Barrick Gold Inc.
TD Canada Trust Tower
Suite 3700, 161 Bay Street
PO Box 212
Toronto, Ontario
M5J 2S1

September 24th, 2018

Ms. Stephanie Autut
Executive Director,
Nunavut Water Board
P. O. Box 119
Gjoa Haven, Nunavut
X0B 1J0

Via email to: licensing@nwb-oen.ca

Subject: **Cullaton Lake Water License 1BR-CUL1118 Closure and Reclamation Plan Response to September 5th, 2018 review comments from CIRNAC and ECCC.**

Dear Ms. Autut:

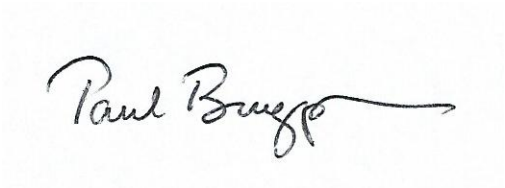
Please find appended as Attachment 1 a response from Palmer Environmental Consulting Group to address comments and recommendations in the September 5th, 2018 review of the Closure and Reclamation Plan (CRP) by Environment and Climate Change Canada (ECCC).

With respect to the recommendation by Crown – Indigenous Relations and Northern Affairs Canada (CIRNAC) to bond for the full undiscounted cost of monitoring for 100 years, Barrick's position is that undiscounted closure costs would be appropriate for near term costs (i.e. less than 30 years). Longer term monitoring costs, particularly up to 100 years, should be discounted, in order to avoid placing unwarranted additional financial burden on the proponent.

As an alternative, Barrick suggests setting the bond amount equal to the total monitoring costs for the term of the license, plus the contingency allowance based on the 100-year discounted total. For example, if the license term is set at 10 years, the bond amount would be $CDN750,000.00 according to appended Attachment 2 (revised table to replace Appendix F in the CRP in order to correct a minor addition error). Alternately, if the license term is 20 years, the undiscounted bond amount would be $CDN1,058,000.00. If CIRNAC reconsiders their position and accepts a 3% discount rate after the initial 10 year period, as proposed by Barrick, the bond amount would be $CDN1,634,000.00. In all cases, it is anticipated that the bond amount would be revisited at the time of each subsequent licence renewal.

Kindly advise as to which of the above is acceptable to all parties and at what amount the bond should be.

Sincerely,



Paul J. Brugger, P. Eng. | Closed Properties Manager – Eastern Canada Sites
Phone: (705) 632-1871
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Email: pbrugger@barrick.com

Cc Ian Parsons, Water Resources Coordinator, Crown – Indigenous Relations and Northern Affairs Canada
Allison Brown, Canadian Closed Sites Manager
Michael McCarthy, Senior Counsel

Attachments: As stated

PALMER
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September 24, 2018

Paul Brugger
Barrick Gold Corp.
2270 Corporate Circle, Suite 100
Henderson, NV 89074, USA

Dear Mr. Brugger:

Re: Response to ECCC Comments on Cullaton Lake Closure and Reclamation Plan

1. Introduction

Palmer Environmental Consulting Group Inc. (PECG) has prepared responses to address Environment and Climate Change Canada (ECCC)'s September 5th, 2018 comments on the Closure and Reclamation Plan (CRP) for Barrick Gold Corporation (Barrick)'s Cullaton Lake project.

2. ECCC Issue #1

Given the location and proximity of the encapsulated waste rock (EWR) to Shear Lake, there may be potential for groundwater discharge from the EWR to the lake through the active layer during the warm months. In addition, given the statements by the Proponent in Sections 5.2.2.3 and 5.2.2.4, it is not clear where the source of the low pH pool of water is given that it is not hydraulically connected to the EWR facility. Furthermore, on Figure 5-4, the site map that shows sampling locations, there is no sample location between the EWR and Shear Lake, nor is there is a monitoring well between the EWR and Shear lake that would verify any groundwater seepage into the lake.

2.1 ECCC Recommendation

ECCC recommends that the Proponent clarify the following:

a) The source of the low pH pool of water
b) If there is a sample location or monitoring well between the EWR and Shear lake, and;
c) If there is no monitoring station between the EWR and Shear Lake, how has or will the Proponent determine that there is or has not been seepage into Shear Lake.

2.2 Response

The following addresses ECCC's three questions:

a) The low pH pool forms on a low spot in the bedrock that allows runoff to collect and evapo-concentrate over the open water season. The area upslope from this low spot contains a thin

veneer of dispersed waste rock remaining from the site clean up in the vicinity of the portal. For context, the Shear Zone is located in a discontinuous ridge of outcrop of orthoquartzite. The orthoquartzite is white with variations of pink to red, fine-grained to glassy, and varies from thin-bedded to thick-bedded or massive. Typically, the orthoquartzite is composed of 97% or more quartz with only scattered sericite, feldspar and magnetite.

The waste rock veneer material is mostly reworked near-surface bedrock material, which is itself orthoquartzite and has essentially no neutralization potential, since it is silicate mineral. There is no discernable overland flow path exiting the shallow pool. It is important to note that the low pH pool represents surface run-off collected from the waste rock veneer in the former portal area and not from the EWR, which is 350m north and drains eastward as indicated below.

b) There is no sample location or monitoring well needed between the EWR and Shear Lake, see below.

c) Seepage from the EWR is not expected to affect Shear Lake. This is because there is bedrock beneath the EWR and bedrock outcrop between the EWR and Shear Lake. This bedrock orientation and topography is such that shallow groundwater and surface runoff drains to the east away from the lake. Please refer to the Trow (2005) Site Plan drawing of the EWR in Appendix E (E-2) of the CRP. Note that the surveyed cross-sections are presented with a 10-fold vertical exaggeration.

The EWR was constructed in the following manner: A 1 m thick layer of low-permeability till was placed over the bedrock slope and a toe berm was constructed at the bottom of the slope to support the waste rock and cover that was placed on top of the till. The waste rock was then covered by another 2 m of till and revegetated. With the till cap and vegetation, the intention is that only a very small portion of the annual precipitation would be able to infiltrate. The cover was constructed with an uncompacted upper layer over top a compacted low-permeability layer. This results in a “store and release” feature that facilitates the evapotranspiration of any precipitation that does infiltrate rather than running off the sloping surface of the till cover. What little water that may infiltrate and percolate down through the encapsulated waste rock will eventually reach the underlying sloping till surface and will drain away from the lake and down to the toe berm where it will eventually report to the previously established Monitoring site 940-27. The 10+ years of monitoring beginning in 2005, since the EWR was constructed, have not identified the presence of water at the drainage collection point.

Thick layers of till above (2 m) and below (1 m) the waste rock are sufficient to insulate the underlying bedrock, and most likely the bottom till layer, ensuring permafrost development and avoiding the potential development of an active layer beneath the waste rock. Groundwater flow through the frozen ground towards Shear Lake, is therefore not possible. As such, there is no flow to monitor and no sampling location required.

PALMER ENVIRONMENTAL CONSULTING GROUP INC.

3. ECCC Issue #2

It is not clear what is intended by the ***statement "the quantity and quality of the seepage is readily assimilated within the ultimate receiving environment of the Kognak River".*** The 2009 Ecological Risk Assessment report for the Cullaton Lake Mine Site found several species of fish in Shear Lake. Section 36 (3) of the Fisheries Act prohibits the deposit of deleterious substances of any type in waters frequented by fish. Does the referenced statement mean that seepage from the EWR is entering the Kognak River, and/or that the Proponent does not consider Shear Lake the receiving environment?

3.1 ECCC Recommendation

ECCC recommends that the Proponent clarify what is intended by the ***statement "the quantity and quality of the seepage is readily assimilated within the ultimate receiving environment of the Kognak River"*** and whether or not the Proponent considers Shear Lake the receiving environment. Should it be determined that there is seepage from the EWR into Shear Lake, ECCC recommends that the Proponent consider the addition of a groundwater monitoring well and/or water quality samples in Shear Lake near the EWR, to determine the extent of the seepage from the EWR to Shear Lake.

3.2 Response

To clarify, Shear Lake is recognized as receiving environment and fish habitat (in addition to the ultimate receiving environment of the Kognak River). It is our opinion that a single monitoring location on Shear Creek downstream of all the loading sources from the Shear mine site area is sufficient to provide confirmation that no adverse effects are occurring in the lake upstream as well as in the creek. No tributaries enter Shear Creek between the lake and the SW9 monitoring location such that the SW9 water quality will be similar to Shear Lake. Monitoring data over the past several years has shown that Shear Creek is generally close to or below CCME water quality guidelines for all parameters. As discussed in the response to ECCC Comment #1, no seepage is expected to enter Shear Lake from the EWR.

Yours truly,
Palmer Environmental Consulting Group Inc.

Prepared By: *[Original signed by]*
May Mason, M.Sc., R.P.Bio.
Senior Aquatic Ecologist

Reviewed By: *[Original signed by]*
Rob Marsland, M.Sc., P.Eng.
Senior Environmental Engineer

APPENDIX F - CULLATON LAKE MINE - LONG TERM SITE MONITORING COSTS (Expressed in 2018 Dollars)

		CLOSURE PERIOD		POST CLOSURE MONITORING																				100 YEARS
		Year 0		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Years 11 - 20	Years 21 - 30	Years 31 - 40	Years 41 - 50	Years 51 - 59	Years 61 - 69	Years 71 - 79	Years 81 - 89	Years 91 - 99	101 YEARS	Post Reclamation
		2017 Total	2018	2018 Total	2019 Total	2020 Total	2021 Total	2022 Total	2023 Total	2024 Total	2025 Total	2026 Total	2027 Total	2028 - 2037 Totals	2038 - 2047 Totals								2017 TO 2117	2018 - 2117 Total
1 SITE MAINTENANCE																								
Fencing / Signage			$ 2,000									$ 2,000		$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 21,600	$ 22,000
Emergency Housing	Assume shack repairs every 10 years starting in 2018		$ 2,000									$ 2,000		$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 21,600	$ 22,000
Contingency allowance (unexpected maintenance, or supplem	One time (30%)											$ 377,030											$ 377,030	$ 377,030
Site Road Work - clearing shrubs, leveling, maintaining strean	Every 10 years starting in 2018		$ 4,000									$ 4,000		$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 43,200	$ 44,000
Repairs to Rip-Rap - Spillway	Every 20 yrs Starting in 2026											$ 64,750			$ 64,750		$ 64,750		$ 64,750		$ 64,750		$ 323,750	$ 323,750
Airstrip	Every 10 years starting in 2018		$ 15,000									$ 15,000		$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 162,000	$ 165,000
																								$ -
2 Site Monitoring (Excluding Thermister Installation)																								$ -
Geotechnical Inspections																								$ -
Routine Inpections	Starting in 2018 decrease frequency to every 2nd	$ 11,350	$ -	$ 11,350	$ -	$11,350	$ -	$ 11,350	$ -	$11,350	$ -	$ -	$ -	$ 45,400	$ 45,400	$ 45,400	$ 45,400	$ 45,400	$ 45,400	$ 45,400	$ 45,400	$ 45,400	$ 456,270	$ 454,000
Dam Safety Reviews	Do every 10 yrs starting in 2016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 43,840	$ -	$ 43,840	$ 43,840	$ 43,840	$ 43,840	$ 43,840	$ 43,840	$ 43,840	$ 43,840	$ 43,840	$ 429,632	$ 438,400
Routine Surface Water Monitoring																								$ -
Chemistry 4 locations	Starting in 2018 decrease frequency to every 2nd	$ 28,640	$ -	$ 14,320	$ -	$14,320	$ -	$ 14,320	$ -	$14,320	$ -	$ 14,320	$ -	$ 71,600	$ 71,600	$ 71,600	$ 71,600	$ 71,600	$ 71,600	$ 71,600	$ 71,600	$ 71,600	$ 730,320	$ 716,000
Charter Flight Thompson to site	Starting in 2018 decrease frequency to every 2nd	$ 21,500	$ -	$ 10,750	$ -	$10,750	$ -	$ 10,750	$ -	$10,750	$ -	$ 10,750	$ -	$ 53,750	$ 53,750	$ 53,750	$ 53,750	$ 53,750	$ 53,750	$ 53,750	$ 53,750	$ 53,750	$ 548,250	$ 537,500
Sediment / Benthic sampling	Every 4 years starting in 2018	$ -	$ -	$ 20,230	$ -	$ -	$ -	$ 20,230	$ -	$ -	$ -	$ 20,230	$ -	$ 60,690	$ 40,460	$ 60,690	$ 40,460	$ 60,690	$ 40,460	$ 60,690	$ 40,460	$ 60,690	$ 513,842	$ 525,980
Ecological Risk Assessment Monitoring																								
Review Surface Water and Benthic Data				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,000	$ -	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 98,000	$ 100,000
Aquatic - Fish Survey		$ -	$ 25,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 25,000	$ -
Thermister installation at tailings		$ -	$110,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 110,000	$ -
TOTAL 2017 to 2117 FORECAST COSTS		**$ 61,490**	**$158,000**	**$ 56,650**	**$ -**	**$36,420**	**$ -**	**$ 56,650**	**$ -**	**$36,420**	**$ -**	**$ 563,920**	**$ -**	**$ 308,280**	**$ 352,800**	**$ 308,280**	**$ 352,800**	**$ 308,280**	**$ 352,800**	**$ 308,280**	**$ 352,800**	**$ 308,280**	**$ 3,860,494**	**$ 3,725,660**
				0	1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	70	80	90		
3% Discount rate				(56,650)	-	(36,420)	-	(56,650)	-	(36,420)	-	(563,920)	-	($229,389)	($195,337)	($127,007)	($108,153)	($70,321)	($59,882)	($38,935)	($33,155)	($21,557)		

Years 1-10	$ 750,060	no discount	$ 750,060	no discount
Years 11-20	$229,389	discounted	$ 308,280	no discount
Years 21-30	$195,337		$ 352,800	no discount
Years 31-40	$127,007		$ 308,280	no discount
Years 41-50	$108,153		$ 352,800	no discount
Years 51-60	$70,321		$ 308,280	no discount
Years 61-70	$59,882		$ 352,800	no discount
Years 71-80	$38,935		$ 308,280	no discount
Years 81-90	$33,155		$ 352,800	no discount
Years 91-100	$21,557		$ 308,280	no discount
Total for 100 years	########	Discounted	$ 3,702,660	
			no discount after year 10	