Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED CERTIFICATE OF APPROVAL
INDUSTRIAL SEWAGE WORKS
NUMBER 3672-7S7KN7
Issue Date: August 21, 2009

Goldcorp Inc. / Goldcorp Canada Ltd.
Post Office Box, No. 2000
Balmertown, Ontario
P0V 1C0

Site Location: Red Lake Mine
17 Mine Road
Red Lake Municipality, District of Kenora
Ontario, P0V 1C0

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

For the the existing gold mine and mill complex, Red Lake Mine, operating at a planned average capacity of approximately of 1,500 tonnes/day, this Certificate covers sewage works for the collection, transmission, treatment and disposal of sewage from the Red Lake Mine Tailings Management Area (TMA), at a *Rated Capacity* of 30,000 m³/day, prior to its discharge to the Balmer Lake, Balmer Creek and ultimately to the Chukuni River; and a permanent recycling system to enable the re-use of Secondary Pond water for process water in the milling circuit at a maximum capacity of 2,500 m³/day, consisting of the following:

Proposed Works

Primary Pond Wetland (Phases I, II and III)

- Construction of a wetland treatment system within the Primary Pond with a total approximate area of 11 hectares. Designed to improve the natural degradation of ammonia within the system, the wetlands are to be constructed in three (3) phases over several years based on the performance of previous phases. The estimated water depth of 0.1 to 0.2 m, all as per the Wetland Design Report.
- Construction of low height perimeter dykes sorrounding the wetland cells to optimize treatment and retention time. The proposed internal cells are approximately 30 m in width and are to be separated by internal structures. The dykes are designed to have a maximum height and crest width of 1.0 m and 4.0 m respectively, with minimum 2H:1V slopes.
- Installation of one (1) open channel flow monitoring device at the entrance of the wetland treatment system.

Tailings Area #2 Wetland (Phase IV)

- Construction of a wetland treatment system on the natural height of ground between Dyke #1 and Dyke #2 with a total approximate area of 12 hectares. The wetland is to be constructed in phases over several years based on the performance of previous phases.
- Construction of low height perimeter dykes sorrounding the wetland cells to optimize treatment and retention time. The proposed internal cells are approximately 30 m in width and are to be separated by internal structures. The dykes are designed to have a maximum height and crest width of 1.0 m and 4.0 m respectively, with minimum 2H:1V slopes.

Others
All other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works.

all in accordance with the following submitted supporting documents:

1. An application package document that includes Application for Approval of Industrial Sewage Works submitted by David Gelderland, of Red Lake Gold Mines, dated January 7, 2009.

2. Design Details for Red Lake TMF Wetlands - Red Lake Complex Tailings Management Facility (Wetland Design Report), prepared by AMEC Eatch and Environmental, dated December 23, 2009.

3. Ammonia Reduction Strategy Report, prepared by AMEC Eatch and Environmental, dated May 28, 2008.

4. Letter from David Gelderland of Goldcorp to Edgardo Tovilla, of the MOE dated June 4, 2009, with calendar for completion of the works Phases I to IV included in this Certificate.

The above-noted "Proposed Works" are to be operated with the "Existing Works" described as follows:

Existing Works

Existing Works approved under CofA 4547-7GUJ9D, issued on August 11, 2008, consisting of modifications to several structures in the Tailings Management Area (TMA) in order to increase the storage capacity for water and solids prior to its discharge to the Balmer Lake; and the implementation of a permanent recycling system to enable the re-use of Secondary Pond water for process water in the milling circuit; and consisting of the following *Works*:

Tailings Management Area (TMA)

- Dyke # 1
  Raising Dyke #1 by 2.1 m to an elevation of 371.0 masl, for its of approximate length of 800m, including the installation of a non-woven geotextile, a new emergency spillway at an elevation of 370.5 masl, and the installation of corrugated steel culvert with water levels regulated by the use of a new stop log control inlet weir to the north of the existing culvert, and including the decommissioning of the existing system once it is no longer functional;
- East End Dam
  Conversion of the East End Access Road approximately 100 m long, which currently diverts runoff flows from an upstream catchment area of over 400 hectares to the Diversion Channel, to an engineered dam known as the East End Dam, including raising the crest of the structure by 1.3 m to an average elevation of 371.7 masl, including the installation of a swale at the far north end of the proposed East End Dam to prevent upstream runoff flows entering the expanded TMA, and designed for including the ½ the Probable Maximum Precipitation (PMP) 24 hour event using the SCS type 2 distribution with peak flows from the East Drainage Area of 30 m^3/s.
- Tailings Area 1 North Dam
  Conversion of a portion of the Diversion Channel Road between Dyke #1 and the proposed East End Dam into an engineered dam that will be named the Tailings Area 1 North Dam, including raising the approximately 1,100 m long proposed Tailings Area 1 North Dam about 1.40 m to a highest elevation of 371.7 masl near the proposed East End Dam and the lowest elevation of 371.0 masl near Dyke 1, with all construction taking place within the existing the current TMA footprint.
- Dyke #2 Spillway
  Raising of the Emergency Spillway in the existing Dyke #2 by 0.6 m (completed in 2007) to an elevation from 366.3 to 366.9 masl, and keeping the Dyke #2 average crest elevation at 367.4 masl, creating an expanded pond with an approximate volume of 1.3 million m3, with liquid effluent discharging into the Primary Pond through a corrugated steel culvert with water levels regulated by a stop log control inlet.

Water Recycling System

Installation of a permanent water recycling system to reduce the volume of water entering the TMA, consisting of a double walled pipeline running from the Secondary Pond to the main mine site tied into an existing line to feed the milling circuits, equipped with a submersible pump in the Secondary Pond rated at a maximum capacity of 2,500 m^3/day; and;

Others

All other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works.

all in accordance with the following submitted supporting documents:

1. An application package document that includes Application for Approval of Industrial Sewage Works submitted by David Gelderland, of Red Lake Gold Mines, dated April 21, 2008.

2. "2008 Impoundment Upgrade Recommendations and Construction Design Report, Red Lake Complex, Balmertown, ON" (including the hydrological and geotechnical assessments) submitted by Goldcorp Inc., and prepared by AMEC Earth & Environmental of Burnaby, B.C., and signed by Steve Rice, P.Eng., registered in Ontario, dated April 21, 2008.

Existing Works approved under CofA 1105-72TN5S issued on May 25, 2007, consisting of alterations to sewage works comprising of the physical-chemical treatment system to treat TMA effluent of the Red Lake Mine at a *Rated Capacity* of 30,000 m³/day and consisting of the following *Existing Works*:

Chemical Storage and Feeding - Primary Coagulant
A coagulant feed system consisting of two (2) 47,000 L capacity liquid coagulant storage tanks, one (1) 3,700 L day tank, two (2) (one duty, one standby) chemical feed metering pumps, and chemical feed line to the raw water header upstream the static mixer;

Coagulant Aid for Clarification
One (1) dry polymer preparation system with three (3) (two duty, one standby) chemical feed metering pumps, and chemical feed lines to the two package treatment units injection chambers;

Coagulant Aid for Thickening
One (1) dry polymer preparation system with two (2) (one duty, one standby) chemical feed metering pumps, and chemical feed lines to the flocculation chamber of the sludge thickener;

Ammonia Treatment (Trial Works)
Establishment either of the two options listed here to reduce ammonia concentrations in the treated effluent discharge from the *Works*:

- a set of windmills/compressors to aerate the secondary pond and/or primary pond water for ammonia reduction prior to its transfer to the physical-chemical treatment system for further treatment;
- use of a set of submerged "Aquamats" and a set of aeration headers with blowers installed in the secondary pond and/or primary pond for ammonia reduction; and,

Others
All other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works.

all in accordance with the following submitted supporting documents:

1. An application package document that includes Application for Approval of Industrial Sewage Works submitted by David Gelderland, of Red Lake Gold Mines, dated April 11, 2007, a Pilot Test report prepared by John Meunier, Veolia Water Solutions & Technologies, dated March 2007.

2. Electronic mail correspondences dated May 8 and May 15, 2007, from Mr. David Gelderland of Red Lake Gold Mines, providing additional process information and comments on the draft *Certificate*.

3. Electronic mail correspondence dated May 28, 2007, from Mr. David Gelderland of Red Lake Gold Mines, providing a copy of the Master Business Licence to inform the *Ministry* of the change in the ownership name from Goldcorp Inc., to Red Lake Gold Mines.

Existing Works approved under CofA 8559-6RGQVW issued on July 18, 2006, consisting of:

Raw Sewage Pumping Station
A raw sewage pumping station consisting of the following:

- a Secondary Pond water pumping station consisting of two (2) vertical shaft pumps, mounted on a platform at the end of a road extending in the Secondary Pond of the TMA, each rated at 174 L/s against 24.9 m Total Dynamic Head

(TDH); and

- a 500 mm diameter pipe from the pumping station to the treatment plant building.

Treatment System

A treatment system consisting of the following:

- Mixing.
  An in-line static mixer, 450 mm diameter;
- Flocculation/Clarification.
  Two (2) package flocculation/clarification treatment units, each rated at 15,000 m^3/day and each consisting of the following:
  - one (1) rapid mixing basin;
  - one (1) injection chamber;
  - one (1) maturation chamber;
  - one (1) high rate ballasted settling basin complete with inclined tube settlers having a sedimentation rate of 42.1 m/hr; and
  - four (4) sand recirculation pumps and four (4) hydrocyclones.
- Sludge Thickening.
  One (1) sludge thickener consisting of a flocculation basin where the sludge is mixed with a polymer, a lamella settling zone where the sludge is allowed to settle and the supernatant discharged back to the Primary Pond of the TMA.
- pH/Alkalinity Adjustment.
  A standby system suitable for seasonal pH adjustment with soda ash, caustic soda, or lime if required.
- Oxidation
  Potassium permanganate feed system consisting of one (1) saturator and two (2) (one duty, one standby) chemical feed metering pumps, each rated at a flowrate of 46 L/hr, and chemical feed line to the raw water header upstream the static mixer.
- Process Instrumentation
  - one (1) continuous turbidity meter located on the inlet header to the water treatment plant;
  - two (2) continuous turbidity monitors located on the clarifier discharge; and
  - two (2) continuous pH metres located in the clarifiers.
- Sludge Lagoons
  Sludge from the thickener to be discharged to one of the two lagoons, each having an area of approximately 8,670 m^2 to condition the sludge through a freeze thaw cycle and provide sludge storage. The supernatant from the sludge ponds to be discharged to the tailings pond with the sludge residing in the sludge pond.
- Effluent Recirculation
  Treated effluent from the treatment system which does not meet discharge criteria shall be automatically diverted from the discharge location and recirculated through a pipeline to the primary pond.
- Effluent Discharge Location
  Creation of a new final discharge location for treated effluent from the physical-chemical treatment system "G2" discharging directly into Balmer Lake.
- SCADA
  One Supervisor Control and Data Acquisition (SCADA) system connected to all equipment PLC units to be located in the control room of the treatment plant building. Control of the plant shall be available in the plant building as well as from remote locations in the mill central control room.
- Others
  All other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the aforementioned sewage works.

all in accordance with the following submitted supporting documents:

1. An application package document that includes Application for Approval of Industrial Sewage Works submitted by James Parker, P.Eng. of Goldcorp Inc. dated March 31, 2006, a Design Brief prepared by CH2MHILL dated March 2006, and other supporting attachments; and

2. Contract Specifications prepared by CH2MHILL dated March 2006.

Existing Works approved under CofA 4-0059-86-918 issued on August 8, 1991, consisting of:

Modifications to the existing tailings and wastewater treatment and control system serving the existing gold mine and mill complex rated at approximately 770 tonnes per day and operating at a planned average throughput of approximately 545 tonnes per day, and enhancements to enable the service of a gold mine mill complex rated at approximately 1,200 tonnes per day, with a maximum operating capacity of 1,500 tonnes per day, as follows:

- one (1) slurry-type INCO SO_2/Air Wastewater Treatment System to service the 1,200 tonnes per day gold mine mill complex consisting of two (2) cyanide destruction and heavy metal (including arsenic) precipitation reaction tanks equipped with agitator mixers, a process air compressor (blower) delivering oil free air, a lime mixing tank and feed pump, liquid sulphur dioxide (SO_2) storage and metering system, and a ferric sulphate system with mixing and delivery tanks and two (2) metering pumps, with the treated effluent flowing by gravity to the existing final tailings pump box;
- operation of low permeability north and south secondary tailings pond dams (contaminating graded sand and gravel filter zones and a soil (tailings) liner) at an elevation of 3034.2 meters (mine datum elevation) with maximum operating water level of approximately 3033.2 meters (mine datum elevation), thereby providing a minimum freeboard of approximately 1 meter, with an emergency spillway in the north end of the north dam;
- operation of Dyke #1 at an elevation of 3039.7 meters (mine datum) with a low permeability upstream face (clay liner) to decrease seepage through the dyke and increase effluent storage capacity, equipped with an emergency spillway at the north end of the dyke, with liquid effluent discharging into the Tailings Area 2 Pond through a corrugated steel culvert, with water levels regulated by use of stop log control inlet, and the toe of the tailings beach to be below the crest of the diversion ditch access road to prevent discharges into the diversion channel located on the north side of the tailings area;
- operation of Dyke #2 at an elevation of 3037.7 meters (mine datum) with a low permeability upstream face, equipped with an emergency spillway at the north end of the dyke and having a final crest width of 10 meters, providing a pond with an approximate water storage volume of 625,000 cubic meters, with liquid effluent discharging into the primary pond through a corrugated steel culvert with water levels regulated by use of stop log control inlet;
- operation of a concrete, steel, and timber control spillway through bedrock on the north side of the island (located between the north and south secondary tailings pond dams) consisting of one (1) sluice, and two (2) abutment walls and broad-crest weir serving as the outfall of the secondary tailings pond;
- operation of a control structure from Balmer Lake, having a normal operating level of 359.1 meters, a minimum operating level of 358.5 meters and a maximum operating level of 360 meters, with a design crest elevation of the control structure 361.3 meters and a bottom of deck elevation of 360.9 meters, allowing an effective freeboard at the maximum operating level of 1.0 meter;
- use of batch ferric sulphate treatment within the secondary pond for the period of May 1, 2006 to June 30, 2007. Approval is granted to discharge secondary pond water that passes acute toxicity tests for rainbow trout and *Daphnia magna* and has an arsenic concentration at or below the maximum daily limit of 1.0 mg/L and a maximum monthly average concentration limit of 0.5 mg/L. **This allowance expires July 01, 2007**; and

all other piping, spillways and appurtenances to achieve a final treated effluent discharge to Balmer Lake, Balmer Creek and ultimately, to the Chukuni River.

all in accordance with the following applications and supporting documentation:

1. Application dated July 2, 1986, plans, reports and supporting information submitted by Dickenson-Sullivan Joint Venture:

2. Application for Approval of Industrial Sewage Works dated November 19, 1997, signed by Dennis R. Brown, (Interim Manager), Goldcorp Inc., and Certificate of Approval No. 4-0059-86-918 dated November 13, 1991.

3. Application for Approval of Industrial Sewage Works dated November 10, 1998, signed by Dennis Brown, Mine Manager, Goldcorp Inc.

4. Laboratory Evaluation of the INCO SO_2 /Air Cyanide Destruction Process for Slurry Treatment for Goldcorp Inc., Red Lake Project Report prepared by INCO Technical Services Limited dated December 3, 1998.

5. Process Description of the INCO SO_2 /Air Cyanide Destruction Facility Prepared by Anna Malevich of the INCO Technical Services Limited dated January 18, 1999.

6. Application for Approval of Industrial Sewage Works dated July 13, 1999 and signed by Kerry McNamara, P. Eng., Environmental Manager, Goldcorp Inc., Red Lake Mine, Balmertown, Ontario, and attachments.

7. Application for Approval of Industrial Sewage Works dated March 27, 2000 and signed by Kerry McNamara, P.Eng., Environmental Manager, Goldcorp Inc., Red Lake Mine Division and all supporting information.

8. Application for Approval of Industrial Sewage Works dated October 15, 2003 and signed by Randy Wepruk, Environmental Manager, Goldcorp Inc.

9. Application for Approval of Industrial Sewage Works dated June 9, 2004 and signed by Randy Wepruk, Environmental Manager, Goldcorp Inc.

10. Application for Approval of Industrial Sewage Works received on October 13, 2005 and signed by Randy Wepruk, Environmental Manager, Goldcorp Inc.

11. Application for Approval of Industrial Sewage Works received on December 15, 2005 and signed by Randy Wepruk, Environmental Manager, Goldcorp Inc.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

"*Act*" means the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended;

"*Average Daily Flow*" means the cumulative total sewage flow to the sewage works during a calendar year divided by the number of days during which sewage was flowing to the sewage works that year;

Certificate" means this entire certificate of approval document, issued in accordance with Section 53 of the *Ontario Water Resources Act*, and includes any schedules;

"*Director*" means any Ministry employee appointed by the Minister pursuant to section 5 of the *Ontario Water Resources Act*;

"*District Manager*" means the Area Supervisor/District Manager of the Kenora Area Office/Thunder Bay District Office of the Ministry;

"*Existing Works*" means those portions of the sewage works constructed as per the last amended CofA # 4547-7GUJ9D, issued on August 11, 2008; also including CofA # 1105-72TN5S issued on May 25, 2007; CofAs Num. 8559-6RGQVW, issued on July 18, 2006; and CofA # 4-0059-86-918 issued on August 8, 1991; and others.

"G1" means secondary tailings pond discharge location;

"G2" means final discharge location for treated effluent from the physical-chemical treatment system discharging directly into Balmer Lake;

"*{if used}*" means discharge location G1 shall be used for effluent discharge only in case of emergency (as of July 01, 2007 i.e., after the expiry of the allowance for batch ferric sulphate treatment within the secondary pond) including but not limited to: effluent treatment plant failure, unplanned discharge, heavy storm conditions etc., with notification to the *District Manager* and/or the spills action centre forthwith;

"*Ministry*" means the Ontario Ministry of the Environment;

"*Owner*" means Red Lake Gold Mines and includes its successors and assignees;

"Proposed Works" means the sewage works described in the *Owner*'s application, this *Certificate* and in the supporting documentation referred to herein, to the extent approved by this *Certificate*;

"*Rated Capacity*" means the *Average Daily Flow* for which the *Works* are approved to handle;

"*Regional Director*" means the *Regional Director* of the Northern Region of the *Ministry*; and

"*Works*" means the facility approved by this *Certificate* as described in its preamble, in the *Owner's* application and in supporting information submitted by the *Owner* and to the extent approved by this *Certificate* and includes both *Existing Works* and *Proposed Works*.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL CONDITION

(1) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Certificate*, the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this *Certificate*.

(2) Where there is a conflict between a provision of any submitted document referred to in this *Certificate* and the Conditions of this *Certificate*, the Conditions in this *Certificate* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

(3) The requirements of this *Certificate* are severable. If any requirement of this *Certificate*, or the application of any requirement of this *Certificate* to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of this *Certificate* shall not be affected thereby.

(4) In the event of a conflict between information submitted in support of the application for this *Certificate*, whether referred to in this *Certificate* or not, and any term or condition of this *Certificate*, the term or condition shall prevail.

(5) The requirements specified in this *Certificate* are the requirements under Section 53 of the Ontario Water Resources Act. The issuance of this *Certificate* in no way abrogates the *Owner's* legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

(6) The approval granted by this *Certificate* is based upon a review of the *Proposed Works* in the context of its effect on the environment, its process performance and principles of sanitary and chemical engineering for the limited duration of its operation.

2. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* and the *Director*, in writing, of any of the following changes within 30 days of the change occurring:

(a) change of *Owner*;

(b) change of address of the *Owner*;

(c) change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the *District Manager*;

(d) change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Informations Act, R.S.O. 1990, c. C39 shall be included in the notification to the *District Manager*;

(2) In the event of any change in ownership of the *Works*, other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *Certificate*, and a copy of such notice shall be forwarded to the *District Manager* and the *Director*.

(3) The *Owner* shall ensure that all communications made pursuant to this condition will refer to this *Certificate's* number.

3. CHANGES IN PROCESSES OR PROCESS MATERIALS

After the commencement of operation of the sewage works the owner shall give written notice to the *Director* of any plans to change the processes or process materials forming a part of the sewage works where the change may materially alter the quantity or quality of the influent to or effluent from the sewage works, and no such change(s) shall be made unless and until the owner applies for and receives the written approval of the *Director* pursuant to section 53 of the *Ontario Water Resources Act*.

4. AS-CONSTRUCTED DRAWINGS

(1) The *Owner* shall prepare within 6 months of substantial completion of construction of the *Proposed Works* as approved by this *Certificate*, a complete set of drawings showing the sewage works as approved by this *Certificate* as-constructed and shall amend the drawings from time to time to reflect all changes in or additions to the *Works*.

(2) The *Owner* shall retain the as-constructed drawings, at the location of the sewage works for so long as it is in operation, and shall make them available for inspection by *Ministry* employees upon request.

5. EFFLUENT OBJECTIVES

(1) The *Owner* shall use best efforts to operate the *Works* with the objective that the concentration of Arsenic as an effluent parameter is not exceeded from 0.05 mg/L in the effluent from the *Works* as of July 01, 2008.

(2) The *Owner* shall also use best efforts to operate the *Works* with the objective that the concentration of Iron as an effluent parameter is not exceeded from a maximum daily concentration and monthly average concentration of 3.0 mg/L and 1.5 mg/L respectively, in the effluent from the *Works*.

6. EFFLUENT LIMITS

(1) The *Owner* shall design, construct, operate and maintain the *Works* such that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent from the *Works* at location G2.

Table 1 - Effluent Limits		
Effluent Parameter	**Maximum Daily Concentration** (milligrams per litre unless otherwise indicated)	**Monthly Average Concentration** (milligrams per litre unless otherwise indicated)
Column 1	Column 2	Column 3
Total Suspended Solids	30	15
Total Ammonia Nitrogen (Ammonia + Ammonium)	10	-
Arsenic	1.0 (0.5)*	0.5 (0.25)*
Copper	0.6	0.3
Nickel	1.0	0.5
Lead	0.4	0.2
Zinc	1.0	0.5
Total Cyanide	2.0	1.0
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

*: Treatment facility limits for Arsenic shall reduce to the numbers given in ( ) and remain at these levels as of July 01, 2008.

(2) For the purposes of determining compliance with and enforcing subsection (1):

(a) Non-compliance with respect to a Maximum Daily Concentration limit is deemed to have occurred when any single grab sample analysed for a parameter named in Column 1 of subsection (1) is greater than the corresponding Maximum Daily Concentration limit set out in subsection (1); and the sample represents a day when discharge of effluent from the discharge location as mentioned in subsection (1) occurred.

(b) Non-compliance with respect to a Monthly Average Concentration limit is deemed to have occurred when the arithmetic mean concentration of all samples taken in a month analysed for a parameter named in Column 1 of subsection (1) is greater than the corresponding Monthly Average Concentration limit set out in subsection (1); and the sample represents a day when discharge of effluent from the discharge location as mentioned in subsection (1) occurred.

(c) Non-compliance with respect to pH is deemed to have occurred when any single measurement is outside of the indicated range; and the sample represents a day when discharge of effluent from the discharge location as mentioned in subsection (1) occurred.

(4) During the commissioning phase and subsequent operations of the *Works*, the *Owner* shall ensure that treated effluent shall not be discharged to the Balmer Lake, unless it is demonstrated that the Total Ammonia Nitrogen concentration in the effluent is less than 10 mg/L and the acute lethality test results comply with subsection (5).

(5) The *Owner* shall control the quality of the effluent from the discharge location as mentioned in subsection (1) to ensure that each rainbow trout acute lethality test and each daphnia magna acute lethality test performed on any grab sample of effluent results in mortality for no more than 50 per cent of the test organisms in 100 per cent effluent.

(6) The *Owner* shall include in all routine reports submitted in accordance with Condition 9, a summary of the efforts made and results achieved under subsection (1).

(7) As of July 01, 2007 i.e., after the expiry of the allowance for batch ferric sulphate treatment within the secondary pond, the discharge location G1 is to be used only in case of an emergency including but not limited to: effluent treatment plant failure, unplanned discharge, heavy storm conditions etc. The *Owner* shall ensure that all of the above mentioned limitations shall be applicable on that discharge.

7. OPERATION AND MAINTENANCE

(1) The *Owner* shall ensure compliance with all the terms and conditions of this *Certificate*. Any non-compliance constitutes a violation of *Ontario Water Resources Act* and is grounds for enforcement.

(2) The *Owner* shall furnish to the *Regional Director* any information which the *Regional Director* may request concerning compliance with this *Certificate*, pursuant to Section 31 of the *Ontario Water Resources Act* and copies of any records required to be kept by this *Certificate*.

(3) The *Owner* shall take all reasonable steps to minimize any adverse impact to surface or ground waters resulting from non-compliance with the effluent requirements specified in this certificate including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the discharge in respect of which there is non-compliance.

(4) The *Owner* shall prepare an operations manual within six (6) months of the date of issuance of this *Certificate*, that includes, but not necessarily limited to, the following information:

(a) operating procedures for routine operation of the *Works*;

(b) inspection programs, including frequency of inspection, for the *Works* and the methods or tests employed to detect when maintenance is necessary;

(c) repair and maintenance programs, including the frequency of repair and maintenance for the *Works*;

(d) contingency plans and procedures for dealing with potential spill, bypasses and any other abnormal situations and for notifying the *District Manager*; and,

(e) complaint procedures for receiving and responding to public complaints.

(5) The *Owner* shall maintain the operations manual up to date through revisions undertaken from time to time and retain a copy at the location of the sewage works. Upon request, the *Owner* shall make the manual available for inspection and copying by *Ministry* personnel.

(6) The *Owner* shall ensure that at all times, the sewage *Works* and related equipment and appurtenances which are installed or used to achieve compliance with this *Certificate* are properly operated and maintained.

(7) In furtherance of, but without limiting the generality of, the obligation imposed by subsection (1) the *Owner* shall ensure that:

(a) funding, staffing, training of staff, laboratory and process controls, quality assurance and quality control procedures of or in relation to the sewage works are adequate to achieve compliance with this *Certificate*; and,

(b) equipment and material are kept on hand and in good repair for immediate use in the event of:

(i) upset;

(ii) bypass;

(iii) abnormal loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment or interior of any building; or,

(iv) spill within the meaning of Part X of the *Environmental Protection Act*, and staff are trained in the use of said equipment and material and in the methods and procedures to be employed upon the occurrence of such an event.

(8) The *Owner* shall develop a formal strategy to address long term storage of the sludge within 5 years of the date of issuance of this *Certificate*.

8. CONTINGECY PLAN FOR TOTAL AMMONIA NITROGEN

The *Owner* shall submit, as part of the annual performance report as per Condition 10(2), an assessment of the measures applied up to date to address the effluent ammonia nitrogen issue, its effectiveness and recommended next steps as per the Ammonia Reduction Strategy Report, prepared by AMEC Eatch and Environmental, dated May 28, 2008.

9. MONITORING AND RECORDING

The *Owner* shall carry out and maintain the following monitoring program:

(1) Any of the sampling locations as set out in subsection (2) may be changed or abandoned and new locations may be added following commencement of monitoring if, in the opinion of the *District Manager*, it is necessary to do so to ensure that representative samples are being collected.

(2) The effluent shall be sampled at the sampling point(s) named below, in accordance with the measurement frequency and sample type specified for each parameter named below:

Table 2 - Influent Monitoring (during discharge)
(Samples to be collected at the influent wastewater pumping station or at the inlet of the physical-chemical treatment plant)

Parameters	Sample Type	Minimum Frequency
Arsenic	Grab	3 times per week
Copper	Grab	Monthly
Nickel	Grab	Monthly
Lead	Grab	Monthly
Zinc	Grab	Monthly
Iron	Grab	3 times per week
Total Suspended Solids	Grab	3 times per week
pH	Grab	3 times per week

Table 3 - Effluent Monitoring (during discharge)
(Samples of the effluent discharge to be collected at sampling location G2 or at the outlet of the clarifier and G1 *{if used}*)

Parameters	Sample Type	Minimum Frequency
Total Suspended Solids	Grab	3 times per week
Total Ammonia Nitrogen (Ammonia + Ammonium)	Grab	Weekly
Arsenic	Grab	3 times per week
Copper	Grab	Weekly
Nickel	Grab	Weekly
Lead	Grab	Weekly
Zinc	Grab	Weekly
Iron	Grab	3 times per week
Acute Lethality to Rainbow Trout	Grab	Monthly
Acute Lethality to *Daphnia magna*	Grab	Monthly
pH	Grab/Probe	3 times per week
Temperature	Grab/Probe	3 times per week

Table 4 - Receiver Monitoring (Samples to be collected in at the control structure in Balmer Lake, known as L2)		
Parameters	**Sample Type**	**Minimum Frequency**
Total Suspended Solids	Grab	Monthly
Total Phosphorus (MDL 1 µg/L)	Grab	Monthly
Total Dissolved Solids	Grab	Monthly
Total Ammonia Nitrogen (Ammonia + Ammonium)	Grab	Monthly
Unionized Ammonia	Grab	Monthly
Arsenic	Grab	Monthly
Copper	Grab	Monthly
Nickel	Grab	Monthly
Lead	Grab	Monthly
Zinc	Grab	Monthly
Dissolved Oxygen	Grab/Probe	Monthly
pH	Grab/Probe	Monthly
Temperature	Grab/Probe	Monthly

(3) The time interval between consecutive 3 times per week weekly, monthly and quarterly samples shall be, at least, 1, 4, 15, and 45 days respectively.

(4) The methods and protocols for sampling, analysis, toxicity testing, and recording shall conform, in order or precedence, to the methods and protocols specified in the following:

(a) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), as amended from time to time by more recently published editions;

(b) the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition) as amended from time to time by more recently published editions;

(c) the Environment Canada publications "Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout"(July 1990) and "Reference Method for Determining Acute Lethality of Effluents to Daphnia magna" (July 1990);

(d) in respect of any parameters not mentioned in documents (a) to (c) above, the written approval of the *District Manager* shall be obtained prior to sampling.

(5) The *Owner* shall install, maintain and operate (a) flow measuring device(s) so as to measure effluent flowrate at G2 and G1 *{if used}* with an accuracy to within plus or minus 15 percent of the actual flowrate for the entire design range of the flow measuring device, which must be operable under winter conditions.

(6) After twelve (12) months of effluent monitoring under Subsection (2), the effluent objectives, effluent limits and monitoring frequency specified in Conditions 5, 6 and 7 may be changed to such frequency as the *District Manager* may specify in writing from time to time, provided that the new specified frequency is never less than annual.

(7) The following information shall be retained by the *Owner* for a period of at least three (3) years from the date of preparation:

(a) Laboratory analytical results of the samples taken pursuant to the sampling program set out in this

Condition.
(b) Sewage works operation, performance and maintenance results, including logbooks associated with the operation, performance and maintenance of the sewage works.

10. REPORTING

(1) The *Owner* shall prepare and submit to the *District Manager* a monthly activity report by the last day of the month following the month being reported upon. The first monthly activity report shall cover the first two months following the date of issuance of this *Certificate* and monthly activity reports shall be submitted to cover successive monthly intervals thereafter. (Preparation of the monthly activity reports will be simplified by maintaining a logbook for the operation and performance monitoring of the settling pond in which all relevant occurrences are recorded in chronological order). The monthly activity report shall contain the following in a format that is acceptable to the *District Manager*:

(a) estimate of total effluent discharged from the sewage works during the reporting period;

(b) status of storage capacity occupied and remaining in sewage works system;

(c) a summary and interpretation of all monitoring data collected relative to the sewage works facility during the period being reported upon, including statistical evaluation (minimum, maximum, average), evaluation of compliance with this *Certificate* and *Ministry* guidelines;

(d) a description of any operating problems and the corrective action taken during the reporting period, including anomalies in data due to changes in, or upsets of the sewage works; and,

(e) a summary of all information generated under the requirements of Condition No. 9.

(2) The *Owner* shall prepare, and submit to the *District Manager*, a performance report, on an annual basis, by March 31st for the previous calendar year. The first such report shall cover the first annual period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:

(a) a summary analysis/interpretation of all monitoring data (effluent and receiving environment) and a comparison to the effluent limits and objectives outlined in Condition No. 6 and Condition No. 5, including an overview of the success and adequacy of the *Works*;

(b) a description of any operating problems encountered and corrective actions taken;

(c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works*;

(d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;

(e) a summary of the calibration and maintenance carried out on all effluent monitoring equipment;

(f) all flow data and arsenic loading calculations; and,

(g) any other information the *District Manager* requires from time to time.

(3) The *Owner* shall prepare, and submit to the *District Manager*, a notification 30 days before the commencement of the construction works for Phase II, III and IV as well as the commencement of the operation of the works as per the calendar, as modified from time to time, as detailed in the letter from David Gelderland of Goldcorp to Edgardo Tovilla, of the MOE dated June 4, 2009.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the *Works* are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the *Certificate* and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. In addition, this Condition is included to emphasize that the issuance of the certificate does not diminish any other statutory and regulatory obligations to which the owner is subject in the construction, maintenance and operation of the *Works*.

2. Condition 2 is included to ensure that the *Ministry* records are kept accurate and current with respect to approved works and to ensure that subsequent owners of the *Works* are made aware of the *Certificate* and continue to operate the works in compliance with it.

3. Condition 3 is included to ensure that the *Works* is operated in accordance with the information submitted by the *Owner* relating to the process and materials which are served by the *Works*, and to ensure that any contemplated changes in them which could potentially affect the characteristics of effluent from the *Works* will be properly reviewed and approved.

4. Condition 4 is included to enable the owner to record and the *Ministry* to verify that the *Works* are constructed and operated in accordance with the *Certificate*.

5. Condition 5 is imposed to establish non-enforceable effluent quality objectives which the *Owner* is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs.

6. Condition 6 is imposed to ensure that the effluent discharged from the sewage works to Balmer Lake meets the *Ministry's* effluent quality requirements as specified on a continual basis thus minimizing environmental impact on the receiver.

7. Conditions 7 and 8 are included to emphasize that the *Owner* has an ongoing duty to mitigate any adverse impacts resulting from non-compliance with the *Certificate*. This Condition is included to ensure that the sewage works will be operated, maintained, funded, staffed and equipped in a manner enabling compliance with the terms and conditions of this *Certificate*, such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. Condition 6 is also included to ensure that a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the *Owner* and made available to the *Ministry*. Such a manual is an integral part of the operation of the *Works*. Its compilation and use should assist the owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for *Ministry* staff when reviewing the *Owner's* operation of the *Works*.

8. Conditions 9 is included to require the *Owner* to demonstrate on a continual basis that the quality and quantity of the effluent from the approved sewage works is consistent with the design objectives and effluent limits specified in the *Certificate* and that the approved sewage works does not cause any impairment to the receiving water body.

9. Condition 10 is included to provide a performance record for future references and to ensure that the *Ministry* is made aware of problems as they arise, so that the *Ministry* can work with the *Owner* in resolving the problems in a timely manner.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 4547-7GUJ9D issued on August 11, 2008

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 53, *Ontario Water Resources Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 21st day of August, 2009

Mansoor Mahmood, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

ET/
c: District Manager, MOE Kenora Area Office
David Gelderland, Goldcorp Inc. / Goldcorp Canada Ltd.