and Oceans Canada (DFO), and consequently will require *Fisheries Act* Authorizations under section 35(2). Section 32 Authorizations, required for direct mortality of fish, are not anticipated. Aquatic habitat in this section is rated as low value in preliminary surveys, and no fish have been captured during the Project-specific surveys. Compensation measures will be explored and adopted to achieve a “No Net Loss Policy”.

Potential impacts to riparian habitat may occur where road construction and/or upgrades cross any watercourses, such as the new road and bridge across Peterson Creek required for access to the explosives storage facility. Compensation measures will also be considered for any potential impacts to aquatic habitat at stream crossings.

7.1.4.2 Impacts on Lake Habitat

The western edge of the pit and pit berm will impact the tip of the northeast arm of Jacko Lake, (Photo 11), affecting an area less than half a hectare in size. However, fish habitat will be lost, which will likely be considered a HADD by DFO and consequently will require *Fisheries Act* Authorizations under section 35(2). Mitigation and/or compensation measures will be explored and adopted to achieve a "No Net Loss Policy". Inks Lake, a non-fish bearing water body with no surface connection with adjacent watercourses, will be used as the Process Water Pond and the TSF runoff collection pond.

7.1.5 Water Quality

Release of effluents to the aquatic environment may cause deterioration of aquatic habitat and result in mortality or reduction in utilization of habitat by fish species. Reduced water quality could also have negative impacts on irrigation water and human health, which is particularly relevant given the proximity of the City of Kamloops.

7.1.6 Vegetation

The construction of Project facilities and infrastructure will permanently remove, alter and/or replace vegetation within the Project area. Terrestrial habitat loss and/or degradation may occur as a result of clearing topsoil, woody debris removal, and the construction of Project facilities. The construction of permanent facilities will result in the permanent loss of vegetated habitat, whereas staging, borrow, and spoil areas will be reclaimed following the construction period, resulting in the temporary loss of vegetation and habitat. Riparian vegetation will be removed where streams have to be diverted and where stream crossings need to be established for new roads. The removal of vegetation will impact wildlife species as a result of habitat alteration, destruction, degradation, fragmentation, and/or obstruction. Riparian habitat will be re-established on re-routed stream sections.

7.1.7 Wildlife

7.1.7.1 Roadkill Mortality

Mine construction and operation will result in an increase in local road traffic. The species most vulnerable to roadkill mortality in the Project area are small, slow-moving species, such as snakes and amphibians, which are difficult for drivers to see. Passerine birds that nest on the ground at the roadsides (e.g., Vesper Sparrow (*Pooecetes gramineus*)) may also be vulnerable to roadkill.

Potential roadkill mortality is most significant for Great Basin Spadefoot (provincially Blue listed; SARA Schedule 1 Threatened), Western toad (SARA Schedule 1 Special Concern) and rubber boa (SARA Schedule 1 Special Concern). Other Blue-listed snake species (racer, rattlesnake, and gopher snake) have not been observed during field surveys of the Project area, and are likely present at low densities if at all within the proposed Project area.

7.1.7.2 Construction-Related Mortality

Blasting and excavation of previously undisturbed terrain during construction may result in wildlife mortality. Wildlife unable to escape may be crushed by rock or machinery during the initial excavations. Species most vulnerable to this type of mortality are snakes, amphibians, and rodents. Vulnerable species detected in the rock outcrop/grasslands around the pit includes deer mice, long-toed salamander, garter snake, and bushy-tailed woodrat, although additional species are likely present. Bats may also roost in rock crevices including four provincially blue listed species known to occur in the Kamloops Forest District: fringed myotis, spotted bat (also COSEWIC listed as a species of Special Concern), Townsend’s big-eared bat, and western small-footed myotis. Some bird species nest on the ground or within rock crevices, and construction may result in nest destruction.

Native plants are at risk of mortality as a result of Project construction. Excavation/blasting of habitat, changes in soil drainage patterns, and crushing by machinery and trampling from foot traffic may result in elimination of some native and/or rare plants.

7.1.7.3 Mortality Due To Contaminants

Contaminants may affect both wildlife and plants within the Project area. For instance, some plants may be tolerant to some heavy metals, but that tolerance is specific to the particular metal and to the particular plant population. Heavy metals such as copper, cadmium, lead, chromium, and mercury are known to be persistent and mobile in the environment, and to be potentially toxic to many forms of life.

7.1.7.4 Creation of Problem Wildlife

Animals that lose their fear of humans can cause property damage and injuries to people, and have to be relocated or, where necessary, eradicated. The Project area is not expected to harbour a high density of the wildlife species that are likely to become pests (e.g., black bears, raccoons). However, coyotes, red foxes, and even deer can cause problems if they become habituated to people and associate human presence with food. Animals that are fed by people or that become used to feeding on garbage may become aggressive or raid storage areas.

7.1.7.5 Habitat Loss/Modification

Construction of mine facilities will result in loss or modification of habitat for some wildlife species. Quantification of habitat loss is not possible at this time; however, habitats most likely to be affected include grasslands, rock outcrops, dry forest, riparian, wetlands, and aspen forest along Peterson Creek.

7.1.7.6 Disturbance Effects

A variety of wildlife may be disturbed due to loud construction-related noises such as drilling and blasting. The presence of work crews and noise produced by machinery, and road traffic may also result in disturbance to wildlife. Raptors and Great Blue Herons are sensitive to loud noises in close proximity to nest sites, which can result in stress and nest abandonment.

7.1.8 Acid Rock Drainage and Metal Leaching (ARD/ML)

Static testing was carried out as part of the environmental baseline study, and the results indicate that the waste rock and ore are not acid generating (Golder, 2010). Kinetic and heavy metal leach potential testing will be carried out at a future date. The preliminary project design was based on the assumption of non-acid generating tailings (Golder, 2010). However, the design of the tailings storage and waste rock management facilities has been included in the design of the facility to recover seepage and runoff from the facility prior to discharge to the environment.

7.2 ECONOMIC ENVIRONMENT

The Kamloops region, and in particular the Project site, has a rich history of mining. The City of Kamloops is expected to have extensive resources available to support the development of the Project. The Project will provide local employment and the remaining workforce could commute from outside the immediate area or reside in the community. The project will employ approximately 385 personnel during the operational phase and require approximately 2000 person-years of employment during construction. Indirect employment opportunities will be created in a variety of service industries including housing, road maintenance, transport, consumables, catering, and equipment servicing.

The effects on the local and regional economy are expected to be positive, and will be analysed to assess their impact. The analysis will include consideration of:

- Creation of new jobs: local effects and regional effects including worker migration,
- Accommodations: economic and social effects of housing workforce in Kamloops, and
- Person years of employment created during both construction and operations.

7.3 SOCIAL ENVIRONMENT

7.3.1 Aesthetics

Potential visual changes to existing conditions during the construction, operation, and decommissioning phases of the Project will be evaluated for aesthetic impacts in advance of the Environmental Assessment Application / CSR. Changes to the landscape will include the development of the tailings storage facility, as well as the north and east waste rock management facilities. The existing two Ajax pits will be expanded to become one large open pit. Computer-enhanced simulations will assist to illustrate viewscape changes so that an aesthetic assessment can be completed.

7.3.2 Land and Water Use

The Project is a proposed brownfield development in a location with historical mining activity and existing mining infrastructure. The Application / CSR will describe in depth the anticipated Project impacts on existing and potential future land use. Privately-owned land required for the Project has been purchased by KAM, and no new acquisitions are expected in order to accommodate the proposed infrastructure. Project activities associated with potential effects that will be evaluated will include but not be limited to the following:

- Changes in traffic volumes on the Lac Le Jeune Road, Highway 1, Highway 5, for access to/ from the site during construction and operation, including that associated with shipping the concentrate to the Port of Vancouver
- Transportation of ore concentrate by truck on existing and upgraded access roads
- Brushing, upgrade, and/ or repair of the existing overhead powerline, and construction of a new powerline where needed
- Construction of a new pumphouse on the shore of Kamloops Lake and a new water supply pipe from the existing booster station near the old Afton site near Highway 1 to the new thickened tailings plant and processing plant
- Pit encroachment on the northeast arm of Jacko Lake on navigable waters
- Effects to neighbouring ranch lands, including noise, air quality, water quality and water quantity, and
- Expansion of the decommissioned mine site and associated infrastructure.

7.4 HERITAGE

Archaeological work has been conducted under a *Heritage Conservation Act* (HCA) permit for ongoing exploration work at the Project. An Archaeological Impact Assessment (AIA) is being conducted to develop an understanding of the existence of historical or archaeological sites within the boundaries of the Project development activities.

As defined by the HCA, a “heritage object” means, whether designated or not, personal property that has heritage value to British Columbia, a community or an aboriginal people. A “heritage site” means, whether designated or not, land, including land covered by water that has heritage value to British Columbia, a community or an aboriginal people. The act defines “heritage value” as the historical, cultural, aesthetic, scientific or educational worth or usefulness of a site or object.

During the Project assessment, consultation and studies will be developed to identify any heritage objects or sites, and, if identified, seek means to mitigate negative effects.

7.5 HEALTH AND COMMUNITY

Studies will be conducted to determine Project effects on social, health, and community issues. Data will be collected from a range of stakeholders including First Nations, community administrators, public health and social services and infrastructure providers, educational institutions, and business representatives. Potential effects will be evaluated, including worker and community health, air quality, noise, and water quality.

SECTION 8.0 - FIRST NATIONS ENGAGEMENT AND PUBLIC CONSULTATION

KAM acknowledges its responsibility to engage in consultation with First Nations, regulatory agencies and potentially affected and interested stakeholders in the EA review process. A consultation record will be kept that will describe engagement activities (e.g. telephone calls, emails, mail, and meetings) dates of discussions, group/individuals engaged in discussions, means of engagement, and specific issues discussed.

8.1 FIRST NATION CONSULTATION

KAM is committed to maximising the participation of First Nations involvement during the EA process, without prejudice to any First Nation Rights or Title. KAM is committed to continue to work closely with local First Nations to develop working agreements, such as a memorandum of understanding and/or economic and impact benefit agreements. Consultation activities will comply with or exceed BC and Canadian requirements under the *BC Environmental Assessment Act* and the *Canadian Environmental Assessment Act*. Consultation with First Nations will be ongoing for the duration of the Project.

The Project lies entirely within the traditional territory of the Secwepemc Nation. Within the Secwepemc Nation, the Tk'emlúps te Secwepemc (Kamloops Indian Band) and the Skeetchestn Indian Band are the First Nations in closest proximity to the Project (Figure 8.1). Both bands are members of the Shuswap Nation Tribal Council. In a cooperative effort, the Tk'emlúps and Skeetchestn Bands have formed the Stk'emlupsemc te Secwepemc (STS), as a division of the greater Secwepemc Nation. The STS (also known as the Stk'emlupsemc of the Secwepemc Nation, or SSN) have several agreements in place with the government of British Columbia, specifically with respect to mining activity in their asserted traditional territory. As defined in these agreements[1], the Ajax Project lies within their asserted traditional territory.

The Tk'emlúps Indian Band and the Skeetchestn Indian Band were initially contacted by AME in February, 2006, to introduce the Company to the Bands and present information on the Project. Since then, several meetings have taken place pertaining to information on the Project and the Bands' concerns and needs related to the Project. During the First Nations communication process, issues, values, and questions were raised by both the Tk'emlúps Indian Band and Skeetchestn Indian Band. Concerns from both Bands revolved around Project design details, environmental safeguards, and economic opportunities. KAM continues to work with both Bands to inform them of Project progress, and to identify and resolve issues.

The following is a summary of historical consultation with the First Nations to date:

- January 2008: Senior proponent management held introductory meetings in Kamloops with representatives from the Tk'emlúps and Skeetchestn Bands
- July 2008: Abacus Mining and Exploration Corp. entered into a formal agreement to fund archaeological studies and legal assistance for future negotiations – agreement was for a one year term and ended July 31, 2009

[1] See Appendix 1 of the April 2009 Mining and Minerals Agreement between Her Majesty the Queen in Right of the Province of British Columbia as represented by the Minister of Energy, Mines and Petroleum Resources and Stk'emlupsemc of the Secwepemc Nation as represented by the Tk'emlúps (formerly Kamloops) Indian Band and the Skeetchestn Indian Band, available at www.empr.gov.bc.ca.

- August 2009 – project update meeting and site visit with representatives from Tk'emlúps and Skeetchestn Bands with district representatives from the Ministry of Mines and Energy to visit areas of cultural importance in the area
- August 2009 – Abacus employed Terra Archaeology under recommendation of both Tk'emlúps and Skeetchestn Bands for future archaeology work in project area, and
- December 2010 – KAM has developed an advanced exploration agreement to work together with the Tk'emlúps and Skeetchestn Bands through the project development process.

Throughout the meetings, both Tk'emlúps and Skeetchestn representatives have demonstrated openness to the project development, and continue to engage in dialogue. Both bands have identified the need to study and protect archaeological and cultural resources in the area, and to minimize environmental impacts, both of which have been accommodated in the exploration and mining plans by the proponent. Both bands have also identified an interest in securing economic benefits from the project. KAM is currently working with the each band (collectively the SSN) to ensure that all feasible economic opportunities are made available.

KAM reached an Advanced Exploration Agreement in November 2010 with STS. This Agreement confirms the intentions of both KAM and the STS to build a positive relationship through the exploration phase to advance the Ajax Project while minimizing the disturbance to the natural environment. The Agreement provides opportunity for STS to comment on proposed activities prior to the submission of any permits or applications, ensuring that on-going exploration work will proceed in a timely manner.

KAM and the STS will continue to work together during the feasibility stage of the Project in negotiating service agreements, including those for STS participation in archaeological work and cultural heritage reviews. Following completion of the Feasibility Study and determination of the economic viability of the Project, KAM and STS will work toward a long-term and definitive "Working Interest Agreement" to maintain a positive relationship throughout all phases of the Project.

The First Nation engagement plan to be followed by KAM includes the following:

- Ensuring early participation by First Nations
- Providing opportunity for employment
- Providing timely information and updates regarding the Project on an ongoing basis
- Providing timely information and updates regarding the environmental and regulatory approval processes associated with the Project on an ongoing basis
- Responding to First Nations questions and/or information requests regarding the Project in a timely manner
- Seeking to understand First Nations concerns or issues regarding the Project and consider such issues or concerns in the Project's final design and delivery
- Engaging in discussions with the First Nations to further identify means, where appropriate, to mitigate, minimize or otherwise accommodate First Nations concerns or issues relating to the Project
- Documenting all consultation activities with First Nations and providing a record of such documentation to all appropriate Crown decision makers and regulators
- Providing regular opportunities for First Nations members to meet with KAM and their representatives to exchange information regarding the Project, and

- Placing a high priority on safety and respect for the land.

8.2 FEDERAL, PROVINCIAL, AND REGIONAL GOVERNMENT CONSULTATION

It is anticipated that the BCEAO will establish a formal EA working group with the Proponent, potentially affected First Nations, and relevant provincial, federal, and local government representatives. The objective of the working group will be to provide guidance to KAM with regards to data acquisition objectives, ways to avoid potential project effects, and strategies to mitigate any effects that cannot be avoided.

8.2.1 Federal Government

A preliminary meeting with the Canadian Environmental Assessment Agency was held in February 2010 to introduce the Project, and correspondence has continued through email and telephone discussions since that time to receive direction. It is anticipated that consultation will also include the following federal government ministries:

- Natural Resources Canada
- Environment Canada
- Fisheries and Oceans Canada, and
- Transport Canada.

8.2.2 Provincial Government

Preliminary meetings and/or discussions have taken place with a variety of provincial agencies. The intent of these meetings and discussions was to introduce the project and to obtain early input with regards to potential project issues. Agencies contacted to date include:

- British Columbia Environmental Assessment Office;
- Ministry of Energy, Mines and Petroleum Resources;
- Ministry of Forests and Range, and
- Ministry of Environment:
  - Environmental Protection Division
  - Environmental Stewardship Division, and
  - Water Stewardship Division.

Consultation with provincial agencies will be ongoing for the duration of the project. Consultation will be established with the following agencies:

- Ministry of Agriculture
- Ministry of Transportation and Infrastructure
- Ministry of Community, Sport and Cultural Development, and
- Ministry of Forests, Lands, and Natural Resource Operations, Integrated Land Management Bureau.

8.2.3 Regional Government

Consultation with regional government offices has been initiated to introduce the project and also to gain an understanding of local land rights and taxation issues. The following is a list of meetings held at the regional level:

- March 17, 2010 – Introductory meeting with Mr. Peter Milobar, Mayor of the City of Kamloops and Chair of the Thompson Nicola Regional District (TNRD) Board of Directors. The meeting included discussion of project development, effect on city limits and taxation, and overall project schedule.
- April 7, 2010 – Introductory meeting with City of Kamloops planning department and with City of Kamloops Financial and Taxation Department. The meeting presented the Project, discussed current city planning and limits of development, discussion of the Ajax Project on City limits, and development of understanding of local heavy industry taxation.

It is expected that consultation with the City of Kamloops and the TNRD will continue throughout the life of the Project. Additionally, it is expected that future consultation will be established with Interior Health, and the Kamloops and Merritt Chambers of Commerce.

8.3 PUBLIC CONSULTATION

Interested members of the public will be encouraged to participate throughout the planning process and regulatory review. As the environmental assessment process for the Project proceeds, KAM will undertake public notification and consultation activities that satisfy requirements of the Environmental Assessment process in BC and Canada; to be determined following consultation with provincial and federal government agencies. KAM commits to undertaking formal public consultation activities during the public comment period prior to and following submission of the Application.

Objectives of planned consultation include:

- Provide and distribute information on the Project, and relevant EA material
- To provide the public with the opportunity to participate and/or provide input regarding the Project Application and all relevant concurrent permit applications
- Identify, document, and resolve all issues raised, and
- Incorporate comments and input at a strategic level related to Project development, environmental mitigation, management, and monitoring plans.

A comprehensive approach to informing and consulting with the general public will include:

- Open public process: interested parties will be encouraged to participate throughout the planning process and regulatory review stages, with effective two-way communication. The consultation process is viewed as an opportunity for constructive dialogue with an informed audience
- Meaningful consultation: interested parties can expect that consultation will be real and meaningful. Specific expectations may vary among the people being consulted and may change over time
- Transparency and accountability: interested parties can expect that they will be provided with access to all relevant information and that they will be informed about changes to the Project, and
- Consultation, not consensus: input from the public, along with information gathered through technical, environmental and social impact studies, will inform Project decisions.

To date public consultation has been primarily limited to informal discussions. As the Project moves forward open houses/information sessions will take place in the local community.

8.3.1 Local Communities, Businesses, and Stakeholders

Consultation activities for local communities, businesses, and stakeholders are anticipated to include the following:

- Open houses, information sessions, and meetings to raise awareness, and to identify and address issues and concerns
- Public issues scoping and community profiling
- Meetings with key stakeholder groups
- Website development and printed materials
- Meetings with media in the Project area
- On-going issues tracking and proactive response
- Public notification of events, meetings, and the status of the Project using a variety of media (advertising, mailings, etc.), and
- Providing comprehensive reporting of the process and results of the consultation process, including consultation summaries to support the Application.

SECTION 9.0 - PROPOSED DEVELOPMENT SCHEDULE

9.1 PERMITTING PROCESS

The proposed development schedule for the Project was created under the assumption that a harmonized Federal and Provincial Environmental Assessment (EA) review will be required and completed. The Project does meet the thresholds of the Reviewable Projects Regulation under the BC EAA and the likely requirement for one or more federal permits are expected to trigger the CEAA.

KAM is currently initiating First Nation and public consultation in the pre-Application phase of the Project. Baseline environmental studies and exploration drilling, condemnation drilling, preliminary engineering and site surveys will continue throughout the pre-Application phase. A preliminary breakdown of permitting related activities is provided below:

- Preliminary Economic Analysis Complete — August 2009
- Initiate Discussions with BC EAO and CEA Agency — February 2010
- Continuation of Baseline Environmental Studies — May 2010
- Project Description Submission — February 2011
- AIR Submission — March 2011
- Public Open House and AIR Comment Period — April 2011
- Feasibility Level Design — August 2011
- Completion of Baseline Studies and Baseline Reports — August 2011
- Submission of Application/CSR Document — September 2011
- Public Open House and Application/CSR Comment Period — October 2011
- EA Certificate Decision — March 2012
- Federal Decision — June 2012
- Concurrent Permitting Completed — June 2012

9.2 CONSTRUCTION

Upon receipt of the EA Certificate, Federal Decision, Concurrent Permits and any other required permitting, construction will be initiated in July, 2012. It is estimated that a period of two years will be required to move from the initiation of construction to mechanical completion. Start-up and commissioning will require an additional two to three months to complete.

9.3 OPERATIONS

The anticipated operational phase of the Project is 23 years, which is contingent on material changes that could arise during the continued exploration work, process refinement or throughput modifications.

9.4 DECOMMISSIONING

Timing and duration of closure and reclamation activities will be determined when the detailed reclamation plan is submitted as part of the BC *Mines Act* permit application.

SECTION 10.0 - REQUIRED PERMITS

10.1 ENVIRONMENTAL ASSESSMENT REVIEW PROCESS

Major mining projects in BC are subject to environmental assessment as part of the legislated certification and permitting process. Depending on the scope of a proposed project, it may also be subject to federal or harmonized provincial/federal review. The environmental review process achieves the following:

- Opportunities for all stakeholders and First Nations to identify potential issues and provide input
- An understanding of the environmental, social, economic, heritage, and health effects of the Project
- Opportunity to identify ways to prevent or minimize negative effects from the Project or Project related activities, and
- Provides an opportunity for input from all interested parties during the Environmental Assessment process.

10.1.1 British Columbia Environmental Assessment Act Process

The Project is subject to review under the British Columbia *Environmental Assessment Act* (BCEAA), which is administered by the British Columbia Environmental Assessment Office (BCEAO). The BCEAA is the legal framework for the province's environmental assessment process for proposed major projects. The BCEAA is supported by several regulations, including the Reviewable Projects Regulation, as well as a variety of policy, procedure and technical guidelines.

The production capacity of the proposed project will exceed 75,000 tonnes per year of mineral ore, and therefore will trigger an Environmental Assessment under Section 8 (1) and (2) of the Reviewable Projects Regulation to the BCEAA.

10.1.2 Canadian Environmental Assessment Act Process

The Project is expected to trigger an Environmental Assessment under the *Canadian Environmental Assessment Act* (CEAA), by virtue of it requiring federal permits and authorizations. The Project Description Guide to Determine Federal Roles under the Canadian Environmental Assessment Act (CEAA, 2006) was consulted to determine and define the involvement of federal agencies in the review process.

A comprehensive study is required when the project, as scoped by the Responsible Authority (or authorities), contains one or more components listed in the *Comprehensive Study List Regulation.* The Project contains components listed in the above regulation, therefore will warrant a comprehensive review process. The criteria listed for a mineral Project to trigger a comprehensive study are:

- The proposed construction, decommissioning or abandonment of:
  (a) a metal mine, other than a gold mine, with an ore production capacity of 3,000 t/d or more, and
  (b) a metal mill with an ore input capacity of 4,000 t/d or more.

As a major resource project, the process will involve the federal Major Projects Management Office (MPMO). The MPMO works with federal departments and agencies to offer guidance, coordinate agreements and timelines, and to offer tracking and monitoring of the regulatory review process.

10.2 OTHER REQUIRED PERMITS AND APPROVALS

10.2.1 British Columbia Authorizations, Licenses and Permits

Provincial authorizations and permits that may be required for the proposed project include the following:

- **BC Ministry of Forests, Lands, and Natural Resource Operations**
  - License to cut.
  - *Land Act* Authorizations.
- **Ministry of Environment**
  - Water License for new sediment control ponds/detention ponds
  - Section 9 *Water Act* Approvals
  - Water License for surface water withdrawal/water use, if required, and
  - Permits under the *Environmental Management Act* for effluent (e.g., tailings storage facility), air emissions (crushers), and refuse.
- **Ministry of Energy and Mines**
  - *Mines Act* Permit Approving the Mine Plan and Reclamation Program.
- **Interior Health Authority**
  - Operation Permits (drinking water, sewage disposal, etc.).

Specific permitting requirements will be further refined during the review process and through discussions with provincial agencies.

10.2.2 Federal Authorizations, Licenses and Permits

Federal authorizations and permits that may be required for the proposed project include the following:

- **Fisheries and Oceans Canada**
  - Section 35(2) Authorization under the *Fisheries Act* for the harmful alteration, disruption or destruction of fish habitat in Jacko Lake and Peterson Creek.
- **Environment Canada[2] (and Canadian Wildlife Services)**
  - *Species At Risk Act*
  - *Migratory Birds Convention Act*
  - *Canadian Environmental Protection Act* (CEPA), and
  - Metal Mining Effluent Regulations (MMER).

[2] Note: no disposal at sea is anticipated, and therefore KAM will not be seeking a permit under *Canadian Environmental Protection Act* (CEPA) subsection 127(1).

- **Health Canada**
    - Regulatory interest in potential noise and air quality impacts, potential impacts to country foods, and possibly potable water and sewage.
- **Natural Resources Canada**
    - Authorization under the *Explosives Act* for explosives storage.
- **Transport Canada**
    - *Navigable Waters Protection Act* (NWPA) approvals for works that are built or placed in, on, over, or through any waters deemed navigable.

The National Energy Board, accountable to the Minister of Natural Resources Canada, regulates international and interprovincial aspects of the oil and gas and electric utility industries. The Project will not construct a pipeline or international electrical transmission longer than 40 km as regulated by the National Energy Board, and therefore will not trigger a review by the National Energy Board.

Specific permitting requirements will be further refined during the review process and through discussions with federal agencies.

10.3 HARMONIZED REVIEW PROCESS

Since the Project will likely trigger both Provincial and Federal review processes, it is expected to be subject to a harmonized review led by BCEAO.

SECTION 11.0 - REFERENCES

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SECTION 12.0 - CERTIFICATION

This report was prepared, reviewed and approved by the undersigned.

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Knight Piésold CONSULTING

TABLE 4.1

KGHM AJAX MINING INC.
AJAX PROJECT

MINERAL RESOURCE ESTIMATE

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	Cut-off CuEq (%)	Mt	Cu(%)	Au(g/t)	Mo (%)	Ag(g/t)	CuEq	Contained Metal	
								Cu (M lb)	Au (k oz)
Measured	0.13	231.4	0.3	0.18	0.0018	0.35	0.32	1,527	1,364
Indicated	0.13	211	0.29	0.19	0.0012	0.31	0.32	1,368	1,287
Measured + Indicated	0.13	422.4	0.3	0.19	0.0015	0.31	0.32	2,895	2,651
Inferred	0.13	80.6	0.22	0.16	0.0011	0.38	0.24	391	404

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NOTE:

1. SOURCE: NI 43-101 PREPARED BY WARDROP ENGINEERING AUGUST 5, 2009.

1	08FEB'11	ISSUED WITH REPORT VA101-246/8-1	AP	RS	RCB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

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TABLE 4.2

ABACUS MINING AND EXPLORATION CORPORATION
AJAX PROJECT

SUMMARY OF CAPITAL COSTS

Print 02/03/11 13:56

Description	Total Manhour	Total Labour Cost	Total Material Cost	Total Construction Equipment Cost	Total Equipment Cost	Total Cost
Overall Site	39,487	2,428,456	1,306,547	2,530,266	11,045,072	17,310,341
Mining	0	0	30,010,000	0	29,300,000	59,309,999
Crushing	94,579	5,816,631	4,801,107	496,588	8,952,748	20,067,074
Crushed Ore Storage And Reclaim	55,996	3,443,748	2,338,363	265,044	5,493,863	11,541,017
Process	484,833	29,817,210	30,059,622	7,764,447	101,369,575	169,010,854
Tailings	176,823	10,874,639	21,598,023	3,810,673	963,500	37,246,835
Site Services and Utilities	25,813	1,587,519	1,560,732	283,884	2,712,191	6,144,326
Ancillary Buildings	92,959	5,716,963	8,321,084	496,564	2,022,361	16,556,972
Plant Mobile Fleet	669	41,162	82	0	3,745,282	3,786,526
Off-Site Infrastructure & Facilities	0	0	8,200,000	0	0	8,200,000
Project Indirects	460	28,290	103,832,950	12,300	0	103,873,540
Owner's Costs	0	0	16,400,000	0	0	16,400,000
Contingencies	0	0	65,481,101	0	0	65,481,101
Grand Total	**971,619**	**59,754,618**	**293,909,611**	**15,659,766**	**165,604,592**	**534,928,585**

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 4.2 - Capital Costs.xls]Table 4.2

NOTE:

1. SOURCE: NI 43-101 PREPARED BY WARDROP ENGINEERING AUGUST 5, 2009.

1	08FEB'11	ISSUED WITH REPORT VA101-246/8-1	AP	RS	RCB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

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TABLE 5.1

KGHM AJAX MINING INC.
AJAX PROJECT

MAJOR DESIGN CRITERIA

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Criteria	Unit	
Operating Year	d	365
Crushing Availability	%	70
Grinding and Flotation Availability	%	92
Primary Crushing Rate	t/h	3572
Milling & Flotation Process Rate	t/h	2717
SAG Mill Feed Size, 80% Passing	µm	150,000
SAG Mill Transfer Size, 80% Passing	µm	1250
Ball Mill Grind Size, 80% Passing	µm	150
Ball Mill Circulating Load	%	300
Bond Ball Mill Work Index	kWh/t	19.7
Bond Abrasion Index	g	0.26
Concentrate Regrind Size, 80% Passing	µm	15

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 5.1 - Major Design Criteria.xls]Table 5.1

NOTE:

1. SOURCE: NI 43-101 PREPARED BY WARDROP ENGINEERING AUGUST 5, 2009.

1	08FEB'11	ISSUED WITH REPORT VA101-246/8-1	AP	RS	RCB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

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CONSULTING

TABLE 6.1

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR PC02

Print Feb/03/11 14:02:21

Date Sampled / Time Sampled	MDL	28-Apr-08 12:26 PM	7-Jul-08 11:40 AM	6-Sep-08 10:30 AM	BCWQG (b)	CCME (c)
In Situ Parameters						
Conductivity (In Situ) (uS/cm)	---	1376	1118	969		
Dissolved Oxygen (In Situ) (%)	---	92.4	90.7	85.5		
Dissolved Oxygen (In Situ)	---	10.7	9.52	9.41		
pH (In Situ)	---		8.08	7.79	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---		-102	-70.3		
Specific Conductivity (In Situ) (uS/cm)	---	1993	1451	1326		
Temperature (In Situ) (°C)	---	8.79	13	10.9		
Physical Tests						
Color (TCU)	5	7.7	22	8.3		
Hardness	0.7	931	654	780		
pH	0.01	8.12	8.33	8.3	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	1990	1450	1850		
Total Alkalinity (as CaCO3)	2	421	413	446		
Total Dissolved Solids	13 - 20	1420	999	1320		
Total Suspended Solids	3	19.3	15.3	4.7		
Turbidity (NTU)	0.1	0.71	5.64	2.29		
Dissolved Anions						
Bromide	0.05-0.5	<0.5	0.067	0.077		
Chloride	0.5-5	125	80.1	113	600	
Fluoride	0.02-0.2	0.24	0.243	0.244	0.2 to 0.3 (g)	
Sulphate	0.5-5	**582**	**324**	**476**	100	
Nutrients						
Ammonium Nitrogen (as N)	0.02	0.021	0.021	0.041	0.681 to 28.3 (h,i)	0.0536 to 185 (h,i)
Nitrate (as N)	0.005-0.05	0.442	0.0931	0.167	200	13
Nitrite (as N)	0.001-0.01	0.019	0.0011	0.0036	0.06 to 0.6 (j)	0.06
Orthophosphate (as P)	0.001	0.0277	0.073			
Phosphorus (Total) (as P)	0.002-0.02	0.0326	0.08			
Total Nitrogen	0.05	0.563	0.637	0.365		
Cyanide						
Cyanide (Free)	0.005	<0.005	<0.005	<0.005		0.005
Cyanide (Total)	0.005	<0.005	0.0071			
Cyanide (WAD)	0.005	<0.005	<0.005	<0.005	0.01	
Dissolved Metals						
Aluminum (Dissolved)	0.01-0.025	<0.025	<0.01	<0.025	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ (k)	0.005 to 0.1 (k)
Antimony (Dissolved)	0.001-0.0025	<0.0025	<0.001	<0.0025		
Arsenic (Dissolved)	0.001-0.0025	<0.0025	0.0025	<0.0025	0.005	0.005
Barium (Dissolved)	0.02	0.065	0.056	0.056	5	
Beryllium (Dissolved)	0.002-0.005	<0.005	<0.002	<0.005	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Dissolved)	0.000034-0.000085	<0.000085	0.000052	<0.000085	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)
Calcium (Dissolved)	0.1	147	102	132		
Chromium (Dissolved)	0.002-0.005	<0.005	<0.002	<0.005		
Cobalt (Dissolved)	0.0006-0.0015	<0.0015	<0.0006	<0.0015	0.11	
Copper (Dissolved)	0.002-0.005	<0.005	0.0028	<0.005	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Dissolved)	0.03	0.031	<0.03	<0.03	0.3	0.3
Lead (Dissolved)	0.001-0.0025	<0.0025	<0.001	<0.0025	0.003 to $e^{(1.273*ln(Hardness)-1.460)}/1000$ (g)	0.001 to 0.007 (g)
Lithium (Dissolved)	0.01-0.025	<0.025	<0.01	<0.025		
Magnesium (Dissolved)	0.1	137	96.7	110		
Manganese (Dissolved)	0.0006-0.0015	0.0589	0.0432	0.117	(0.01102*Hardness)+0.54 (g)	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Dissolved)	0.002-0.005	0.011	0.0147	0.0121	2	0.073
Nickel (Dissolved)	0.002-0.005	<0.005	0.0029	0.0054	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Dissolved)	2	20.4	19	20.4		
Selenium (Dissolved)	0.002-0.005	<0.005	<0.002	<0.005	0.002	0.001
Silver (Dissolved)	0.00004-0.0001	<0.0001	<0.00004	<0.0001	0.0001 to 0.003 (g)	0.0001
Sodium (Dissolved)	2	109	83.7	101		
Thallium (Dissolved)	0.0004-0.001	<0.001	<0.0004	<0.001	0.0003	0.0008
Tin (Dissolved)	0.001-0.0025	<0.0025	<0.001	<0.0025		
Titanium (Dissolved)	0.01	<0.01	<0.01	0.01		
Uranium (Dissolved)	0.0004-0.001	0.0038	0.00234	0.0035		
Vanadium (Dissolved)	0.002-0.005	<0.005	0.0037	<0.005	0.006	
Zinc (Dissolved)	0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Total Metals						
Aluminum (Total)	0.01-0.025	<0.025	**0.174**	0.043		0.005 to 0.1 (k)
Antimony (Total)	0.001-0.0025	<0.0025	<0.001	<0.0025		
Arsenic (Total)	0.001-0.0025	<0.0025	0.0026	<0.0025	0.005	0.005
Barium (Total)	0.02	0.065	0.054	0.057	5	
Beryllium (Total)	0.002-0.005	<0.005	<0.002	<0.005	0.0053	
Boron (Total)	0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Total)	0.000034-0.000085	<0.000085	0.000058	<0.000085	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)
Calcium (Total)	0.1	146	100	132		
Chromium (Total)	0.002-0.005	<0.005	<0.002	<0.005		
Cobalt (Total)	0.0006-0.0015	<0.0015	<0.0006	<0.0015	0.11	
Copper (Total)	0.002-0.005	<0.005	**0.0045**	<0.005	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Total)	0.03	0.05	0.249	0.099	0.3	0.3
Lead (Total)	0.001-0.0025	<0.0025	<0.001	<0.0025	0.003 to $e^{(1.273*ln(Hardness)-1.460)}/1000$ (g)	0.001 to 0.007 (g)
Lithium (Total)	0.01-0.025	<0.025	<0.01	<0.025		
Magnesium (Total)	0.1	137	94.1	112		
Manganese (Total)	0.0006-0.0015	0.0603	0.0702	0.123	(0.01102*Hardness)+0.54 (g)	
Mercury (Total)	0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Total)	0.002-0.005	0.011	0.0147	0.0119	2	0.073
Nickel (Total)	0.002-0.005	<0.005	0.0043	0.0056	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Total)	2	20.5	18.9	20.6		
Selenium (Total)	0.002-0.005	<0.005	<0.002	<0.005	0.002	0.001
Silver (Total)	0.00004-0.0001	<0.0001	<0.00004	<0.0001	0.0001 to 0.003 (g)	0.0001
Sodium (Total)	2	109	82.6	104		
Thallium (Total)	0.0004-0.001	<0.001	<0.0004	<0.001	0.0003	0.0008
Tin (Total)	0.001-0.0025	<0.0025	<0.001	<0.0025		
Titanium (Total)	0.01	<0.01	0.012	0.012		
Uranium (Total)	0.0004-0.001	0.0038	0.00237	0.0034		
Vanadium (Total)	0.002-0.005	<0.005	0.0044	<0.005	0.006	
Zinc (Total)	0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Organics						
Dissolved Organic Carbon	0.5	6.93	11.2	6.44		

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.1 Water Quality PC02.xls]Table 6.1

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME

(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB

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TABLE 6.2

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR PC03

Print Feb/03/11 14:04:26

Date Sampled / Time Sampled	MDL	2-May-07 9:00 AM	18-Jul-07 10:10 AM	28-Apr-08 11:30 AM	7-Jul-08 12:05 PM	4-Sep-08 10:00 AM	BCWQG (b)	CCME (c)
In Situ Parameters								
Conductivity (In Situ) (uS/cm)	---	652	824	1295	823	599		
Dissolved Oxygen (In Situ) (%)	---			87.5	112	60.9		
Dissolved Oxygen (In Situ)	---	7.87		9.61	10.2	6.22		
pH (In Situ)	---	8.09	7.59	8.32	8.11	7.8	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---				-106	-71.4		
Specific Conductivity (In Situ) (uS/cm)	---	929	933	1780	909	782		
Temperature (In Situ) (°C)	---	9.4	18.9	10.7	20	12.8		
Physical Tests								
Color (TCU)	5	21.3	35.2	27.1	44.2	37.3		
Hardness	0.7	425	371	880	391	364		
pH	0.01	8.25	8.29	8.34	8.37	8.28	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	877	855	1790	896	867		
Total Alkalinity (as CaCO3)	2	253	276	471	339	326		
Total Dissolved Solids	10 - 13	572	544	1320	565	528		
Total Suspended Solids	3	<3	4.6	3.3	4.5	3.3		
Turbidity (NTU)	0.1			1.43	0.9	3.54		
Dissolved Anions								
Bromide	0.05-2.5	<0.05	<0.05	<2.5	<0.05	<0.05		
Chloride	0.5-25	60.3	61.6	57	55.8	61.5	600	
Fluoride	0.02-1	0.206		**1.1**	0.236	0.224	0.2 to 0.3 (g)	
Sulphate	0.5-25	**145**	92.9	**568**	99.3	70.6	100	
Nutrients								
Ammonium Nitrogen (as N)	0.02	0.152	0.037	0.025	0.033	0.035	0.681 to 28.3 (h,i)	0.0536 to 185 (h,i)
Nitrate (as N)	0.005-0.25	<0.005	<0.005	0.76	<0.005	0.0546	200	13
Nitrite (as N)	0.001-0.05	<0.001	<0.001	**0.157**	<0.001	0.0293	0.06 to 0.6 (j)	0.06
Orthophosphate (as P)	0.001	0.0067	0.0557	0.0117	0.0353	0.121		
Phosphorus (Total) (as P)	0.002-0.02	0.0337	0.0847	0.045	0.0701	0.128		
Total Nitrogen	0.05	0.852	1.1	0.836	1.01	0.746		
Cyanide								
Cyanide (Free)	0.005			<0.005	<0.005	<0.005		0.005
Cyanide (Total)	0.005	0.0067	0.0109	0.0081	0.0101			
Cyanide (WAD)	0.005			<0.005	<0.005	<0.005	0.01	
Dissolved Metals								
Aluminum (Dissolved)	0.005-0.025	<0.005	<0.005	<0.025	<0.01	<0.01	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ (k)	0.005 to 0.1 (k)
Antimony (Dissolved)	0.0005-0.0025	<0.0005	<0.0005	<0.0025	<0.001	<0.001		
Arsenic (Dissolved)	0.0005-0.0025	0.00136	0.002	<0.0025	0.0021	0.0022	0.005	0.005
Barium (Dissolved)	0.02	0.045	0.04	0.096	0.059	0.062	5	
Beryllium (Dissolved)	0.001-0.005	<0.001	<0.001	<0.005	<0.002	<0.002	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Dissolved)	0.000017-0.000085	0.000023	0.000039	0.000143	0.00004	<0.000034	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)
Calcium (Dissolved)	0.1	69.2	59.7	126	62.6	58.7		
Chromium (Dissolved)	0.001-0.005	<0.003	<0.001	<0.005	<0.002	<0.002		
Cobalt (Dissolved)	0.0003-0.0015	<0.0003	<0.0003	<0.0015	<0.0006	<0.0006	0.11	
Copper (Dissolved)	0.001-0.005	0.0022	<0.001	<0.005	<0.002	<0.002	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Dissolved)	0.03	<0.03	0.068	0.037	0.058	0.035	0.3	0.3
Lead (Dissolved)	0.0005-0.0025	<0.0005	<0.0005	<0.0025	<0.001	<0.001	0.003 to $e^{(1.273*ln(Hardness)-1.460)}/1000$ (g)	0.001 to 0.007 (g)
Lithium (Dissolved)	0.005-0.025	0.0077	<0.005	<0.025	<0.01	<0.01		
Magnesium (Dissolved)	0.1	61.3	53.9	137	57	52.7		
Manganese (Dissolved)	0.0003-0.0015	0.00817	0.062	0.115	0.0676	0.0991	(0.01102*Hardness)+0.54 (g)	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Dissolved)	0.001-0.005	0.023	0.0095	0.0438	0.0119	0.0111	2	0.073
Nickel (Dissolved)	0.001-0.005	0.0014	<0.001	<0.005	<0.002	<0.002	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Dissolved)	2	13.1	12.2	19.8	16	15.2		
Selenium (Dissolved)	0.001-0.005	<0.001	<0.001	<0.005	<0.002	<0.002	0.002	0.001
Silver (Dissolved)	0.00002-0.0001	<0.00002	<0.00002	<0.0001	<0.00004	<0.00004	0.0001 to 0.003 (g)	0.0001
Sodium (Dissolved)	2	52.4	48.5	97.4	50.3	48.8		
Thallium (Dissolved)	0.0002-0.001	<0.0002	<0.0002	<0.001	<0.0004	<0.0004	0.0003	0.0008
Tin (Dissolved)	0.0005-0.0025	<0.0005	<0.0005	<0.0025	<0.001	<0.001		
Titanium (Dissolved)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Dissolved)	0.0002-0.001	0.00179	0.00085	0.0031	0.00063	0.00105		
Vanadium (Dissolved)	0.002-0.03	<0.03	<0.03	<0.005	<0.002	0.0026	0.006	
Zinc (Dissolved)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Total Metals								
Aluminum (Total)	0.005-0.025	0.014	0.012	<0.025	0.012	0.072		0.005 to 0.1 (k)
Antimony (Total)	0.0005-0.0025	<0.0005	<0.0005	<0.0025	<0.001	<0.001		
Arsenic (Total)	0.0005-0.0025	0.00101	0.0017	<0.0025	0.002	0.002	0.005	0.005
Barium (Total)	0.02	0.042	0.039	0.095	0.062	0.062	5	
Beryllium (Total)	0.001-0.005	<0.001	<0.001	<0.005	<0.002	<0.002	0.0053	
Boron (Total)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Total)	0.000017-0.000085	<0.000017	0.000035	0.000137	0.000034	0.000053	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)
Calcium (Total)	0.1	66.9	58.6	128	62.7	55.6		
Chromium (Total)	0.001-0.005	<0.001	<0.001	<0.005	<0.002	<0.002		
Cobalt (Total)	0.0003-0.0015	<0.0003	<0.0003	<0.0015	<0.0006	<0.0006	0.11	
Copper (Total)	0.001-0.005	0.0025	<0.001	<0.005	<0.002	0.0022	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Total)	0.03	0.049	0.086	0.081	0.091	0.125	0.3	0.3
Lead (Total)	0.0005-0.0025	<0.0005	<0.0005	<0.0025	<0.001	<0.001	0.003 to $e^{(1.273*ln(Hardness)-1.460)}/1000$ (g)	0.001 to 0.007 (g)
Lithium (Total)	0.005-0.025	0.0068	<0.005	<0.025	<0.01	<0.01		
Magnesium (Total)	0.1	58.7	52.3	137	56.3	50.4		
Manganese (Total)	0.0003-0.0015	0.0153	0.0675	0.123	0.0715	0.109	(0.01102*Hardness)+0.54 (g)	
Mercury (Total)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Total)	0.001-0.005	0.0215	0.0094	0.0435	0.0114	0.011	2	0.073
Nickel (Total)	0.001-0.005	0.0015	<0.001	<0.005	<0.002	0.0026	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Total)	2	12.5	11.8	19.9	15.8	15		
Selenium (Total)	0.001-0.005	<0.001	<0.001	<0.005	<0.002	<0.002	0.002	0.001
Silver (Total)	0.00002-0.0001	<0.00002	<0.00002	<0.0001	<0.00004	<0.00004	0.0001 to 0.003 (g)	0.0001
Sodium (Total)	2	51.2	47	96.6	49.6	46.7		
Thallium (Total)	0.0002-0.001	<0.0002	<0.0002	<0.001	<0.0004	<0.0004	0.0003	0.0008
Tin (Total)	0.0005-0.0025	<0.0005	<0.0005	<0.0025	<0.001	<0.001		
Titanium (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Total)	0.0002-0.001	0.00166	0.00083	0.0031	0.00061	0.00106		
Vanadium (Total)	0.002-0.03	<0.03	<0.03	<0.005	<0.002	0.0027	0.006	
Zinc (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Organics								
Dissolved Organic Carbon	0.5		17	13.5	17.6	17.8		
Total Organic Carbon	0.5	14.8						

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.2 Water Quality PC03.xls]Table 6.2

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME
(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB

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TABLE 6.3

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR PC08

Print Feb/03/11 14:14:52

Date Sampled / Time Sampled	MDL	2-May-07 11:00 AM	17-Jul-07 5:15 PM	14-Sep-07 10:15 AM	28-Apr-08 1:30 PM	7-Jul-08 1:20 PM	4-Sep-08 9:30 AM	BCWQG (b)	CCME (c)
In Situ Parameters									
Conductivity (In Situ) (uS/cm)	---	518		621	626	595	610		
Dissolved Oxygen (In Situ) (%)	---				94.2	85.1	80.2		
Dissolved Oxygen (In Situ)	---	11	9.4	8.02	10.1	7.84	8.44		
pH (In Situ)	---	8.6	8.44	7.05	8.26	8.34	8	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---					-119	-75.2		
Specific Conductivity (In Situ) (uS/cm)	---	969	755	847	826	674	793		
Temperature (In Situ) (°C)	---	8.01	23.2	11.1	12.3	19.3	12.9		
Physical Tests									
Color (TCU)	5	14	16.1	21.7	14.5	20.2	23.7		
Hardness	0.7	342	319	344	370	296	335		
pH	0.01	8.38	8.45	8.16	8.1	8.43	8.12	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	725	756	845	845	672	802		
Total Alkalinity (as CaCO3)	2	231	238	315	295	220	314		
Total Dissolved Solids	10	455	441	502	515	416	478		
Total Suspended Solids	3	7.5	7.6	18.7	6.8	4	10.8		
Turbidity (NTU)	0.1				6.59	6.63	3.38		
Dissolved Anions									
Bromide	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Chloride	0.5	60.7	61	61.2	60.5	52.8	58.7	600	
Fluoride	0.02	0.192		0.274	0.237	0.194	0.264	0.2 to 0.3 (g)	
Sulphate	0.5	85	83	54.5	80.2	64.9	51.3	100	
Sulphite	0.5			<0.5					
Nutrients									
Ammonium Nitrogen (as N)	0.02	0.029	0.081	0.024	0.02	0.197	0.36	0.681 to 28.3 (h,i)	0.0536 to 185 (h,i)
Nitrate (as N)	0.005	<0.005	0.005	<0.005	<0.005	0.0146	<0.005	200	13
Nitrite (as N)	0.001	<0.001	0.0024	<0.001	<0.001	0.0012	0.0014	0.06 to 0.6 (j)	0.06
Orthophosphate (as P)	0.001	0.0026	0.0027	0.0056	0.0024	<0.001	0.01		
Phosphorus (Dissolved) (as P)	0.002			0.0158					
Phosphorus (Total) (as P)	0.002	0.0433	0.0302	0.082	0.0435	0.031	0.0598		
Total Nitrogen	0.05	1	1.03	0.836	0.842	1.56	1.48		
Cyanide									
Cyanide (Free)	0.005				<0.005	<0.005			0.005
Cyanide (Total)	0.005	0.0057	0.006	0.0078	0.0065	0.0077			
Cyanide (WAD)	0.005				<0.005	<0.005		0.01	
Dissolved Metals									
Aluminum (Dissolved)	0.005-0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ (k)	0.005 to 0.1 (k)
Antimony (Dissolved)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001		
Arsenic (Dissolved)	0.0005-0.001	0.00105	0.00127	0.00158	0.0009	0.00133	0.0018	0.005	0.005
Barium (Dissolved)	0.02	0.05	0.043	0.044	0.072	0.048	0.062	5	
Beryllium (Dissolved)	0.001-0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Dissolved)	0.000017-0.000034	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000034	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ (g)	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ (g)
Calcium (Dissolved)	0.1	61.4	53.1	67.4	72.7	51.5	64.7		
Chromium (Dissolved)	0.001-0.003	<0.003	<0.001	<0.001	0.0012	<0.001	<0.002		
Cobalt (Dissolved)	0.0003-0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0006	0.11	
Copper (Dissolved)	0.001-0.002	<0.001	<0.001	<0.001	0.0013	<0.001	<0.002	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Dissolved)	0.03	<0.03	<0.03	0.082	0.073	0.032	0.176	0.3	0.3
Lead (Dissolved)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.003 to $e^{(1.273*\ln(Hardness)-1.460)}/1000$ (g)	0.001 to 0.007 (g)
Lithium (Dissolved)	0.005-0.01	0.0059	0.0076	0.0063	<0.005	0.0053	<0.01		
Magnesium (Dissolved)	0.1	46	45.3	42.7	45.7	40.6	42.2		
Manganese (Dissolved)	0.0003-0.0006	0.00482	0.00425	0.183	0.185	0.0082	0.0955	(0.01102*Hardness)+0.54 (g)	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Dissolved)	0.001-0.002	0.0026	0.0029	0.003	0.0021	0.0024	0.0032	2	0.073
Nickel (Dissolved)	0.001-0.002	<0.001	<0.001	0.0025	0.0017	<0.001	0.0022	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Dissolved)	2	11.1	10.5	12.1	10.3	12	12.4		
Selenium (Dissolved)	0.001-0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	0.002	0.001
Silver (Dissolved)	0.00002-0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004	0.0001 to 0.003 (g)	0.0001
Sodium (Dissolved)	2	43.5	40.2	45.9	39	35.7	40.1		
Thallium (Dissolved)	0.0002-0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	0.0003	0.0008
Tin (Dissolved)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001		
Titanium (Dissolved)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Dissolved)	0.0002-0.0004	0.00122	0.0013	0.0004	0.00056	0.00107	0.00062		
Vanadium (Dissolved)	0.001-0.03	<0.03	<0.03	<0.03	<0.001	0.0018	<0.002	0.006	
Zinc (Dissolved)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Total Metals									
Aluminum (Total)	0.005-0.01	**0.111**	0.0169	**0.193**	0.0559	0.0354	**0.262**		0.005 to 0.1 (k)
Antimony (Total)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001		
Arsenic (Total)	0.0005-0.001	0.00108	0.00125	0.00191	0.0012	0.00154	0.002	0.005	0.005
Barium (Total)	0.02	0.049	0.043	0.057	0.077	0.05	0.071	5	
Beryllium (Total)	0.001-0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	0.0053	
Boron (Total)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Total)	0.000017-0.000034	<0.000017	<0.000017	0.000018	<0.000017	<0.000017	<0.000034	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ (g)	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ (g)
Calcium (Total)	0.1	59.8	53.6	64.4	73.8	44.1	65.2		
Chromium (Total)	0.001-0.002	<0.001	<0.001	<0.001	0.0015	<0.001	<0.002		
Cobalt (Total)	0.0003-0.0006	<0.0003	<0.0003	0.00037	<0.0003	<0.0003	<0.0006	0.11	
Copper (Total)	0.001-0.002	0.0015	<0.001	0.0028	0.0024	0.0015	**0.0048**	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Total)	0.03	0.153	0.04	**1.37**	**1.23**	0.078	**1.04**	0.3	0.3
Lead (Total)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	0.003 to $e^{(1.273*\ln(Hardness)-1.460)}/1000$ (g)	0.001 to 0.007 (g)
Lithium (Total)	0.005-0.01	0.0057	0.0071	0.0059	<0.005	0.0065	<0.01		
Magnesium (Total)	0.1	44.4	46.8	41.3	46	40	42.2		
Manganese (Total)	0.0003-0.0006	0.0121	0.00632	0.215	0.188	0.0159	0.102	(0.01102*Hardness)+0.54 (g)	
Mercury (Total)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Total)	0.001-0.002	0.0026	0.0026	0.0029	0.0021	0.0028	0.0031	2	0.073
Nickel (Total)	0.001-0.002	0.0011	<0.001	0.0034	0.0018	<0.001	0.0031	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Total)	2	10.9	10.6	11.6	10.2	12.8	12.9		
Selenium (Total)	0.001-0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	0.002	0.001
Silver (Total)	0.00002-0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004	0.0001 to 0.003 (g)	0.0001
Sodium (Total)	2	42	40.4	44.3	39.1	38.9	38.7		
Thallium (Total)	0.0002-0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	0.0003	0.0008
Tin (Total)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001		
Titanium (Total)	0.01	<0.01	<0.01	0.013	<0.01	<0.01	0.017		
Uranium (Total)	0.0002-0.0004	0.00125	0.00114	0.00036	0.00055	0.00126	0.00064		
Vanadium (Total)	0.001-0.03	<0.03	<0.03	<0.03	0.002	0.0023	0.0032	0.006	
Zinc (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Organics									
Dissolved Organic Carbon	0.5		14.8	13.2	11.7	15.9	14.7		
Total Organic Carbon	0.5	14.9							

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.3 Water Quality PC08.xlsx]T4.3-PC08

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME

(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB

Knight Piésold
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TABLE 6.4

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR JC03

Print Feb/03/11 14:16:03

Date Sampled / Time Sampled	MDL	28-Apr-08 3:05 PM	7-Jul-08 10:10 AM	Samples Collected	Samples below MDL	Max	Mean	Standard Deviation	BCWQG (b)	CCME (c)
In Situ Parameters										
Conductivity (In Situ) (uS/cm)	---	598	519	2		598	559	55.9		
Dissolved Oxygen (In Situ) (%)	---	82.2	81.5	2		82.2	81.9	0.495		
Dissolved Oxygen (In Situ)	---	9.18	8.56	2		9.18	8.87	0.438		
pH (In Situ)	---		7.8	1		7.8	7.8	-	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---		-86.1	1		-86.1	-86.1	-		
Specific Conductivity (In Situ) (uS/cm)	---	830	675	2		830	753	110		
Temperature (In Situ) (°C)	---	10.4	13	2		12.98	11.7	1.82		
Physical Tests										
Color (TCU)	5	20	27.4	2		27.4	23.7	5.23		
Hardness	0.7	383	306	2		383	345	54.4		
pH	0.01	8.2	8.4	2		8.4	8.3	0.141	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	842	665	2		842	754	125		
Total Alkalinity (as CaCO3)	2	306	295	2		306	301	7.78		
Total Dissolved Solids	10	516	397	2		516	457	84.1		
Total Suspended Solids	3	89.8	12.5	2		89.8	51.2	54.7		
Turbidity (NTU)	0.1	66.7	8.04	2		66.7	37.4	41.5		
Dissolved Anions										
Bromide	0.05	<0.05	<0.05	2	2	-	-	-		
Chloride	0.5	71.4	31.7	2		71.4	51.6	28.1	600	
Fluoride	0.02	0.167	0.22	2		0.22	0.194	0.0375	0.2 to 0.3 (g)	
Sulphate	0.5	47.8	24	2		47.8	35.9	16.8	100	
Sulphite	0.5		<0.5	1	1	-	-	-		
Nutrients										
Ammonium Nitrogen (as N)	0.02	0.079	0.075	2		0.079	0.077	0.00283	0.681 to 28.3 (h,i)	0.0536 to 185 (h,i)
Nitrate (as N)	0.005	0.0717	0.056	2		0.0717	0.0638	0.0111	200	13
Nitrite (as N)	0.001	0.0042	0.0036	2		0.0042	0.0039	0.000424	0.06 to 0.6 (j)	0.06
Orthophosphate (as P)	0.001-0.01	0.0645	0.119	2		0.119	0.0917	0.0385		
Phosphorus (Total) (as P)	0.02	0.435	0.161	2		0.435	0.298	0.194		
Total Nitrogen	0.05	2.24	0.516	2		2.24	1.38	1.22		
Cyanide										
Cyanide (Free)	0.005	<0.005	<0.005	2	2	-	-	-		0.005
Cyanide (Total)	0.005	0.0134	0.0081	2		0.0134	0.0107	0.00375		
Cyanide (WAD)	0.005	<0.005	<0.005	2	2	-	-	-	0.01	
Dissolved Metals										
Aluminum (Dissolved)	0.005	0.0064	<0.005	2	1	0.0064	0.0057	0.00099	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ (k)	0.005 to 0.1 (k)
Antimony (Dissolved)	0.0005	<0.0005	<0.0005	2	2	-	-	-		
Arsenic (Dissolved)	0.0005	0.00108	0.00164	2		0.00164	0.0014	0.000396	0.005	0.005
Barium (Dissolved)	0.02	0.089	0.075	2		0.089	0.082	0.0099	5	
Beryllium (Dissolved)	0.001	<0.001	<0.001	2	2	-	-	-	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	2	2	-	-	-	1.2	
Cadmium (Dissolved)	0.000017	<0.000017	<0.000017	2	2	-	-	-	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)
Calcium (Dissolved)	0.1	95.2	78.1	2		95.2	86.7	12.1		
Chromium (Dissolved)	0.001	0.0011	<0.001	2	1	0.0011	0.001	0.0000707		
Cobalt (Dissolved)	0.0003	<0.0003	<0.0003	2	2	-	-	-	0.11	
Copper (Dissolved)	0.001	0.002	0.0017	2		0.002	0.0018	0.000212	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Dissolved)	0.03	0.04	0.119	2		0.119	0.0795	0.0559	0.3	0.3
Lead (Dissolved)	0.0005	<0.0005	<0.0005	2	2	-	-	-	0.003 to $e^{(1.273*ln(Hardness)-1.460)}/1000$ (g)	0.001 to 0.007 (g)
Lithium (Dissolved)	0.005	<0.005	<0.005	2	2	-	-	-		
Magnesium (Dissolved)	0.1	35.4	26.9	2		35.4	31.2	6.01		
Manganese (Dissolved)	0.0003	0.0748	0.0581	2		0.0748	0.0664	0.0118	(0.01102*Hardness)+0.54 (g)	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	2	2	-	-	-	0.0001	0.000026
Molybdenum (Dissolved)	0.001	0.0017	0.0018	2		0.0018	0.0017	0.0000707	2	0.073
Nickel (Dissolved)	0.001	<0.001	0.0012	2	1	0.0012	0.0011	0.000141	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Dissolved)	2	9.3	9.2	2		9.3	9.25	0.0707		
Selenium (Dissolved)	0.001	<0.001	<0.001	2	2	-	-	-	0.002	0.001
Silver (Dissolved)	0.00002	<0.00002	<0.00002	2	2	-	-	-	0.0001 to 0.003 (g)	0.0001
Sodium (Dissolved)	2	33	25.9	2		33	29.5	5.02		
Thallium (Dissolved)	0.0002	<0.0002	<0.0002	2	2	-	-	-	0.0003	0.0008
Tin (Dissolved)	0.0005	<0.0005	<0.0005	2	2	-	-	-		
Titanium (Dissolved)	0.01	<0.01	<0.01	2	2	-	-	-		
Uranium (Dissolved)	0.0002	0.00135	0.00093	2		0.00135	0.0011	0.000297		
Vanadium (Dissolved)	0.001	0.003	0.0027	2		0.003	0.0028	0.000212	0.006	
Zinc (Dissolved)	0.005	<0.005	<0.005	2	2	-	-	-	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Total Metals										
Aluminum (Total)	0.005	**1.7**	**0.157**	2		1.7	0.929	1.09		0.005 to 0.1 (k)
Antimony (Total)	0.0005	<0.0005	<0.0005	2	2	-	-	-		
Arsenic (Total)	0.0005	0.00153	0.00163	2		0.00163	0.0016	0.0000707	0.005	0.005
Barium (Total)	0.02	0.115	0.075	2		0.115	0.095	0.0283	5	
Beryllium (Total)	0.001	<0.001	<0.001	2	2	-	-	-	0.0053	
Boron (Total)	0.1	<0.1	<0.1	2	2	-	-	-	1.2	
Cadmium (Total)	0.000017	0.000027	<0.000017	2	1	0.000027		0.00000707	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)	$10^{(0.86*(log(Hardness))-3.2)}/1000$ (g)
Calcium (Total)	0.1	99.4	74.2	2		99.4	86.8	17.8		
Chromium (Total)	0.001	0.0047	<0.001	2	1	0.0047	0.0028	0.00262		
Cobalt (Total)	0.0003	0.0017	<0.0003	2	1	0.0017	0.001	0.00099	0.11	
Copper (Total)	0.001	**0.0151**	0.0032	2		0.0151	0.0091	0.00841	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Total)	0.03	**2.89**	**0.382**	2		2.89	1.64	1.77	0.3	0.3
Lead (Total)	0.0005	<0.0005	<0.0005	2	2	-	-	-	0.003 to $e^{(1.273*ln(Hardness)-1.460)}/1000$ (g)	0.001 to 0.007 (g)
Lithium (Total)	0.005	0.0058	<0.005	2	1	0.0058	0.0054	0.000566		
Magnesium (Total)	0.1	35.7	26.6	2		35.7	31.2	6.43		
Manganese (Total)	0.0003	0.179	0.0723	2		0.179	0.126	0.0754	(0.01102*Hardness)+0.54 (g)	
Mercury (Total)	0.00002	<0.00002	<0.00002	2	2	-	-	-	0.0001	0.000026
Molybdenum (Total)	0.001	0.0016	0.0021	2		0.0021	0.0018	0.000354	2	0.073
Nickel (Total)	0.001	0.0055	0.0018	2		0.0055	0.0036	0.00262	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Total)	2	9.5	8.7	2		9.5	9.1	0.566		
Selenium (Total)	0.001	<0.001	<0.001	2	2	-	-	-	0.002	0.001
Silver (Total)	0.00002	<0.00002	<0.00002	2	2	-	-	-	0.0001 to 0.003 (g)	0.0001
Sodium (Total)	2	31.7	24.3	2		31.7	28	5.23		
Thallium (Total)	0.0002	<0.0002	<0.0002	2	2	-	-	-	0.0003	0.0008
Tin (Total)	0.0005	<0.0005	<0.0005	2	2	-	-	-		
Titanium (Total)	0.01	0.072	0.012	2		0.072	0.042	0.0424		
Uranium (Total)	0.0002	0.00149	0.00097	2		0.00149	0.0012	0.000368		
Vanadium (Total)	0.001	**0.0089**	0.0035	2		0.0089	0.0062	0.00382	0.006	
Zinc (Total)	0.005	0.0076	<0.005	2	1	0.0076	0.0063	0.00184	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Organics										
Dissolved Organic Carbon	0.5	9.19	11.2	2		11.2	10.2	1.42		

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.4 Water Quality JC-03.xls]Table 6.4

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME

(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB

Knight Piésold
CONSULTING

TABLE 6.5

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR JACL-S

Print Feb/03/11 14:17:28

Date Sampled / Time Sampled	MDL	3-May-07 2:15 PM	19-Jul-07 11:45 AM	20-Sep-07 11:45 AM	29-Apr-08 9:30 AM	10-Jul-08 7:25 AM	7-Sep-08 9:00 AM	BCWQG [b]	CCME [c]
In Situ Parameters									
Conductivity (In Situ) (uS/cm)	---	518	692	608	490	612	2264		
Dissolved Oxygen (In Situ) (%)	---				94.2	92	106		
Dissolved Oxygen (In Situ)	---	14.7	9.67	8.2	11.9	8.43	10.5		
pH (In Situ)	---	8.73	8.62	8.87	8.21	8.29	8.39	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---					-116			
Specific Conductivity (In Situ) (uS/cm)	---	749	745	762	778	684	2753		
Temperature (In Situ) (°C)	---	8.81	21.3	14.5	5.61	19.5	15.7		
Physical Tests									
Color (TCU)	5		13.9	12.7	12.4	19.4	16.3		
Hardness	0.7	322	323	309	335	273	291		
pH	0.01	8.55	8.58	8.36	8.1	8.44	8.35	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	725	732	736	777	678	717		
Total Alkalinity (as CaCO3)	1 - 2	246	229	231	252	218	230		
Total Dissolved Solids	10 - 20	450	453	461	465	416	431		
Total Suspended Solids	3	<3	5.6	<3	5.8	4.3	<3		
Turbidity (NTU)	0.1				2.31	8.57	1.09		
Dissolved Anions									
Bromide	0.05-0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05		
Chloride	0.5-5	60.3	59.6	61.6	60.5	53.4	59.1	600	
Fluoride	0.02-0.2	0.19		0.2	0.174	0.174	0.199	0.2 to 0.3 [g]	
Sulphate	0.5-5	84.5	81.7	83.9	83.5	66.2	74.6	100	
Nutrients									
Ammonium Nitrogen (as N)	0.02	0.028	0.035	0.055	<0.02	0.037	0.098	0.681 to 28.3 [h,i]	0.0536 to 185 [h,i]
Nitrate (as N)	0.005-0.05	<0.05	<0.005	0.0118	<0.005	<0.005	0.0293	200	13
Nitrite (as N)	0.001-0.01	<0.01	<0.001	0.0034	<0.001	<0.001	0.0136	0.06 to 0.6 [j]	0.06
Orthophosphate (as P)	0.001	<0.001	<0.001	0.0016	0.0074	<0.001	0.0021		
Phosphorus (Total) (as P)	0.002-0.02	0.0343	0.0279	0.0203	0.124	0.0307	0.0227		
Total Nitrogen	0.05	0.895	1.1	0.943	1.62	1.38	1.26		
Cyanide									
Cyanide (Free)	0.005				<0.005	<0.005			0.005
Cyanide (Total)	0.005	0.0062	0.0056	0.0099	<0.005	0.0082			
Cyanide (WAD)	0.005				<0.005	<0.005		0.01	
Dissolved Metals									
Aluminum (Dissolved)	0.005-0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ [k]	0.005 to 0.1 [k]
Antimony (Dissolved)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Arsenic (Dissolved)	0.0005-0.005	0.0012	0.00141	0.00131	0.00118	0.00138	0.00168	0.005	0.005
Barium (Dissolved)	0.02	0.057	0.056	0.057	0.058	0.051	0.06	5	
Beryllium (Dissolved)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Dissolved)	0.000017-0.00017	<0.00017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ [g]	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ [g]
Calcium (Dissolved)	0.1	58.8	54	50.8	57.3	45.1	48.6		
Chromium (Dissolved)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.002		
Cobalt (Dissolved)	0.0003-0.003	<0.003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.11	
Copper (Dissolved)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	0.0013	0.0016	(0.094*(Hardness)+2)/1000 [g]	0.002 to 0.004 [g]
Iron (Dissolved)	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.3	0.3
Lead (Dissolved)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 to $e^{(1.273*\ln(Hardness)-1.460)}/1000$ [g]	0.001 to 0.007 [g]
Lithium (Dissolved)	0.005-0.05	<0.05	0.0068	0.0069	0.0063	<0.007	0.0066		
Magnesium (Dissolved)	0.1	42.6	45.7	44.3	46.7	38.9	41.2		
Manganese (Dissolved)	0.0003-0.003	0.00088	0.001	0.00129	0.00111	0.00446	0.00216	(0.01102*Hardness)+0.54 [g]	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Dissolved)	0.001-0.01	<0.01	0.0029	0.0031	0.0025	0.0027	0.003	2	0.073
Nickel (Dissolved)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.001	0.0015	0.025 to 0.150 [g]	0.025 to 0.15 [g]
Potassium (Dissolved)	2	11.8	12.4	12.4	12.1	11.8	13.3		
Selenium (Dissolved)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.001	**0.0011**	0.002	0.001
Silver (Dissolved)	0.00002-0.0002	<0.0002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001 to 0.003 [g]	0.0001
Sodium (Dissolved)	2	39	41.9	44.2	40.7	36.5	37.3		
Thallium (Dissolved)	0.0002-0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0008
Tin (Dissolved)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Titanium (Dissolved)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Dissolved)	0.0002-0.002	0.00129	0.0012	0.00117	0.00116	0.00111	0.00118		
Vanadium (Dissolved)	0.001-0.03	<0.03	<0.03	<0.03	0.0016	0.0019	0.0023	0.006	
Zinc (Dissolved)	0.005-0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 [g]	0.03
Total Metals									
Aluminum (Total)	0.005-0.05	<0.05	0.0051	0.0079	<0.005	0.0105	0.0065		0.005 to 0.1 [k]
Antimony (Total)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Arsenic (Total)	0.0005-0.005	0.0012	0.00143	0.00128	0.00116	0.00144	0.00177	0.005	0.005
Barium (Total)	0.02	0.058	0.056	0.058	0.06	0.051	0.059	5	
Beryllium (Total)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	0.0053	
Boron (Total)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Total)	0.000017-0.00017	<0.00017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ [g]	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ [g]
Calcium (Total)	0.1	59.3	54.9	50.3	57.8	44.2	48.4		
Chromium (Total)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.002		
Cobalt (Total)	0.0003-0.003	<0.003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.11	
Copper (Total)	0.001-0.01	<0.01	0.0011	0.0011	<0.001	0.0014	0.001	(0.094*(Hardness)+2)/1000 [g]	0.002 to 0.004 [g]
Iron (Total)	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.3	0.3
Lead (Total)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 to $e^{(1.273*\ln(Hardness)-1.460)}/1000$ [g]	0.001 to 0.007 [g]
Lithium (Total)	0.005-0.05	<0.05	0.0069	0.0075	0.0062	<0.008	0.0069		
Magnesium (Total)	0.1	43	45.8	44	46.9	37.9	40.9		
Manganese (Total)	0.0003-0.003	0.00622	0.0029	0.0027	0.0101	0.0102	0.00411	(0.01102*Hardness)+0.54 [g]	
Mercury (Total)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Total)	0.001-0.01	<0.01	0.0028	0.0029	0.0023	0.0029	0.0031	2	0.073
Nickel (Total)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	0.025 to 0.150 [g]	0.025 to 0.15 [g]
Potassium (Total)	2	12	12.3	12.5	12.3	11.5	13.2		
Selenium (Total)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.001
Silver (Total)	0.00002-0.0002	<0.0002	<0.00002	0.000033	<0.00002	<0.00002	<0.00002	0.0001 to 0.003 [g]	0.0001
Sodium (Total)	2	39.1	41	44.5	41.5	35.4	38.4		
Thallium (Total)	0.0002-0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0008
Tin (Total)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Titanium (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Total)	0.0002-0.002	0.00121	0.00099	0.00107	0.00079	0.00131	0.00113		
Vanadium (Total)	0.001-0.03	<0.03	<0.03	<0.03	0.0015	0.0021	0.0023	0.006	
Zinc (Total)	0.005-0.05	<0.05	<0.005	<0.005	<0.005	**0.032**	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 [g]	0.03
Organics									
Dissolved Organic Carbon	0.5	14.5	15.1	15.3	14.4	16.7	15		

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.5 Water Quality JACL-S.xls]Table 6.5

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME

(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB

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TABLE 6.6

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR JACL-D

Print Feb/03/11 14:18:56

Date Sampled / Time Sampled	MDL	3-May-07 2:45 PM	19-Jul-07 12:00 PM	20-Sep-07 12:00 PM	29-Apr-08 9:45 AM	10-Jul-08 7:45 AM	7-Sep-08 9:30 AM	BCWQG (b)	CCME (c)
In Situ Parameters									
Conductivity (In Situ) (uS/cm)	---	492		511	484	503	503		
Dissolved Oxygen (In Situ) (%)	---				62.3	1.3	1.5		
Dissolved Oxygen (In Situ)	---	0.47	0.01	0.21	7.99	0.16	0.19		
pH (In Situ)	---	7.76	7.54	8	8.1	7.42	7.29	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---					-64.4			
Specific Conductivity (In Situ) (uS/cm)	---	754	787	792	790	801	803		
Temperature (In Situ) (°C)	---	5.44	5.85	6.42	4.72	5.47	5.43		
Physical Tests									
Color (TCU)	5		13.9	15.3	21.3	12.6	14.2		
Hardness	0.7	321	337	329	341	322	320		
pH	0.01	8.24	7.99	7.9	8.12	8.2	7.85	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	749	774	779	790	793	801		
Total Alkalinity (as CaCO3)	2	248	247	280	257	250	255		
Total Dissolved Solids	10 - 20	461	471	465	447	492	470		
Total Suspended Solids	3	<3	3.6	<3	3.2	<3	<3		
Turbidity (NTU)	0.1				2.43	2.15	9.9		
Dissolved Anions									
Bromide	0.05-0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05		
Chloride	0.5-5	61.4	60	59.8	60.6	61.9	62.5	600	
Fluoride	0.02-0.2	0.191		0.207	0.172	0.175	0.198	0.2 to 0.3 (g)	
Sulphate	0.5-5	86.4	83.7	82.5	83.7	85.2	73.9	100	
Nutrients									
Ammonium Nitrogen (as N)	0.02	0.131	0.932	1.57	0.076	0.448	1.94	0.681 to 28.3 (h,i)	0.0536 to 185 (h,i)
Nitrate (as N)	0.005-0.05	0.161	<0.005	<0.005	0.0299	<0.005	<0.005	200	13
Nitrite (as N)	0.001-0.01	0.0106	<0.001	<0.001	0.0045	<0.001	<0.001	0.06 to 0.6 (j)	0.06
Orthophosphate (as P)	0.001-0.01	0.0523	0.216	0.336	0.0281	0.116	0.343		
Phosphorus (Total) (as P)	0.002-0.02	0.0788	0.257	0.362	0.0816	0.16	0.383		
Total Nitrogen	0.05	1.02	1.95	2.94	1.13	1.34	3.17		
Cyanide									
Cyanide (Free)	0.005				<0.005	<0.005	<0.005		0.005
Cyanide (Total)	0.005	0.006	0.0051	0.0117	<0.005	0.006			
Cyanide (WAD)	0.005				<0.005	<0.005	<0.005	0.01	
Dissolved Metals									
Aluminum (Dissolved)	0.005-0.05	<0.05	<0.005	0.009	<0.005	<0.01	<0.01	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ (k)	0.005 to 0.1 (k)
Antimony (Dissolved)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.001	<0.001		
Arsenic (Dissolved)	0.0005-0.005	0.0014	0.00138	0.00123	0.00126	0.0013	0.0016	0.005	0.005
Barium (Dissolved)	0.02	0.059	0.065	0.067	0.059	0.067	0.069	5	
Beryllium (Dissolved)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.002	<0.002	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Dissolved)	0.000017-0.00017	<0.00017	<0.000017	<0.000017	<0.000017	<0.000034	<0.000034	$10^{(0.86*(log(Hardness))-3.2)}$/1000 (g)	$10^{(0.86*(log(Hardness))-3.2)}$/1000 (g)
Calcium (Dissolved)	0.1	57.5	60.2	61.1	57.9	56.4	58.5		
Chromium (Dissolved)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.002	<0.004		
Cobalt (Dissolved)	0.0003-0.003	<0.003	<0.0003	<0.0003	<0.0003	<0.0006	<0.0006	0.11	
Copper (Dissolved)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.002	<0.002	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Dissolved)	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.3	0.3
Lead (Dissolved)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	0.003 to $e^{(1.273*ln(Hardness)-1.460)}$/1000 (g)	0.001 to 0.007 (g)
Lithium (Dissolved)	0.005-0.05	<0.05	0.0072	0.0063	0.0062	<0.01	<0.01		
Magnesium (Dissolved)	0.1	43	45.3	43	46.7	44	42.3		
Manganese (Dissolved)	0.0003-0.003	0.0297	0.0995	0.107	0.00936	0.086	0.0982	(0.01102*Hardness)+0.54 (g)	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Dissolved)	0.001-0.01	<0.01	0.0021	0.0011	0.0024	0.0025	<0.002	2	0.073
Nickel (Dissolved)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.002	<0.002	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Dissolved)	2	12.3	12.6	12.4	12.2	12.6	13		
Selenium (Dissolved)	0.001-0.01	<0.01	**0.0034**	<0.001	<0.001	<0.002	**0.0107**	0.002	0.001
Silver (Dissolved)	0.00002-0.0002	<0.0002	<0.00002	<0.00002	<0.00002	<0.00004	<0.00004	0.0001 to 0.003 (g)	0.0001
Sodium (Dissolved)	2	39.8	42	43.4	40.7	41.3	39.2		
Thallium (Dissolved)	0.0002-0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0004	0.0003	0.0008
Tin (Dissolved)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.001	<0.001		
Titanium (Dissolved)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Dissolved)	0.0002-0.002	0.00129	0.00118	0.00098	0.00109	0.00121	0.00112		
Vanadium (Dissolved)	0.001-0.03	<0.03	<0.03	<0.03	0.0016	<0.002	<0.002	0.006	
Zinc (Dissolved)	0.005-0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Total Metals									
Aluminum (Total)	0.005-0.05	<0.05	0.0058	0.0092	<0.005	<0.01	<0.01		0.005 to 0.1 (k)
Antimony (Total)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.001	<0.001		
Arsenic (Total)	0.0005-0.005	0.0012	0.00137	0.0012	0.00127	0.0013	0.0016	0.005	0.005
Barium (Total)	0.02	0.058	0.066	0.07	0.062	0.067	0.069	5	
Beryllium (Total)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.002	<0.002	0.0053	
Boron (Total)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Total)	0.000017-0.00017	<0.00017	<0.000017	<0.000017	<0.000017	<0.000034	<0.000034	$10^{(0.86*(log(Hardness))-3.2)}$/1000 (g)	$10^{(0.86*(log(Hardness))-3.2)}$/1000 (g)
Calcium (Total)	0.1	58.8	60.9	62.1	58.6	56.9	58		
Chromium (Total)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.002	<0.003		
Cobalt (Total)	0.0003-0.003	<0.003	<0.0003	<0.0003	<0.0003	<0.0006	<0.0006	0.11	
Copper (Total)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.002	<0.002	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Total)	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.3	0.3
Lead (Total)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	0.003 to $e^{(1.273*ln(Hardness)-}$	0.001 to 0.007 (g)
Lithium (Total)	0.005-0.05	<0.05	0.0067	0.0063	0.0064	<0.01	<0.01		
Magnesium (Total)	0.1	44	45.9	43.2	47.2	44.3	42.3		
Manganese (Total)	0.0003-0.003	0.0479	0.0965	0.106	0.0359	0.0855	0.0982	(0.01102*Hardness)+0.54 (g)	
Mercury (Total)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Total)	0.001-0.01	<0.01	0.002	0.0014	0.0024	0.0024	<0.002	2	0.073
Nickel (Total)	0.001-0.01	<0.01	<0.001	<0.001	<0.001	<0.002	<0.002	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Total)	2	12.2	12.6	12.3	12.4	12.6	13		
Selenium (Total)	0.001-0.01	<0.01	**0.0034**	<0.001	<0.001	<0.002	**0.0171**	0.002	0.001
Silver (Total)	0.00002-0.0002	<0.0002	<0.00002	<0.00002	<0.00002	<0.00004	<0.00004	0.0001 to 0.003 (g)	0.0001
Sodium (Total)	2	39.6	41.4	43	41.4	41.2	39.3		
Thallium (Total)	0.0002-0.002	<0.002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0004	0.0003	0.0008
Tin (Total)	0.0005-0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.001	<0.001		
Titanium (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Total)	0.0002-0.002	0.00126	0.00105	0.00083	0.00077	0.00115	0.00095		
Vanadium (Total)	0.001-0.03	<0.03	<0.03	<0.03	0.0017	<0.002	<0.002	0.006	
Zinc (Total)	0.005-0.05	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to	0.03
Organics									
Dissolved Organic Carbon	0.5	14.2	14.7	14.1	14.7	14.9	13.2		

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.6 Water Quality JACL-D.xls]Table 6.6

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME

(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB

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TABLE 6.7

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR JACL-02

Print Feb/03/11 14:20:20

Date Sampled / Time Sampled	MDL	29-Apr-08 10:30 AM	10-Jul-08 10:15 AM	7-Sep-08 10:00 AM	BCWQG [b]	CCME [c]
In Situ Parameters						
Conductivity (In Situ) (uS/cm)	---	233	609	583		
Dissolved Oxygen (In Situ) (%)	---	96.5	88.3	101		
Dissolved Oxygen (In Situ)	---	12.1	8.12	10.2		
pH (In Situ)	---	8.03	8.3	8.33	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---		-116			
Specific Conductivity (In Situ) (uS/cm)	---	370	682	718		
Temperature (In Situ) (°C)	---	5.66	19.4	15.2		
Physical Tests						
Color (TCU)	5	12.3	19.6	15.6		
Hardness	0.7	336	273	284		
pH	0.01	8.29	8.49	8.35	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	781	678	717		
Total Alkalinity (as CaCO3)	1 - 2	251	219	231		
Total Dissolved Solids	10	460	407	448		
Total Suspended Solids	3	5.7	5.8	<3		
Turbidity (NTU)	0.1	2.28	8.42	1.33		
Dissolved Anions						
Bromide	0.05	<0.05	<0.05	<0.05		
Chloride	0.5	60.3	53.4	59.1	600	
Fluoride	0.02	0.175	0.174	0.206	0.2 to 0.3 [g]	
Sulphate	0.5	83.1	66	74.2	100	
Nutrients						
Ammonium Nitrogen (as N)	0.02	<0.02	0.022	0.092	0.681 to 28.3 [h,i]	0.0536 to 185 [h,i]
Nitrate (as N)	0.005	<0.005	<0.005	0.0254	200	13
Nitrite (as N)	0.001	<0.001	<0.001	0.0131	0.06 to 0.6 [j]	0.06
Orthophosphate (as P)	0.001	0.0074	<0.001	<0.001		
Phosphorus (Total) (as P)	0.002	0.0666	0.0325	0.0227		
Total Nitrogen	0.05	1	1.36	1.22		
Cyanide						
Cyanide (Free)	0.005	<0.005	<0.005	<0.005		0.005
Cyanide (Total)	0.005	0.0081	0.0101			
Cyanide (WAD)	0.005	<0.005	<0.005	<0.005	0.01	
Dissolved Metals						
Aluminum (Dissolved)	0.005	<0.005	<0.005	<0.005	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ [k]	0.005 to 0.1 [k]
Antimony (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005		
Arsenic (Dissolved)	0.0005	0.0012	0.00142	0.00182	0.005	0.005
Barium (Dissolved)	0.02	0.06	0.053	0.058	5	
Beryllium (Dissolved)	0.001	<0.001	<0.001	<0.001	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Dissolved)	0.000017	<0.000017	<0.000017	<0.000017	$10^{(0.86*(log(Hardness))-3.2)}$/1000 [g]	$10^{(0.86*(log(Hardness))-3.2)}$/1000 [g]
Calcium (Dissolved)	0.1	57.6	45.4	48		
Chromium (Dissolved)	0.001-0.003	<0.001	<0.001	<0.003		
Cobalt (Dissolved)	0.0003	<0.0003	<0.0003	<0.0003	0.11	
Copper (Dissolved)	0.001	<0.001	0.0012	<0.001	(0.094*(Hardness)+2)/1000 [g]	0.002 to 0.004 [g]
Iron (Dissolved)	0.03	<0.03	<0.03	<0.03	0.3	0.3
Lead (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005	0.003 to $e^{(1.273*ln(Hardness)-1.460)}$/1000 [g]	0.001 to 0.007 [g]
Lithium (Dissolved)	0.005-0.006	0.0063	<0.006	0.0068		
Magnesium (Dissolved)	0.1	46.7	38.9	39.9		
Manganese (Dissolved)	0.0003	0.00114	0.00412	0.00238	(0.01102*Hardness)+0.54 [g]	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Dissolved)	0.001	0.0025	0.0025	0.0028	2	0.073
Nickel (Dissolved)	0.001	<0.001	<0.001	<0.001	0.025 to 0.150 [g]	0.025 to 0.15 [g]
Potassium (Dissolved)	2	12.3	11.8	12.9		
Selenium (Dissolved)	0.001	<0.001	<0.001	**0.002**	0.002	0.001
Silver (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	0.0001 to 0.003 [g]	0.0001
Sodium (Dissolved)	2	40.6	36.1	38.2		
Thallium (Dissolved)	0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0008
Tin (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005		
Titanium (Dissolved)	0.01	<0.01	<0.01	<0.01		
Uranium (Dissolved)	0.0002	0.00112	0.00113	0.00121		
Vanadium (Dissolved)	0.001	0.0017	0.0018	0.0025	0.006	
Zinc (Dissolved)	0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 [g]	0.03
Total Metals						
Aluminum (Total)	0.005-0.02	<0.02	0.0057	0.0064		0.005 to 0.1 [k]
Antimony (Total)	0.0005	<0.0005	<0.0005	<0.0005		
Arsenic (Total)	0.0005	0.00109	0.0014	0.00173	0.005	0.005
Barium (Total)	0.02	0.059	0.05	0.058	5	
Beryllium (Total)	0.001	<0.001	<0.001	<0.001	0.0053	
Boron (Total)	0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Total)	0.000017	<0.000017	<0.000017	<0.000017	$10^{(0.86*(log(Hardness))-3.2)}$/1000 [g]	$10^{(0.86*(log(Hardness))-3.2)}$/1000 [g]
Calcium (Total)	0.1	56.1	43.5	48.2		
Chromium (Total)	0.001-0.003	<0.001	<0.001	<0.003		
Cobalt (Total)	0.0003	<0.0003	<0.0003	<0.0003	0.11	
Copper (Total)	0.001	<0.001	0.0012	<0.001	(0.094*(Hardness)+2)/1000 [g]	0.002 to 0.004 [g]
Iron (Total)	0.03	0.03	<0.03	<0.03	0.3	0.3
Lead (Total)	0.0005	<0.0005	<0.0005	<0.0005	0.003 to $e^{(1.273*ln(Hardness)-1.460)}$/1000 [g]	0.001 to 0.007 [g]
Lithium (Total)	0.005-0.007	0.0071	<0.007	0.0066		
Magnesium (Total)	0.1	45.3	37.3	40.1		
Manganese (Total)	0.0003	0.0116	0.00931	0.00389	(0.01102*Hardness)+0.54 [g]	
Mercury (Total)	0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Total)	0.001	0.0026	0.0028	0.0026	2	0.073
Nickel (Total)	0.001	<0.001	<0.001	<0.001	0.025 to 0.150 [g]	0.025 to 0.15 [g]
Potassium (Total)	2	11.9	11.3	13.1		
Selenium (Total)	0.001	<0.001	<0.001	**0.0022**	0.002	0.001
Silver (Total)	0.00002	<0.00002	<0.00002	<0.00002	0.0001 to 0.003 [g]	0.0001
Sodium (Total)	2	40.3	34.9	38.3		
Thallium (Total)	0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0008
Tin (Total)	0.0005	<0.0005	<0.0005	<0.0005		
Titanium (Total)	0.01	<0.01	<0.01	<0.01		
Uranium (Total)	0.0002	0.00132	0.00128	0.00111		
Vanadium (Total)	0.001	0.0019	0.0021	0.0024	0.006	
Zinc (Total)	0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 [g]	0.03
Organics						
Dissolved Organic Carbon	0.5	14.7	16.1	13.9		

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.7 Water Quality JACL-02.xls]Table 6.7

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME

(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB

Knight Piésold CONSULTING

TABLE 6.8

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR JACL-03

Print Feb/03/11 14:22:54

Date Sampled / Time Sampled	MDL	29-Apr-08 11:15 AM	11-Jul-08 8:05 AM	7-Sep-08 10:30 AM	BCWQG [b]	CCME [c]
In Situ Parameters						
Conductivity (In Situ) (uS/cm)	---	492	588	580		
Dissolved Oxygen (In Situ) (%)	---	97.7	77.5	71.2		
Dissolved Oxygen (In Situ)	---	12.2	7.56	6.83		
pH (In Situ)	---	8.12	8.2	7.9	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---		-110			
Specific Conductivity (In Situ) (uS/cm)	---	780	691	718		
Temperature (In Situ) (°C)	---	5.72	17.2	15		
Physical Tests						
Color (TCU)	5	12.5	20.5	18.2		
Hardness	0.7	333	281	290		
pH	0.01	8.28	8.49	8.28	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	785	670	725		
Total Alkalinity (as CaCO3)	2	251	223	235		
Total Dissolved Solids	10	460	415	436		
Total Suspended Solids	3	5.2	<3	<3		
Turbidity (NTU)	0.1	2.94	7.07	2.51		
Dissolved Anions						
Bromide	0.05	<0.05	<0.05	<0.05		
Chloride	0.5	60.4	53.6	59.4	600	
Fluoride	0.02	0.172	0.178	0.211	0.2 to 0.3 [g]	
Sulphate	0.5	83.2	66.2	74.6	100	
Nutrients						
Ammonium Nitrogen (as N)	0.02	<0.02		0.128	0.681 to 28.3 [h,i]	0.0536 to 185 [h,i]
Nitrate (as N)	0.005	<0.005	<0.005	0.0284	200	13
Nitrite (as N)	0.001	0.008	0.0015	0.0148	0.06 to 0.6 [j]	0.06
Orthophosphate (as P)	0.001	0.0067	<0.001	0.0102		
Phosphorus (Total) (as P)	0.002	0.0642	0.0334	0.0339		
Total Nitrogen	0.05	1.11		1.3		
Cyanide						
Cyanide (Free)	0.005	<0.005	<0.005	<0.005		0.005
Cyanide (Total)	0.005	0.0065	0.008			
Cyanide (WAD)	0.005	<0.005	<0.005	<0.005	0.01	
Dissolved Metals						
Aluminum (Dissolved)	0.005	<0.005	<0.005	<0.005	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ [k]	0.005 to 0.1 [k]
Antimony (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005		
Arsenic (Dissolved)	0.0005	0.00124	0.00133	0.0018	0.005	0.005
Barium (Dissolved)	0.02	0.058	0.054	0.061	5	
Beryllium (Dissolved)	0.001	<0.001	<0.001	<0.001	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Dissolved)	0.000017	<0.000017	<0.000017	<0.000017	$10^{(0.86*(log(Hardness))-3.2)}/1000$ [g]	$10^{(0.86*(log(Hardness))-3.2)}/1000$ [g]
Calcium (Dissolved)	0.1	57.1	47	48.9		
Chromium (Dissolved)	0.001-0.003	<0.001	<0.001	<0.003		
Cobalt (Dissolved)	0.0003	<0.0003	<0.0003	<0.0003	0.11	
Copper (Dissolved)	0.001	<0.001	0.0011	<0.001	(0.094*(Hardness)+2)/1000 [g]	0.002 to 0.004 [g]
Iron (Dissolved)	0.03	<0.03	<0.03	<0.03	0.3	0.3
Lead (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005	0.003 to $e^{(1.273*ln(Hardness)-1.460)}/1000$ [g]	0.001 to 0.007 [g]
Lithium (Dissolved)	0.005	0.0063	0.0056	0.007		
Magnesium (Dissolved)	0.1	46.3	39.8	40.8		
Manganese (Dissolved)	0.0003	0.00207	0.00612	0.00756	(0.01102*Hardness)+0.54 [g]	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Dissolved)	0.001	0.0026	0.0026	0.0027	2	0.073
Nickel (Dissolved)	0.001	<0.001	<0.001	<0.001	0.025 to 0.150 [g]	0.025 to 0.15 [g]
Potassium (Dissolved)	2	12	12	13.2		
Selenium (Dissolved)	0.001	<0.001	<0.001	**0.0018**	0.002	0.001
Silver (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	0.0001 to 0.003 [g]	0.0001
Sodium (Dissolved)	2	40.4	37.8	38.7		
Thallium (Dissolved)	0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0008
Tin (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005		
Titanium (Dissolved)	0.01	<0.01	<0.01	<0.01		
Uranium (Dissolved)	0.0002	0.00114	0.00116	0.00119		
Vanadium (Dissolved)	0.001	0.0016	0.0019	0.0025	0.006	
Zinc (Dissolved)	0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 [g]	0.03
Total Metals						
Aluminum (Total)	0.005	0.0134	0.0098	0.0097		0.005 to 0.1 [k]
Antimony (Total)	0.0005	<0.0005	<0.0005	<0.0005		
Arsenic (Total)	0.0005	0.00108	0.00146	0.00174	0.005	0.005
Barium (Total)	0.02	0.059	0.059	0.062	5	
Beryllium (Total)	0.001	<0.001	<0.001	<0.001	0.0053	
Boron (Total)	0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Total)	0.000017	<0.000017	<0.000017	<0.000017	$10^{(0.86*(log(Hardness))-3.2)}/1000$ [g]	$10^{(0.86*(log(Hardness))-3.2)}/1000$ [g]
Calcium (Total)	0.1	56.5	47.3	48.8		
Chromium (Total)	0.001-0.003	<0.001	0.0011	<0.003		
Cobalt (Total)	0.0003	<0.0003	<0.0003	<0.0003	0.11	
Copper (Total)	0.001	<0.001	0.0012	<0.001	(0.094*(Hardness)+2)/1000 [g]	0.002 to 0.004 [g]
Iron (Total)	0.03	<0.03	<0.03	<0.03	0.3	0.3
Lead (Total)	0.0005	<0.0005	<0.0005	<0.0005	0.003 to $e^{(1.273*ln(Hardness)-1.460)}/1000$ [g]	0.001 to 0.007 [g]
Lithium (Total)	0.005	0.007	0.0057	0.0065		
Magnesium (Total)	0.1	45.9	39.7	40.6		
Manganese (Total)	0.0003	0.0146	0.00992	0.00883	(0.01102*Hardness)+0.54 [g]	
Mercury (Total)	0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Total)	0.001	0.0026	0.0021	0.0026	2	0.073
Nickel (Total)	0.001	<0.001	<0.001	<0.001	0.025 to 0.150 [g]	0.025 to 0.15 [g]
Potassium (Total)	2	12.1	11.9	13.2		
Selenium (Total)	0.001	<0.001	<0.001	**0.0017**	0.002	0.001
Silver (Total)	0.00002	<0.00002	<0.00002	<0.00002	0.0001 to 0.003 [g]	0.0001
Sodium (Total)	2	40.5	37.9	38.2		
Thallium (Total)	0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0008
Tin (Total)	0.0005	<0.0005	<0.0005	<0.0005		
Titanium (Total)	0.01	<0.01	<0.01	<0.01		
Uranium (Total)	0.0002	0.00127	0.00088	0.00108		
Vanadium (Total)	0.001	0.002	0.0019	0.0025	0.006	
Zinc (Total)	0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 [g]	0.03
Organics						
Dissolved Organic Carbon	0.5	14.5	15.8	14.6		

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.8 Water Quality JACL-03.xls]Table 6.8

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME

(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB

Knight Piésold CONSULTING

TABLE 6.9

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR CC02

Date Sampled Time Sampled	MDL	1-May-07 7:00 AM	18-Jul-07 6:55 AM	14-Sep-07 4:45 PM	28-Apr-08 8:30 AM	7-Jul-08 9:20 AM	4-Sep-08 2:20 PM	BCWQG [b]	CCME [c]
In Situ Parameters									
Conductivity (In Situ) (uS/cm)	---	223		408	548	460	461		
Dissolved Oxygen (In Situ) (%)	---				95	99	96.8		
Dissolved Oxygen (In Situ)	---	15	11.8	11.7	11.4	10.7	10.4		
pH (In Situ)	---	8.03	7.9	8.29	7.87	8.02	8.25	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---					-103	-75.6		
Specific Conductivity (In Situ) (uS/cm)	---	352	582	534	828	615	614		
Temperature (In Situ) (°C)	---	5.78	12.1	12.6	7.97	11.9	12		
Physical Tests									
Color (TCU)	5	16.4	9.4	8.4	7.1	9.5	7.3		
Hardness	0.7	187	270	246	404	281	295		
pH	0.01	8.33	8.37	8.44	7.91	8.38	8.46	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	336	541	538	807	602	624		
Total Alkalinity (as CaCO3)	1-2	150	232	240	334	260	262		
Total Dissolved Solids	10	222	338	340	528	390	386		
Total Suspended Solids	3	9	6.6	6.2	<3	<3	<3		
Turbidity (NTU)	0.1				0.91	1.25	1.01		
Dissolved Anions									
Bromide	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Chloride	0.5	1.41	2.48	2.45	7.02	3.71	3.23	600	
Fluoride	0.02	0.093		0.116	0.094	0.116	0.113	0.2 to 0.3 [g]	
Sulphate	0.5	30.3	66.5	61.4	**134**	85.3	86.2	100	
Sulphite	0.5			<0.5					
Nutrients									
Ammonium Nitrogen (as N)	0.02	0.023	0.031	0.024	0.031	<0.02	0.024	0.681 to 28.3 [h,i]	0.0536 to 185 [h,i]
Nitrate (as N)	0.005	0.033	0.0389	0.0322	0.224	0.14	0.0677	200	13
Nitrite (as N)	0.001	<0.001	0.0022	<0.001	0.0029	0.0026	0.0015	0.06 to 0.6 [j]	0.06
Orthophosphate (as P)	0.001	0.0088	0.0192	0.015	0.0104	0.0172	0.0279		
Phosphorus (Dissolved) (as P)	0.002			0.0169					
Phosphorus (Total) (as P)	0.002	0.025	0.0315	0.0258	0.0257	0.0222	0.0335		
Total Nitrogen	0.05	0.247	0.335	0.177	0.299	0.277	0.221		
Cyanide									
Cyanide (Free)	0.005				<0.005	<0.005	<0.005		0.005
Cyanide (Total)	0.005	0.0055	<0.005	<0.005	<0.005	<0.005			
Cyanide (WAD)	0.005	<0.005			<0.005	<0.005	<0.005	0.01	
Dissolved Metals									
Aluminum (Dissolved)	0.005-0.01	0.006	<0.005	<0.005	<0.01	<0.005	<0.005	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ [k]	0.005 to 0.1 [k]
Antimony (Dissolved)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005		
Arsenic (Dissolved)	0.0005-0.001	0.00057	0.00095	0.00075	<0.001	0.00076	0.00075	0.005	0.005
Barium (Dissolved)	0.02	0.051	0.06	0.07	0.114	0.085	0.08	5	
Beryllium (Dissolved)	0.001-0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Dissolved)	0.000017-0.000034	<0.000017	<0.000017	<0.000017	<0.000034	<0.000017	0.000031	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ [g]	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ [g]
Calcium (Dissolved)	0.1	50.1	66.6	60.2	100	70.8	72.9		
Chromium (Dissolved)	0.001-0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001		
Cobalt (Dissolved)	0.0003-0.0006	<0.0003	<0.0003	<0.0003	<0.0006	<0.0003	<0.0003	0.11	
Copper (Dissolved)	0.001-0.002	0.0026	0.0019	0.0017	<0.002	0.002	0.0015	(0.094*(Hardness)+2)/1000 [g]	0.002 to 0.004 [g]
Iron (Dissolved)	0.03	<0.03	<0.03	<0.03	0.031	<0.03	<0.03	0.3	0.3
Lead (Dissolved)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	0.003 to $e^{(1.273*\ln(Hardness)-}$	0.001 to 0.007 [g]
Lithium (Dissolved)	0.005-0.01	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005		
Magnesium (Dissolved)	0.1	15	25.1	23.3	37.1	25.3	27.5		
Manganese (Dissolved)	0.0003-0.0006	0.00466	0.0279	0.0208	0.0542	0.0283	0.0207	(0.01102*Hardness)+0.54 [g]	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Dissolved)	0.001-0.002	0.0122	0.0106	0.0103	0.0085	0.01	0.0099	2	0.073
Nickel (Dissolved)	0.001-0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.025 to 0.150 [g]	0.025 to 0.15 [g]
Potassium (Dissolved)	2	2	2.3	3.3	4.6	3.5	3.8		
Selenium (Dissolved)	0.001-0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.002	0.001
Silver (Dissolved)	0.00002-0.00004	<0.00002	<0.00002	<0.00002	<0.00004	<0.00002	<0.00002	0.0001 to 0.003 [g]	0.0001
Sodium (Dissolved)	2	8.9	20.3	22.5	36.5	27.2	28.3		
Thallium (Dissolved)	0.0002-0.0004	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	0.0003	0.0008
Tin (Dissolved)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005		
Titanium (Dissolved)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Dissolved)	0.0002-0.0004	0.00046	0.00063	0.00056	0.00089	0.00062	0.00063		
Vanadium (Dissolved)	0.001-0.03	<0.03	<0.03	<0.03	<0.002	0.0019	0.002	0.006	
Zinc (Dissolved)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 [g]	0.03
Total Metals									
Aluminum (Total)	0.005-0.01	**0.107**	0.0894	0.0249	<0.01	0.0186	0.0117		0.005 to 0.1 [k]
Antimony (Total)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005		
Arsenic (Total)	0.0005-0.001	0.00059	0.00074	0.00073	<0.001	0.00078	0.00073	0.005	0.005
Barium (Total)	0.02	0.052	0.063	0.073	0.116	0.089	0.079	5	
Beryllium (Total)	0.001-0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.0053	
Boron (Total)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Total)	0.000017-0.000034	<0.000017	<0.000017	<0.000017	<0.000034	0.000031	0.000027	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ [g]	$10^{(0.86*(\log(Hardness))-3.2)}/1000$ [g]
Calcium (Total)	0.1	47.7	67.8	59.3	100	72.7	71.6		
Chromium (Total)	0.001-0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001		
Cobalt (Total)	0.0003-0.0006	<0.0003	<0.0003	<0.0003	<0.0006	<0.0003	<0.0003	0.11	
Copper (Total)	0.001-0.002	0.0035	0.0032	0.0022	<0.002	0.0023	0.0016	(0.094*(Hardness)+2)/1000 [g]	0.002 to 0.004 [g]
Iron (Total)	0.03	0.131	0.169	0.069	0.068	0.06	0.041	0.3	0.3
Lead (Total)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	0.003 to $e^{(1.273*\ln(Hardness)-}$	0.001 to 0.007 [g]
Lithium (Total)	0.005-0.01	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005		
Magnesium (Total)	0.1	14.9	25.6	22.7	37.1	26.4	27.5		
Manganese (Total)	0.0003-0.0006	0.0125	0.0459	0.0333	0.0683	0.0352	0.0255	(0.01102*Hardness)+0.54 [g]	
Mercury (Total)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Total)	0.001-0.002	0.0121	0.0111	0.0103	0.0084	0.0099	0.0096	2	0.073
Nickel (Total)	0.001-0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.025 to 0.150 [g]	0.025 to 0.15 [g]
Potassium (Total)	2	<2	2.4	3.2	4.6	3.6	3.8		
Selenium (Total)	0.001-0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	0.002	0.001
Silver (Total)	0.00002-0.00004	<0.00002	<0.00002	<0.00002	<0.00004	<0.00002	<0.00002	0.0001 to 0.003 [g]	0.0001
Sodium (Total)	2	8.8	20.8	21.9	37	28.4	28		
Thallium (Total)	0.0002-0.0004	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0002	0.0003	0.0008
Tin (Total)	0.0005-0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005		
Titanium (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Total)	0.0002-0.0004	0.00046	0.00068	0.00054	0.00087	0.00061	0.00063		
Vanadium (Total)	0.001-0.03	<0.03	<0.03	<0.03	<0.002	0.002	0.002	0.006	
Zinc (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000	0.03
Organics									
Dissolved Organic Carbon	0.5		6.11	5.35	5.12	6.03	5.39		
Total Organic Carbon	0.5	8.76							

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.9 Water Quality CC02.xlsx]Table 6.9

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME
(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

Knight Piésold CONSULTING

TABLE 6.10

KGHM AJAX MINING INC.
AJAX PROJECT

SAMPLE SUMMARY & STATISTICS FOR CC08

Print Feb/03/11 14:25:02

Date Sampled / Time Sampled	MDL	1-May-07 8:45 AM	18-Jul-07 7:30 AM	14-Sep-07 4:00 PM	28-Apr-08 9:00 AM	7-Jul-08 9:55 AM	4-Sep-08 1:45 PM	BCWQG (b)	CCME (c)
In Situ Parameters									
Conductivity (In Situ) (uS/cm)	---	158	233	166	107	220	212		
Dissolved Oxygen (In Situ) (%)	---				94.1	96.6	89.4		
Dissolved Oxygen (In Situ)	---	11.8	10.2	12.9	13	10.6	9.85		
pH (In Situ)	---	8.34	7.82	8.6	8.2	8.16	8.21	6.5 to 9	6.5 to 9
Redox Potential (In Situ) (mV)	---					-106	-92.9		
Specific Conductivity (In Situ) (uS/cm)	---	252	300	228	333	299	290		
Temperature (In Situ) (°C)	---	5.46	13.3	10.3	2.02	11.3	11		
Physical Tests									
Color (TCU)	5	20.7	18.4	15.1	7.7	15.1	9.7		
Hardness	0.7	133	158	118	182	153	153		
pH	0.01	8.31	8.29	8.32	8.11	8.36	8.34	6.5 to 9	6.5 to 9
Specific Conductivity (uS/cm)	2	230	280	232	333	290	292		
Total Alkalinity (as CaCO3)	1-2	108	135	130	158	143	149		
Total Dissolved Solids	10	161	186	149	195	197	179		
Total Suspended Solids	3	3	3.1	4.7	10.4	<3	<3		
Turbidity (NTU)	0.1				3.08	0.22	0.51		
Dissolved Anions									
Bromide	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Chloride	0.5	0.54	<0.5	0.55	0.95	0.66	0.62	600	
Fluoride	0.02	0.067		0.069	0.094	0.083	0.076	0.2 to 0.3 (g)	
Sulphate	0.5	14.6	13.4	3.4	25.3	11.3	8.4	100	
Sulphite	0.5			<0.5					
Nutrients									
Ammonium Nitrogen (as N)	0.02	<0.02	0.03	0.031	<0.02	<0.02	0.036	0.681 to 28.3 (h,i)	0.0536 to 185 (h,i)
Nitrate (as N)	0.005	0.0082	0.0634	0.0379	0.167	0.0085	<0.005	200	13
Nitrite (as N)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.06 to 0.6 (j)	0.06
Orthophosphate (as P)	0.001	0.0039	0.0109	0.0094	0.0076	0.0108	0.0117		
Phosphorus (Dissolved) (as P)	0.002			0.0122					
Phosphorus (Total) (as P)	0.002	0.0105	0.0198	0.0194	0.0213	0.0226	0.0155		
Total Nitrogen	0.05	0.232	0.307	0.18	0.243	0.215	0.14		
Cyanide									
Cyanide (Free)	0.005				<0.005	<0.005	<0.005		0.005
Cyanide (Total)	0.005	0.0061	0.0065	0.006	<0.005	0.0061			
Cyanide (WAD)	0.005	<0.005			<0.005	<0.005	<0.005	0.01	
Dissolved Metals									
Aluminum (Dissolved)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1 to $e^{(1.209-2.426*pH+0.286*pH(2))}$ (k)	0.005 to 0.1 (k)
Antimony (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Arsenic (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.005	0.005
Barium (Dissolved)	0.02	0.04	0.043	0.04	0.055	0.055	0.052	5	
Beryllium (Dissolved)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0053	
Boron (Dissolved)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Dissolved)	0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	0.000027	$10^{(0.86*(log(Hardness))-3.2)}$/1000 (g)	$10^{(0.86*(log(Hardness))-3.2)}$/1000 (g)
Calcium (Dissolved)	0.1	41.1	47.4	35.2	54.1	45.7	45.9		
Chromium (Dissolved)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
Cobalt (Dissolved)	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.11	
Copper (Dissolved)	0.001	0.0025	0.0026	**0.0024**	0.0016	0.0029	0.0025	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Dissolved)	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.3	0.3
Lead (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 to $e^{(1.273*ln(Hardness)-1.460)}$/1000 (g)	0.001 to 0.007 (g)
Lithium (Dissolved)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Magnesium (Dissolved)	0.1	7.48	9.68	7.31	11.3	9.54	9.28		
Manganese (Dissolved)	0.0003	<0.0003	0.00144	0.0007	0.00033	0.00159	0.00074	(0.01102*Hardness)+0.54 (g)	
Mercury (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Dissolved)	0.001	0.0122	0.0111	0.0057	0.0103	0.0106	0.0087	2	0.073
Nickel (Dissolved)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Dissolved)	2	<2	<2	<2	<2	<2	<2		
Selenium (Dissolved)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001
Silver (Dissolved)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001 to 0.003 (g)	0.0001
Sodium (Dissolved)	2	3.1	3.2	3.4	4.5	4.2	4		
Thallium (Dissolved)	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0008
Tin (Dissolved)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Titanium (Dissolved)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Dissolved)	0.0002	<0.0002	<0.0002	<0.0002	0.00051	<0.0002	<0.0002		
Vanadium (Dissolved)	0.001-0.03	<0.03	<0.03	<0.03	<0.001	0.0013	0.0013	0.006	
Zinc (Dissolved)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Total Metals									
Aluminum (Total)	0.005	0.0391	0.0549	0.0339	0.0737	0.0106	<0.005		0.005 to 0.1 (k)
Antimony (Total)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Arsenic (Total)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.005	0.005
Barium (Total)	0.02	0.039	0.04	0.041	0.051	0.056	0.052	5	
Beryllium (Total)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0053	
Boron (Total)	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.2	
Cadmium (Total)	0.000017	<0.000017	<0.000017	0.00002	0.000034	<0.000017	0.000027	$10^{(0.86*(log(Hardness))-3.2)}$/1000 (g)	$10^{(0.86*(log(Hardness))-3.2)}$/1000 (g)
Calcium (Total)	0.1	39.4	45	34.5	51.7	45.8	45.6		
Chromium (Total)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
Cobalt (Total)	0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.11	
Copper (Total)	0.001	0.0028	0.003	**0.0027**	0.0027	0.003	0.0025	(0.094*(Hardness)+2)/1000 (g)	0.002 to 0.004 (g)
Iron (Total)	0.03	0.068	0.092	0.06	0.121	<0.03	<0.03	0.3	0.3
Lead (Total)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 to $e^{(1.273*ln(Hardness)-1.460)}$/1000 (g)	0.001 to 0.007 (g)
Lithium (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Magnesium (Total)	0.1	7.32	9.17	7.21	10.9	9.56	9.44		
Manganese (Total)	0.0003	0.00225	0.00458	0.00375	0.00515	0.00194	0.00103	(0.01102*Hardness)+0.54 (g)	
Mercury (Total)	0.00002	<0.00002	<0.00002	<0.00002	**0.000494**	<0.00002	<0.00002	0.0001	0.000026
Molybdenum (Total)	0.001	0.0125	0.0109	0.0057	0.0099	0.0105	0.0087	2	0.073
Nickel (Total)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.025 to 0.150 (g)	0.025 to 0.15 (g)
Potassium (Total)	2	<2	<2	<2	<2	<2	<2		
Selenium (Total)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001
Silver (Total)	0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.0001 to 0.003 (g)	0.0001
Sodium (Total)	2	3.1	3	3.3	4.2	4.1	4.1		
Thallium (Total)	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0003	0.0008
Tin (Total)	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005		
Titanium (Total)	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Uranium (Total)	0.0002	<0.0002	<0.0002	<0.0002	0.00053	<0.0002	<0.0002		
Vanadium (Total)	0.001-0.03	<0.03	<0.03	<0.03	0.0014	0.0013	0.0013	0.006	
Zinc (Total)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	(33+0.75*(Hardness-90))/1000 to 0.033 (g)	0.03
Organics									
Dissolved Organic Carbon	0.5		8.52	8.21	5.8	7.89	6.81		
Total Organic Carbon	0.5	9.52							

M:\1\01\00246\08\A\Report\1- Project Description\Rev 1\Tables\[Table 6.10 Water Quality CC08.xlsx]Table 6.10

NOTES:

(a) UNITS ARE mg/L, UNLESS OTHERWISE STATED.
(b) BCWQG - BC WATER QUALITY GUIDELINES FOR FRESHWATER AQUATIC LIFE (AUGUST 2006).
(c) CCME - CANADIAN WATER QUALITY GUIDELINES FOR THE PROTECTION OF AQUATIC LIFE. (DECEMBER 2006).
(d) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG
(e) **BOLD** INDICATES THE VALUE EXCEEDS THE CCME GUIDELINES
(f) **BOLD** INDICATES THE VALUE EXCEEDS THE BCWQG & CCME

(g) HARDNESS DEPENDENT.
(h) pH (In Situ) DEPENDENT.
(i) TEMPERATURE (In Situ) DEPENDENT.
(j) CHLORIDE DEPENDENT.
(k) pH DEPENDENT.

REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
0	23JUL'10	ISSUED WITH REPORT VA101-246/8-1	RP	JEM	RCB

Knight Piésold CONSULTING

TABLE 6.11

KGHM AJAX MINING INC.
AJAX PROJECT

WILDLIFE: POTENTIAL SPECIES OF CONCERN

Print Feb/03/11 14:26:51

Species	BC Status[1]	SARA
American Avocet (*Recurvirostra americana*)	Red	No Status
American Bittern (*Botaurus lentiginosus*)	Blue	No Status
American Badger (*Taxidea taxus)*	Red	Schedule 1 Endangered
Barn Swallow (*Hirundo rustica)*	Blue	No Status
Bighorn Sheep (*Ovis canadensis)*	Blue	No Status
Bobolink (*Dolichonyx oryzivorus)*	Blue	No Status
Brewer's Sparrow, *breweri* subspecies (*Spizella breweri breweri)*	Red	No Status
Burrowing Owl (*Athene cunicularia)*	Red	Schedule 1 Endangered
Canyon Wren (*Catherpes mexicanus)*	Blue	No Status
Fisher (*Martes pennant)*	Blue	No Status
Flammulated Owl (*Otus flammeolus)*	Blue	Schedule 1 Special Concern
Fringed Myotis (*Myotis thysanodes)*	Blue	Schedule 3 Special Concern
Great Basin Gopher Snake (*Pituophis catenifer deserticola)*	Blue	Schedule 1 Threatened
Great Basin Pocket Mouse (*Perognathus parvus)*	Red	No Status
Great Basin Spadefoot (*Spea intermontana)*	Blue	Schedule 1 Threatened
Great Blue Heron, *herodias* subspecies (*Ardea herodias herodias)*	Blue	No Status
Grizzly Bear (*Ursus arctos)*	Blue	No Status
Lark Sparrow (*Chondestes grammacus)*	Red	No Status
Lewis's Woodpecker (*Melanerpes lewis)*	Red	Schedule 1 Special Concern
Long-billed Curlew (*Numenius americanus)*	Blue	Schedule 1 Special Concern
Monarch (*Danaus plexippus)*	Blue	Schedule 1 Special Concern
Pale Jumping-slug (*Hemphillia camelus)*	Blue	No Status
Peregrine Falcon, *anatum* subspecies (*Falco peregrinus anatum)*	Red	Schedule 1 Threatened
Prairie Falcon (*Falco mexicanus)*	Red	No Status
Rubber Boa *Charina bottae)*	Yellow	Schedule 1 Special Concern
Sharp-tailed Grouse, *columbianus* subspecies *Tympanuchus phasianellus columbianus)*	Blue	No Status
Short-eared Owl (*Asio flammeus)*	Blue	Schedule 3 Special Concern
Silky Vallonia (*Vallonia cyclophorella)*	Blue	No Status
Spotted Bat (*Euderma maculatum)*	Blue	Schedule 1 Special Concern
Swainson's Hawk (*Buteo swainsoni)*	Red	No Status
Townsend's Big-eared Bat (*Corynorhinus townsendii)*	Blue	No Status
Umbilicate Sprite (*Promenetus umbilicatellus)*	Blue	No Status
Western Grebe (*Aechmophorus occidentalis)*	Red	No Status
Western Painted Turtle (*Chrysemys picta pop. 2)*	Blue	Schedule 1 Special Concern
Western Rattlesnake (*Crotalus oreganus)*	Blue	Schedule 1 Threatened
Western Screech-Owl, *macfarlanei* subspecies (*Megascops kennicottii macfarlanei)*	Red	Schedule 1 Endangered
Western Small-footed Myotis (*Myotis ciliolabrum)*	Blue	No Status
Williamson's Sapsucker, *thyroideus* subspecies (*Sphyrapicus thyroideus thyroideus)*	Red	Schedule 1 Endangered
Wolverine, *luscus* subspecies (*Gulo gulo luscus)*	Blue	No Status
Western Toad (*Bufo boreas)*	Yellow	Schedule 1 Special Concern

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NOTE:

1. REFERENCE: CDC, 2010

0	23JUL'10	ISSUED WITH REPORT 101-246/8-1	KEF	TS	RCB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D