Our Ref: KC2225/MS

Your Ref:

17th December 2021

Dalradian Gold
3 Killybrack Road
Omagh
BT79 7DG

For the attention of [redacted]

Dear Sir,

Proposed Development of Curraghinalt Mine
Response to NIEA letter of 18th November 2021; Ref: TC80/20, AIL/2020/0105, AIL/2020/0106

NIEA issued by letter of 18th November 2021 to DGL a Further Information Request under the Water (NI) Order 1999 and the Abstraction and Impoundment (Licensing) Regulations (NI) 2006 related to:

- TC81/20: Trade Discharge Consent Application
- AIL/2020/0105: Surface Water Abstraction Licence Application
- AIL/2020/0106: Groundwater Abstraction Licence Application

In respect to applications AIL/2020/0105 and AIL/2020/0106, NIEA request the following:

- Provision of a Water Balance Test
- Confirmation of volumes to be abstracted at all proposed abstraction points

In respect to application TC/81/20:

- Confirmation of the proposed maximum daily discharge volume of trade effluent

Responses to these requests are provided below.

1. Provision of a Water Balance Test for AIL/2020/0105 and AIL/2020/0106

The NIEA letter specifically asks for '*supporting information to verify whether the proposed abstraction will impact the status of the groundwater body based on the water* balance test'.

The methodology for the Water Balance Test is outlined in '*River Basin Management Plans (2015 – 2021): Groundwater Classification Methodology Water Balance, December 2015'* published by the Northern Ireland Environment Agency (the 2015 NIEA Methodology). Figure 1 below describes the stages identified in the 2015 NIEA Methodology.

The abstractions are located within the Gortin groundwater body, the extent of which is shown in Figure 2, below. As outlined in the UKTAG guidance (*UKTAG Paper 11b(ii) on Groundwater Quantitative Classification*), assessments should be undertaken at the scale of the groundwater body. In Section 4 of the UKTAG paper it is noted that for the Water Balance test, '*For this test we must assess annual average abstraction against the available groundwater resource in the groundwater body. This test is applied at the groundwater body scale'*.

UKTAG guidance (para 4.4) states that '*Abstracted groundwater that has been locally returned to the aquifer or to a river should be discounted (for example, this may occur at a quarry/mine dewatering operation'*. The specific reference to mine dewatering is noted. This guidance is reinforced in the 2015 NIEA Methodology and Figure 1, where abstracted water that is returned (e.g., quarry dewatering) is excluded from the calculation.

Abstracted water under AIL/2020/0105 and AIL/2020/0106 will be returned to watercourses within the surface water catchment of the Gortin groundwater body. This is stated in the two abstraction licence application forms (Section 5.3 of the forms, under 'Water Return'), where for both abstraction licence applications it is noted that the discharge volume exceeds the extracted volume.

Therefore, following UKTAG and NIEA guidance the proposed abstractions are excluded from the Water Balance Test. As a result, given that the abstracted volume from the Gortin groundwater body would not be increased within the Water Balance Test calculation (Step 2 in Figure 1), there will be no impact on the status of the Gortin groundwater body as a result of the Water Balance Test.

More detailed and focussed assessments on the impact of the mine site on local groundwater levels and stream flows have been undertaken in the EIA submission in support of the mine, through groundwater modelling and surface water impact assessment. These effects are not on the scale of the groundwater body and focus on the small streams close to the mine site. These local scale assessments are appropriate to be considered within the context of an EIA.

2. Confirm volumes to be abstracted at all proposed abstraction points for AIL/2020/0105 and AIL/2020/0106

We can confirm the values noted in the abstraction licenses have not changed.

3. Confirm the proposed maximum daily discharge volume of trade effluent for TC/81/20

It is confirmed that the consent to discharge is for a maximum daily discharge of 7,212 m^3/day, of which 12 m^3/day is sewage effluent.

The Consent to Discharge application includes Mass Balance Modelling based on a Monte Carlo modelling technique used by NIEA. Within this modelling methodology the calculation requires input of an average discharge rate with a standard deviation. The average discharge rate was calculated using the site water balance model with the standard deviation set to one third of the average consistent with the Monte Carlo modelling guidance.

Therefore, the input to the Consent to Discharge calculation is not the same as that on application form WO1;

- The value in the Consent to Discharge is that required to undertake mass balance (water quality) calculations consistent with the Monte Carlo model
- The value in WO1 is a maximum daily rate as requested by the form

However, both values are consistent and reflect the different requirements of the two applications.

We trust the above is sufficient for your requirements. However, if you have any queries regarding this letter, please do not hesitate to contact us.

Yours faithfully,

Figure 1: Stages of Water Balance Test

1. Calculate the annual average recharge to groundwater body

↓

2. Calculate the annual average volume abstracted from each groundwater body over the last 6 years based on licence returns. Exclude returned water, e.g. quarry dewatering.

↓

3. Estimate groundwater contribution as an annual average to support all river ecosystems across the groundwater body

↓

4. Subtract 3 from 1 to get the available groundwater resource

↓

5. Does 2 exceed 4? If yes, then proceed to step 7, otherwise groundwater body is at good status.

↓

6. Are there other lines of evidence indicating poor status of the groundwater body? Groundwater body is at poor status.

Figure 2: Location of Gortin Groundwater Body