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December 14, 2018

Mohammed Ali
Director of Environmental Affairs
Kirkland Lake Gold
1350 Government Road West
Kirkland Lake, ON
P2N 3J1
Email: mali@klgold.com

**RE: Director's directions under section 60 and 61 of the Ontario Water Resources Act
Extended effluent discharge, Macassa Mine**

Dear Mr. Ali:

On November 8, 2018 the Ministry of Environment, Conservation and Parks (Ministry) received a request from Kirkland Lake Gold (Company) to discharge treated effluent from the Effluent Treatment Plant located at the Macassa Mine for a period beyond the seasonal window of April 1st to November 30th as required by Environmental Compliance Approval (ECA) No.6702-B64JKA.

I understand that as conveyed in the request and the subsequent information that was provided, the Company feels it needs to lower the water level in the Conditioning Pond to provide adequate storage until the discharge period restarts on April 1, 2019, and that this discharge is necessary to mitigate risk to the environment from a bypass and/or dam breach should the water level not be lowered. Further, I understand that the water level in the Conditioning Pond is 0.6 meters higher than anticipated for this time of year, and that the Company proposes the discharge of approximately 158,510 m³ of treated industrial effluent to the polishing pond system which ultimately reports to Amikougami Creek. The Company estimated that it would take at least 44 days to treat and discharge this volume.

Please be informed that after careful consideration of your request and consultation with the Ministry's Northern Region Technical Support Section, I herein approve of the extended discharge until February 15, 2019, in accordance with Section 60 and 61 of the Ontario Water Resources Act subject to the directions that follow.

1. Except as otherwise provided by these conditions, Kirkland Lake Gold shall operate and maintain the works approved under Environmental Compliance Approval (ECA) No. 6702-B64JKA per the conditions of that approval.

2. The Company shall determine the suitable rate at which discharge is to occur with consideration of the current volume of effluent needing to be discharge, the current effluent quality, and the current and anticipated flows in the Amikougami Creek over the duration of the discharge such that:
 - a. the effluent meets all water quality limits prescribed by the ECA, and Ontario Regulation 560/94, and
 - b. is done in such a manner and with sufficient control that no impairment, as defined by the Ontario Water Resources Act section 1 (3), (4), and (5), to Amikougami Creek or any other downstream watercourse occurs as a result of the extended discharge.
 - c.
3. The Company is not to assume that meeting the prescribed dilution ratio requirements as per Section 4(1) in the ECA 6702-B64JKA will be sufficient to ensure adequate environmental protection but rather will complete necessary assessment as noted in item 2.
4. The Company is to develop and implement an enhanced monitoring plan, and submit this plan to my attention for review by end-of-day December 18, 2018.
5. The above monitoring plan is to include, but not necessarily, be limited to:
 - a. a map of appropriate scale
 - b. a description of the sampling sites
 - c. sampling sites established within Amikougami Creek at the following locations:
 - i. The point at which final effluent discharged from the polishing pond enters the creek
 - ii. At a point upstream of the point where the final effluent discharged from the polishing pond enters the creek
 - iii. At a point downstream and within 100 meters of the point where the final effluent discharged from the polishing pond enters the creek
 - iv. At a point downstream and within 2000 meters of the point where the final effluent discharged from the polishing pond enters the creek
 - d. the proposed sampling frequency and approximate time of collection
 - e. a list of the parameters for which the samples will be analyzed by an independent accredited laboratory and at a minimum, including those parameters listed as have effluent limits in Table 3(1) of ECA 6702-B64JKA with the exception of BOD₅, Oil and grease (total), and phenolics
 - f. conducting in-field measurements of conductivity at the time of all sample collection for samples collected in Amikougami Creek and at the final effluent discharge monitoring point.

6. Within 30 days after the operation of the effluent treatment plant is completed, the Company shall prepare and submit to the Ministry a report including, at a minimum, the following information:
 - a. A description of the circumstances that lead to the discharge of treated effluent from the Effluent Treatment Plant beyond the approved period stated in ECA No.6702-B64JKA.
 - b. Precipitation data relevant to the Macassa Mine site from September 1, 2018 to the end of the discharge period.
 - c. A table including:
 - i. the total daily volume of discharge at the final effluent monitoring point from the polishing pond
 - ii. the total daily volume of discharge from the Effluent Treatment Plant, and
 - iii. the individual total daily volume of discharge from the other contributing sources to the overall final total daily discharge volume (e.g. water taken from the underground mine workings and from the historical mining area) for the period beginning September 1, 2018 until completion of the extended operation of the Effluent Treatment Plant.
 - iv. the daily flow rate in Amikougami Creek
 - v. a daily dilution calculation depicting the ratio between the volume of discharge passing the final effluent monitoring point and the flow in Amikougami Creek.
 - vi. a daily dilution calculation depicting the ratio between the volume of Effluent Treatment Plant discharge and the flow in Amikougami Creek.
 - d. An outline of all strategies undertaken by the Company to manage the water balance at the site prior to November 30, 2018.
 - e. A statistical summary and interpretation of the sample results from all samples collected during the extended discharge period and an assessment as to the impact on Amikougami Creek as a result of the extended discharge period.
 - f. As per Table 1.3 submitted to the Ministry on November 26, 2018, the company is to replace the last two columns in the aforementioned memo with the following information and provide this in the report required above:
 - i. The result of calculations showing the concentration in Amikougami Creek under current flow conditions upon instantaneous dilution of the effluent; and
 - ii. The result of calculations showing the concentration in Amikougami Creek under 7Q20 (monthly for December and January) flow conditions upon instantaneous dilution of the effluent.
7. A weekly status report to my attention detailing the current water level in the pond, any operational issues experienced during the extended discharge period, and the results of in-field conductivity measurements. The first report is to be submitted by e-mail by end-of-day December 24, 2018 and it is to cover the time period from December 1 to 21, 2018, with subsequent reports to cover the week prior.

Please note that the direction included herein does not relieve the Company of any other legislated requirement that may be applicable, nor does it provide protection to the Company should impairment to Amikougami Creek or any other downstream water body occur result from the extended discharge period.

The directions noted within this letter were formulated following consultation with the Ministry's Northern Region Technical Support Region and with Kirkland Lake Gold. If you have any questions regarding the conditions noted herein, I may be reached telephone at (705) 235-1506.

Yours truly,

Original signed by Carroll Leith

Carroll Leith
District Manager
Director, Section 60 and 61 Ontario Water Resources Act
Timmins District

c.c.: Duncan King, Vice President Mining Kirkland Lake Operations