AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 8481-B6ASMQ
Issue Date: February 26, 2019

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

Site Location: Campbell Complex
10 Mine Road Balmertown
Municipality of Red Lake, District of Kenora, Ontario

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

the sewage works for the collection, transmission, treatment, and disposal of stormwater and process wastewater from a gold mine/mill complex processing a planned average of 1,775 dry tonnes per day of arsenical gold ore and a maximum operating capacity of 2,000 dry tonnes per day, discharging at a maximum daily flow rate of 30,000 cubic metres per day and draining to Balmer Lake, located at 10 Mine Road, Balmertown, in the Municipality of Red Lake, consisting of the following:

PROPOSED WORKS

Pump-Back System

One (1) pump-back system for the West Dam operating as groundwater remediation system to prevent contaminated groundwater from leaving the industrial mine site, consisting of the following:

- five (5) pump wells located downstream of the West Dam, complete twelve (2) groundwater observation wells (standpipe piezometers), and seven (7) groundwater monitoring wells, as well a pumping system, discharging the ground water into main tailings pond, Primary Clearwater Pond, Settling/Polishing Pond, Constructed Wetland, or Process Plants.

EXISTING WORKS

- One (1) Wastewater Treatment Plant consisting of four (4) tanks equipped with agitators arranged in series for the mixing and neutralization of the pressure oxidation and flotation tailings along with the

addition of lime prior to discharge into the main tailings pond.

- One (1) Main Tailings Pond with a surface area of 85 hectares created by the construction of the North, Northwest, East, West, and South dams with crest elevations of 1225 feet in 2012, equipped with a pumping system to transfer the supernatant to the effluent treatment plant located in the Campbell Complex mill.

- One (1) effluent treatment plant with a maximum flow design capacity of 17,000 cubic metres per day consisting of, one(1) copper sulfate storage, mixing and metering system, one (1) clarifier feed tank, two (2) clarifier feed pumps, one (1) hopper clarifier, one (1) clarifier overflow tank equipped with two (2) clarifier pumps to transfer the water to the two-staged polishing pond.

- One (1) SO_2 / O_2 cyanide destruction plant, to detoxify mill tailings before disposal into the tailings management area, with a design flow capacity of 100 cubic metres per hour, consisting of two (2) reactors, each 6 meters in diameter and 7 meters high and equipped with a 93 kilowatt mixer, a distribution box, detox tails final pump box, including oxygen generation system, the installation of two (2) new Copper Sulphate metering pumps and new piping from the existing SO_2 storage tanks to the new reactor tanks, discharging to the paste thickener cyclones.

- One (1) two-staged polishing pond divided into two cells with a waste rock berm and connecting channel. The first cell, known as the Settling Pond with an operating capacity of 150,000 cubic metres with a minimum hydraulic retention time of 2 days for the settling of suspended solids. The second pond, known as the Polishing Pond with an operating capacity of 725,000 cubic metres and a minimum retention time of 15 days during discharge periods with a maximum operating level of 1223.0 ft, providing 3 feet of freeboard for the containment of water from unusual storm events and equipped with electric water movers to promote mixing within the pond.

- One (1) 16 hectare constructed wetland treatment system consisting of the upper and lower wetlands which are divided into internal cells which direct flow passively through the system via gravity with an emergency spillway. The wetlands are equipped with a recirculation system operated as required.

- Two (2) gravity fed pipelines transferring effluent from the polishing pond to the constructed wetlands through two (2) 24" Palmer Bowlus Flumes, and one (1) 12” Palmer Bowlus Flume allowing flow monitoring and sampling stations known as WETIN,WETIN2, and WETIN3. The WETIN2 pipeline has the ability to discharge directly to Balmer Lake in the event of a high water emergency through the remaining inactive POLISH pond discharge line.

- One (1) pH Adjustment System, operated on an as-needed/contingency basis, with a design flow rate of 12,000 cubic metres per day, consisting of a Sodium Carbonate (Soda Ash) storage silo, a Soda Ash solution make-up mixing tank, a storage tank, make-up water feed line and dosing pumps, injecting Soda Ash solution via a diffusion header at the outlet screen of a constructed wetland near the final discharge point (WETOUT);

- One (1) Final discharge point known as WETOUT equipped with a decant structure, 36" Palmer Bowlus Flume, and a continuous flow monitor discharging a maximum of 30,000 cubic metres per day (26,000

cubic metres per day of Polishing pond water and 4,000 cubic metres per day of stormwater) to Balmer Lake.

- One (1) Primary Clear Water Pond (PCWP) created by the construction of the Primary Clearwater Dam for the collection of site runoff equipped with an emergency spillway, and wetland overflow if required during flood events to be pumped to the two-staged polishing ponds or wetland as required.

- Two (2) fresh water diversion ditches - one (1) located along the northwest side of the main tailings pond, PCWP, and lower wetland cell; and one (1) located along the west and northern sides of the two-staged polishing pond and upper wetland, both discharging to Balmer Lake.

- One (1) Settling/holding tank and one (1) pump station for the collection and transfer of raw sewage and grey water from the Campbell Complex and recreation centre to the main tailings pond.

- The West Dam Pond surface collection pond located on the toe of the West Dam, designed to collect stormwater runoff from Highway 125, Nungessor Road and groundwater seepage. The West Dam Pond has no outlet, and equipped with seasonal pumps to transfer effluent from the Pond to the diversion ditch (if complying with effluent criteria), or pumped into the tailings management system (if concentrations are above the effluent limits stated in Condition 7.4). The Pond is also equipped with staff gauges to track pond levels.

- The South Dam surface collection pond located on the toe of the South Dam, designed to collect stormwater runoff from the municipality of Balmertown, and groundwater seepage. The pond is equipped with a pump-house and submersible pump to transfer stormwater from the South Dam Pond to the Main Tailings Pond or Primary Clearwater Pond dependent on site water balance. This pumping location is operated under a Permit To Take Water issued by the Ministry of the Environment.

- All other controls, electrical equipment, instruments, piping, pumps, culverts, ditches, valves, and appurtenances essential for the proper operation of the sewage works to the extent approved in this Approval.

PRE-APPROVED ACTIVITIES SUBJECT TO APPROVAL OF FINAL DRAWINGS

Effluent Treatment

- Potential modifications to the Wetlands consist of:

    - Changes to the interior cells which include adding or subtracting berms to reduce or enlarge the size of the cells, and changes to the perimeter dykes height, crest width, and slopes. These types of changes may result in a change of flow patterns within the Wetlands (i.e. depending on cell configuration);

    - Additional pipelines and/or culverts connecting the Polishing Pond to the Wetlands and the internal cells within the wetlands. These pipelines will allow water from the Polishing Pond to

enter the Wetlands at different cells, thus maximizing the space available;

- Upgrades to the water recirculation system which include a new recirculation pump and pipelines in-order to maximize retention time and wetlands efficiency. Changes to the pumps/pipelines may include type, efficiency, and size. These types of changes will allow the mine more control over water flow within the wetlands.

all in accordance with the supporting documents set out in Schedule "A" attached to this Approval.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Approval" means this entire document and any schedules attached to it, and the application;

2. "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;

3. "Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;

4. "District Manager" means the District Manager of the Thunder Bay/Kenora District Office;

5. "EPA" means the *Environmental Protection Act,* R.S.O. 1990, c.E.19, as amended;

6. 'Equivalent Equipment" means a substituted equipment or like-for-like equipment that meets the required quality and performance standards of a named equipment;

7. "Existing Works" means those portions of the Works included in the Approval that have been constructed previously;

8. "Limited Operational Flexibility" (LOF) means any modifications that the Owner is permitted to make to the Works under this Approval;

9. "Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;

10. "Modifications" means any addition, replacement, alteration, expansion or optimization for the Works as specified under Limited Operational Flexibility;

11. "Notice of Modifications" means the form entitled "Notice of Modifications to Sewage Works";

12. "Owner" means Goldcorp Inc. and includes its successors and assignees;

13. "OWRA" means the *Ontario Water Resources Act,* R.S.O. 1990, c. O.40, as amended;

14. "Previous Works"means those portions of the sewage works previously constructed and approved under

an Approval;

15. "Proposed Works" means those portions of the Works included in the Approval that are under construction or to be constructed;

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

17. "Regional Director" means the Regional Director of the Northern Region of the Ministry;

18. "Works" means the approved sewage works, and includes Proposed Works, Existing Works and modifications made under Limited Operational Flexibility.

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

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

1. The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

2. 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 Approval, and the application for approval of the Works.

3. Where there is a conflict between a provision of any document in the schedule referred to in this Approval and the conditions of this Approval, the Conditions in this Approval shall take precedence, and where there is a conflict between the documents in the schedule, the document bearing the most recent date shall prevail.

4. Where there is a conflict between the documents listed in the Schedule, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.

5. The Conditions of this Approval are severable. If any Condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

2. CHANGE OF OWNER

1. The Owner shall notify the District Manager and the Director, in writing, of any of the following

changes within thirty (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; and

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 Information 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 Approval, and a copy of such notice shall be forwarded to the District Manager and the Director.

3. CHANGES IN PROCESSES OR PROCESS MATERIALS

1. The Owner shall give written notice to the District Manager of any plans to change the processes or process materials in the Owner's enterprise serviced by the works where the change may significantly alter the quantity or quality of the influent to or effluent from the works, and no such change(s) shall be made unless with the written concurrence or approval of the District Manager.

4. OPERATIONS MANUAL

1. The Owner shall prepare an operations manual prior to the commencement of operation of the sewage works, 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.

2. 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.

5. LIMITED OPERATIONAL FLEXIBILITY

1. The Owner may make modifications to the Works in accordance with the Terms and Conditions of this Approval and subject to the Ministry's "Limited Operational Flexibility Criteria for Modifications to Sewage Works", included under Schedule C of this Approval, as amended.

2. Sewage works under Limited Operational Flexibility shall adhere to the design guidelines contained within the Ministry's publication "Design Guidelines for Sewage Works 2008", as amended.

3. The Owner shall ensure at all times, that the Works, related equipment and appurtenances which are installed or used to achieve compliance are operated in accordance with all Terms and Conditions of this Approval.

4. For greater certainty, the following are <u>not</u> permitted as part of Limited Operational Flexibility:

    a. Modifications to the Works that result in an increase of the approved Rated Capacity of the Works;

    b. Modifications to the Works that may adversely affect the approved effluent quality criteria or the location of the discharge/outfall;

    c. Modifications to the treatment process technology of the Works, or modifications that involve construction of new reactors (tanks) or alter the treatment train process design;

    d. Modifications to the Works approved under s.9 of the EPA, and

    e. Modifications to the Works pursuant to an order issued by the Ministry.

5. Implementation of Limited Operational Flexibility is not intended to be used for piecemeal measures that result in major alterations or expansions.

6. If the implementation of Limited Operational Flexibility requires changes to be made to the Emergency Response, Spill Reporting and Contingency Plan, the Owner shall, provide a revised copy of this plan for approval to the local fire services authority prior to implementing Limited Operational Flexibility.

7. For greater certainty, any modification made under the Limited Operational Flexibility may only be carried out after other legal obligations have been complied with, including those arising from the *Environmental Protection Act, Lakes and Rivers Improvements Act* and the *Mining Act.*

8. At least thirty (30) days prior to implementing Limited Operational Flexibility, the Owner shall complete a Notice of Modifications describing any proposed modifications to the Works and submit

it to the District Manager.

9. The Owner shall not proceed with implementation of Limited Operational Flexibility until the District Manager has provided written acceptance of the Notice of Modifications or a minimum of thirty (30) days have passed since the day the District Manager acknowledged the receipt of the Notice of Modifications.

6. EFFLUENT LIMITS

- In addition to compliance requirements under O.Reg. 560/94, the Owner shall not exceeded the following effluent limits and requirements.

1. The Owner shall design, construct and operate the works such that the concentrations of the materials named in Table 1 of Schedule B as effluent parameters at the WETOUT final discharge location are not exceeded in the effluent from the Works.

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

    a. non-compliance with respect to a Concentration Limit is deemed to have occurred when any single (grab) sample analyzed for a parameter named in Column 1 of subsection (1) is greater than the corresponding maximum concentration set out in Column 2 and 3 of subsection (1);

    b. non-compliance with respect to pH is deemed to have occurred when any single measurement is outside of the indicated range.

3. The owner shall operate the sewage works such that the 96 hour (Trout) and 48 hour (Daphnia) LC50 concentration at WETOUT is 100% or greater.

4. The Owner shall design, construct and operate the Works such that the concentrations of the materials named in Table 2 of Schedule B as effluent parameters at the West Dam Pond discharge location are not exceeded in the effluent from the works. Only effluent that complied with this effluent criteria will be allowed to be pumped to the Diversion Ditch. If any parameter's concentrations is above this effluent criteria, the Owner shall pump it into the Tailings Management area for treatment.

5. The Owner shall comply with the Effluent Limits of subsection 4 on a bi-weekly (once every two weeks) basis and in accordance to the monitoring requirements.

6. For the purposes of determining compliance with and enforcing subsection 4:

    a. non-compliance with respect to a Concentration Limit is deemed to have occurred when any single (grab) sample analyzed for a parameter named in Column 1 of subsection 4 is greater than the corresponding maximum concentration set out in Column 2 of subsection 4;

    b. non-compliance with respect to pH is deemed to have occurred when any single measurement

is outside of the indicated range.

7. A continuous flow measuring device(s) shall be installed and maintained to measure the flowrate of the effluent from the West Dam Pond, with an accuracy to within plus or minus fifteen (15) per cent of the actual flowrate for the entire design range of the flow measuring device. The Owner shall measure, record and calculate the flowrate for each effluent stream on each day of sampling.

7. EFFLUENT - VISUAL OBSERVATIONS

1. Notwithstanding any other condition in this Approval, the Owner shall ensure that the effluent from the works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen or foam on the receiving waters.

8. EFFLUENT MONITORING AND RECORDING

1. All samples and measurements taken for the WETOUT discharge location, shall be grab samples at a frequency described in Table 3 of Schedule B.

2. The Owner shall conduct 96 hr LC50 (Rainbow trout) and 48 hr LC50 (Daphnia magna) on a monthly schedule during discharge periods.

3. The methods and protocols for sampling, analysis, toxicity testing, and recording shall conform, in order of 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 Version 2.0" (January 2016), PIBS 2724e02, 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; and,

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

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

4. The temperature and pH of the effluent from the works shall be determined in the field at the time of sampling for total ammonia. The concentration of un-ionized ammonia shall be calculated using the total ammonia concentration, pH and temperature using the methodology stipulated in "Ontario's Provincial Water Quality Objectives" dated July 1994, as amended, for ammonia (un-ionized).

5. The measurement frequencies specified in subsection (2) in respect of any parameter are minimum

requirements which may, after **twelve (12) months** of monitoring in accordance with this Condition, be modified by the Director in writing from time to time.

6. A continuous flow measuring device(s) shall be installed and maintained to measure the flowrate of the effluent from the WETOUT, with an accuracy to within plus or minus fifteen (15) per cent of the actual flowrate for the entire design range of the flow measuring device. The Owner shall measure, record and calculate the flowrate for each effluent stream on each day of sampling.

7. During a period at or near the approved maximum daily effluent flow rate, the owner shall conduct a tracer test / plume delineation study in Balmer Lake to determine the location and size of the 1%, 3% and 10% plume concentrations.

8. During a period at or near the approved maximum daily effluent flow rate, and notwithstanding the existing effluent monitoring requirements, the owner shall conduct any additional effluent monitoring necessary for the purpose of determining:

    a. the wetland efficiencies of ammonia removal;

    b. the weekly and annual loadings of cyanide, arsenic, copper, lead, mercury, nickel, zinc, ammonia, and total phosphorus; and

    c. the acute toxicity of the effluent to Daphnia and Rainbow Trout.

9. Use existing lake monitoring stations and/or establish new ones for the purpose of determining lake water quality prior to and during periods of effluent discharge at the higher flow rate.

10. All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.

11. The Owner shall carry out a receiving water monitoring program with the parameters listed in Table 4 of Schedule B, on the receiver locations and frequencies outlined in Table 4 of Schedule B.

12. Subsurface grab samples shall be collected on a monthly frequency, except when and where ice conditions make sampling unsafe or where there is no flow at the creek locations.

13. The Owner shall carry out a water monitoring program with the parameters listed in Table 5 of Schedule B, on the Upper Balmer Creek at location UBC, with the sample frequencies identified in Table 5 of Schedule B.

14. The Owner shall monitor the effect of total mercury and methyl mercury from the wetland system and report the results to the District Manager, which shall contain, but not limited to:

    a. Mercury loadings into and out of the wetlands on a monthly basis;

b. The net production of methyl mercury within the wetlands on a monthly basis; and

c. The effect of the wetland on mercury/methyl mercury loadings to Balmer Lake.

9. GROUNDWATER MONITORING

1. The Owner shall carry out a groundwater water monitoring and a supplementary surface water monitoring program with monitoring parameters, locations and frequencies outlined in Tables 6 and 7 of Schedule B.

2. The Owner shall submit an annual groundwater report by June 30th of each year and include the monitoring data for the 12 month period ending December 31st of the previous year. The annual monitoring report must be prepared by a licensed independent Professional Geoscientist or Professional Engineer qualified in the field of hydrogeology. The annual report is intended as a stand alone document, and as a minimum must contain the following information:

    a. A site plan or plans of the entire site (mine site, tailings,) illustrating significant site features such as lakes, rivers, seeps, ponds, ditches, collection and treatment facilities, and roadways, as well as all of the sampling locations;

    b. A section of text explaining the background of the facility, including location, size, operating history, elevation, flows and any other details which may be critical to assessment and understanding of the facility's operation;

    c. A location map illustrating the site relative to nearby potentially sensitive groundwater/surface water features (i.e., lakes, streams, wells);

    d. A water table contour map;

    e. Stratigraphic cross-sections which clearly illustrate the subsurface distribution of geological materials;

    f. Borehole logs for all monitoring wells;

    g. Tables illustrating historical water chemistry and water level data;

    h. Graphs illustrating historical water quality trends with time for key analytical parameters;

    i. An assessment of monitoring data to evaluate the impact on the down gradient receptors with consideration for the site specific trigger mechanisms, and include estimation of ground water flows and loadings to the various receptors;

    j. Recommendations for future monitoring;

    k. Recommendations for any necessary remedial actions as they relate to the leachate

contingency plan;

l. A section detailing the field sampling protocols and QA/QC measures;

m. Groundwater drawdown within the various aquifer units as a result of the pumping system (West Dam Seepage Pump-Back System);

n. An assessment of any groundwater flow bypasses around the pumping system;

o. Impact of the water taking on groundwater discharge, flows and water levels within the golf course ditches and wetland complex adjacent to McNeely Bay;

p. Seasonal variations in the required pumping volumes;

q. Updates to the water balance calculations for the Campbell Complex Tailings Management Area (TMA), including during: operations, a probable maximum flood (PMF) event, and upon closure of the Main Pond;

r. An assessment of re-mobilisation of metals in groundwater and surface water; and

s. Whether the groundwater impacts predicted by the 3-D numerical model have proven to be reasonable; if there is a significant variance in the actual shallow groundwater drawdown and/or required pumping rates, reassessment of the 3-D model shall be undertaken.

3. The "Goldcorp Campbell Complex Monitoring Framework: Groundwater Monitoring Plan and Leachate Contingency Plan, as well as Supplementary Surface Water Monitoring Plan - 2018" may be amended each year with written concurrence of District Manager (copy to Director) upon review of the aforementioned annual groundwater report.

4. After the completion of **three (3) years** of monitoring in accordance with above subsections 1, 2 and 3, the Owner shall submit an amendment application to ensure the groundwater monitoring and supplementary surface water monitoring programs are updated in the Approval.

10. REPORTING

1. The Owner shall report to the District Manager or designate, any exceedance of any parameter specified in Condition 6 orally, as soon as reasonably possible, and in writing within **seven (7) days** of the exceedance.

2. In addition to the obligations under Part X of the Environmental Protection Act, the Owner shall, within ten (10) working days of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of

implementation.

3. The Owner shall prepare and submit a monitoring and compliance report to the District Manager on a monthly basis within **forty (40) days** following the period being reported upon. The Report should contain at a minimum:

    a. a summary and interpretation of all monitoring data and a comparison with the effluent limits outlined in Condition 6, and PWQOs, including an overview of the success and adequacy of the sewage 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 sewage works;

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

    e. a summary of the calibration and maintenance carried out on all effluent monitoring equipment.

4. The Owner shall prepare and submit a performance report to the District Manager on an annual basis within **thirty (30) days** following the end of the period being reported upon. 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 and interpretation of all monitoring data (effluent discharge and receivers) and a comparison with the effluent limits outlined in Condition 6, and PWQOs, including an overview of the success and adequacy of the sewage 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 sewage 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. a copy of all Notice of Modifications submitted to the District Manager, with a status report on the implementation of Limited Operational Flexibility;

g. report results of the tracer test / plume delineation study, lake monitoring during higher flow rates, as required/applicable under Condition 8, Subsections (7), (8) and (9). This report shall focus on the water quality of Balmer Lake as it may have been affected by the effluent discharge. References to PWQO and/or any site specific water quality objectives, effluent loadings, acute and chronic toxicity test results and lake discharge rates (at L2) are required. Predictions regarding the effluent plume size, loadings and potential water quality effects of increasing effluent flow rates to 35,500 m³/day Polish Pond + 9,500 m³/day stormwater are also required;

h. data comparison describing the ongoing recovery/degradation of the Balmer Creek / Balmer Creek watershed;

i. evaluation summary of the surface water, sediment and biological habitat in the Balmer Lake watershed, including a science-based approach with indicators measuring the potential for recovery of the watershed system; and

j. any other information the District Manager may require from time to time.

5. The Owner shall prepare and submit to the Ministry an update of the Balmer Lake and Balmer Creek Management Plan every by **March 1st every two (2) years**. The objective of the Plan is to provide ongoing direction regarding the recovery of water, sediment and biological quality in the watershed. The Plan shall:

   a. identify measurable environmental indicators that can serve to evaluate the recovery / degradation of the watershed system.

   b. provide summaries of current operations and programs, including, but not limited to the Receiving Water Monitoring.

   c. provide summaries of previous studies undertaken in the watershed.

   d. provide water and contaminant mass balances.

   e. assess current data against provincial and federal standards of water quality & aquatic health.

   f. make recommendations how improvements to water quality & aquatic health may be achieved.

   g. identify any research needs.

   h. assess the progress of the plan against the anticipated condition of Balmer Lake and Creek at mine closure.

6. Following submission of the updated Balmer Lake and Balmer Creek Management Plan, the Owner shall meet with Ministry staff at a mutually acceptable time & location to review the Plan and

determine how its objective may be best achieved.

11. APPROVAL SUBJECT TO FINAL DRAWINGS

1. The Owner shall not construct any portion of the pre-approved activities subject to approval of final drawings (approved under Environmental Compliance Approval No. 3618-868R65) until detailed design drawings, specifications and an engineer's report containing detailed design calculations for the pre-approved activities have been submitted to and approved by the Director.

Schedule A

1. Application for Environmental Compliance Approval amendment dated March 5, 2018 and received on March 9, 2018 submitted by Chris Gaspar, Environmental Coordinator, Goldcorp Inc. for the submission of final drawings of pre-approved Pump-back Remediation System, including design information, drawings and specifications.

Schedule B

Table 1 - Effluent Limits - WETOUT Final Discharge Location

Effluent Parameter	**Maximum Monthly Mean Concentration Limit** (mg/L unless otherwise indicated)	**Maximum Daily Concentration Limit** (mg/L unless otherwise indicated)
Column 1	Column 2	Column 3
Arsenic - Total	0.50	1.00
Copper - Total	0.30	0.60
Total Cyanide	1.00	2.00
Lead - Total	0.20	0.40
Nickel - Total	0.50	1.00
Zinc - Total	0.50	1.00
Total Suspended Solid (TSS)	15.0	30.0
Total Ammonia Nitrogen	10.0	10.0
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

Table 2 - Effluent Limits - West Dam Pond Discharge Location

Effluent Parameter	**Max. Daily Concentration Limit - Diversion Ditch** (mg/L unless otherwise indicated)
Arsenic - Total	0.05
Copper - Total	0.01
Total Cyanide	0.05
Lead - Total	0.005
Nickel - Total	0.03
Zinc - Total	0.03
Total Phosphorus	1.0
Total Ammonia Nitrogen	0.2
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times	

Table 3 - Effluent Monitoring Frequency - (Grab samples)

Effluent Parameter	WETOUT Final Discharge	WETIN, WETIN2 (During discharge)
Arsenic - Total	3 times per week	
Copper - Total	3 times per week	
Lead - Total	3 times per week	
Nickel - Total	3 times per week	
Zinc - Total	3 times per week	
Iron - Total	3 times per week	
Total Suspended Solid (TSS)	3 times per week	
Total Ammonia Nitrogen	3 times per week	Once per week
Cyanide - Total	3 times per week	
Cyanide - WAD	3 times per week	
Thiocyanate	3 times per week	
Total Hardness (as CaCO3)	3 times per week	
Conductivity	3 times per week	
Total Alkalinity (as CaCO3)	3 times per week	
Sulphate	3 times per week	
Temperature	3 times per week	
pH	3 times per week	
Total Mercury	Once per month	Once per month
Dissolved Organic Carbon	Once per month	Once per month
Phosphorus	Once per month	Once per month
LC50 - Rainbow Trout	Once per month	
LC50 - Daphnia Magna	Once per month	

Table 4 - Receiving Water Monitoring

location and Frequency	a. Balmer Lake, location N6E5 (once per month) b. Balmer Lake outlet, location L2 (once per month - only during periods of discharge) c. Balmer Creek, location BCD (once per month) d. Chukuni River upstream, location CHUKU (once per month) e. Chukuni River downstream, location CHUKD (once per month)
Sample Type	Grab
Parameters	Arsenic - Total, Copper - Total, Lead - Total, Nickel - Total, Zinc - Total, Iron - Total, Total Suspended Solids, Total Ammonia Nitrogen, Cyanide - Total, Total Hardness (as CaCO3), Conductivity, Total Alkalinity (as CaCO3), Sulphate, Temperature, pH, Total Mercury, and Total Phosphorus.

Table 5 - Upper Balmer Creek Monitoring

Frequency	Quarterly (once every three months)
Sample Type	Grab
Parameters	Arsenic - Total, Copper - Total, Lead - Total, Nickel - Total, Zinc - Total, Iron - Total, Total Suspended Solids, and Total Phosphorus.

Table 6 - Groundwater Water Monitoring

Sample Location	Locations as identified in "Goldcorp Campbell Complex Monitoring Framework: Groundwater Monitoring Plan and Leachate Contingency Plan, as well as Supplementary Surface Water Monitoring Plan - 2018", as amended from time to time in accordance with District Manager written concurrence.
Sample Frequency	**3 time per year**
Sample Type	Grab
Sample Parameters	Field Measurements • Static water level and well stick up height (monthly) • pH, temperature, specific conductance Laboratory Parameters • pH/specific conductance/alkalinity • Bicarbonate, carbonate & hydroxide alkalinity • Turbidity • Total suspended solids (TSS) • Total dissolved solids (TDS) • Anions (Br, Cl, F, NO_2-N, NO_3-N, SO_4) • Ammonia (NH_3-N) • Total cyanide (T-CN) • Free cyanide (Free CN) • Weak acid dissociable cyanide (WAD CN) • Dissolved organic carbon (DOC) • Dissolved phosphorus (D-P) by colourimetry • Dissolved metals

Table 7 - Supplementary Surface Water Monitoring

Sample Location **Sample Frequency**	Locations and frequencies as identified in "Goldcorp Campbell Complex Monitoring Framework: Groundwater Monitoring Plan and Leachate Contingency Plan, as well as Supplementary Surface Water Monitoring Plan - 2018", as amended from time to time in accordance with District Manager written concurrence
Sample Type	Grab
Sample Parameters	Field Measurements • Static water level, pH, temperature, specific conductance Laboratory Parameters • pH/specific conductance/alkalinity • Bicarbonate, carbonate & hydroxide alkalinity • Turbidity, TSS, TDS • Anions (Br, Cl, F, NO2-N, NO3-N, SO4) • Ammonia (NH3-N) • Total, free and WAD cyanide • DOC and D-P (by colourimetry) • Total and dissolved metals

Schedule C

Limited Operational Flexibility Criteria for Modifications to Industrial Sewage Works

1. The modifications to sewage works approved under an Environmental Compliance Approval (Approval) that are permitted under the Limited Operational Flexibility (LOF), are outlined below and are subject to the LOF conditions in the Approval, and require the submission of the Notice of Modifications. If there is a conflict between the sewage works listed below and the Terms and Conditions in the Approval, the Terms and Conditions in the Approval shall take precedence.

   1.1 Sewage Pumping Stations

   a. Alter pumping capacity by adding or replacing equipment where new equipment is located within an existing sewage treatment plant site or an existing sewage pumping station site, provided that the modifications do not result in an increase of the sewage treatment plant Rated Capacity and the existing flow process and/or treatment train are maintained, as applicable.

   b. Forcemain relining and replacement with similar pipe size where the nominal diameter is not greater than 1,200 mm.

   1.2 Sewage Treatment Process

   a. Installing additional chemical dosage equipment including replacing with alternative chemicals for pH adjustment or coagulants (non-toxic polymers) provided that there are no modifications of treatment processes or other modifications that may alter the intent of operations and may have negative impacts on the effluent quantity and quality.

   b. Expanding the buffer zone between a sanitary sewage lagoon facility or land treatment area and adjacent uses provided that the buffer zone is entirely on the proponent's land.

   c. Optimizing existing sanitary sewage lagoons with the purpose to increase efficiency of treatment operations provided that existing sewage treatment plant rated capacity is not exceeded and where no land acquisition is required.

   d. Optimizing existing sewage treatment plant equipment with the purpose to increase the efficiency of the existing treatment operations, provided that there are no modifications to the works that result in an increase of the approved rated capacity, and may have adverse effects to the effluent quality or location of the discharge.

   e. Replacement, refurbishment of previously approved equipment in whole or in part with Equivalent Equipment, like-for-like of different make and model, provided that the firm

capacity, reliability, performance standard, level of quality and redundancy of the group of equipment is kept the same or exceeded. For clarity purposes, the following equipment can be considered under this provision: pumps, screens, grit separators, blowers, aeration equipment, sludge thickeners, dewatering equipment, UV systems, chlorine contact equipment, bio-disks, and sludge digester systems.

1.3 Sewage Treatment Plant Outfall

a. Replacement of discharge pipe with similar pipe size or diffusers provided that the outfall location is not changed.

1.4 Sanitary Sewers

a. Pipe relining and replacement with similar pipe size within the Sewage Treatment Plant site, where the nominal diameter is not greater than 1,200 mm.

1.5 Pilot Systems

a. Installation of pilot systems for new or existing technologies provided that:

i. any effluent from the pilot system is discharged to the inlet of the sewage treatment plant or hauled off-site for proper disposal,

ii. any effluent from the pilot system discharged to the inlet of the sewage treatment plant or sewage conveyance system does not significantly alter the composition/concentration of the influent sewage to be treated in the downstream process; and that it does not add any inhibiting substances to the downstream process, and

iii. the pilot system's duration does not exceed a maximum of two years; and a report with results is submitted to the Director and District Manager three months after completion of the pilot project.

1.6 Tailings Management Facilities

a. Routine dam raises and dam extensions to allow continued management of tailings and storage of mineral materials and sewage, provided that:

i. Routine dam raises and extensions are in adherence with a tailings management plan prepared by a Professional Engineer licensed under the *Professional Engineers Act* in Ontario.

ii Routine dam raises and extensions are sealed by a Professional Engineer licensed under the *Professional Engineers Act* in Ontario.

iii Routine dam raises and extensions have an associated Erosion and Sediment Control

Plan applying best management practices that is to be implemented during construction.

b. New dams are not eligible under LOF, unless described in an Amended Environmental Compliance Approval.

c. Pipe replacement or extension with similar pipe size within the Tailings Management area, where the nominal diameter is not greater than 1,200 mm.

2. Sewage works that are exempt from section 53 of the OWRA by O. Reg. 525/98 continue to be exempt and are not required to follow the notification process under this Limited Operational Flexibility.

3. Normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment, provided that the modification is made with Equivalent Equipment, are considered pre-approved.

4. The modifications noted in section (3) above are <u>not</u> required to follow the notification protocols under Limited Operational Flexibility, provided that the number of pieces and description of the equipment as described in the Approval does not change.

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 Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the Owners their responsibility to notify any person they authorized to carry out work pursuant to this Approval the existence of this Approval.

2. Condition 2 is included to ensure that the Ministry records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the Works are made aware of the Approval 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 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.

5. Condition 5 is imposed to ensure that the Works are operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider. These conditions are also included to ensure that a Professional Engineer has reviewed the proposed Modifications and attests that the Modifications are in line with that of Limited Operational Flexibility, and provide assurance that the proposed Modifications comply with the Ministry's requirements stipulated in the terms and conditions of this Approval, MOE policies, guidelines, and industry engineering standards and best management practices.

6. Conditions 6 and 7 are imposed to ensure that the effluent discharged from the works to the Balmer Lake meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver.

7. Conditions 8 and 9 are included to require the owner to demonstrate on a continual basis that the quality and quantity of the effluent from the approved works is consistent with the design objectives and effluent limits specified in the Approval and that the approved works does not cause any impairment to the receiving watercourse.

8. 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.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 6584-98TKW8 issued on January 9, 2014.

In accordance with Section 139 of the Environmental Protection Act, 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 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

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

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

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, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 26th day of February, 2019

Fariha Pannu, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

NH/
c: Area Manager, MECP Kenora Area Office
c: District Manager, MECP Thunder Bay District Office
Chris Gaspar, Goldcorp Inc.