

Our reference: A1327077

File: RM20.024

26 February 2020

Sent via email to: Duncan.Ross@oceanagold.com

Dear Sir

Request for further information under section 92(1) of the Resource Management Act 1991 (the Act) – Application Number RM20.024

Thank you for your application for various consents relating to Deepdell North Stage III Project.

An initial assessment of your application has been made. To be able to make a full assessment of the application we request the following information [s92(1)].

Air Quality

1. The AEE includes a brief discussion of Respirable Crystalline Silica (RCS) and PM₁₀/PM_{2.5} monitoring undertaken in relation to existing mining activities in 1998-2000, but does not provide any specific details. It is noted that considerable advancements have occurred in the state of knowledge regarding the potential effects of RCS over the past 20 years. Please provide further detail in respect of this matter, with reference to:
 - (a) measured RCS;
 - (b) PM₁₀ concentrations;
 - (c) the separation distance between the monitors and mining activities;
 - (d) current accepted guidelines; and
 - (e) the proximity of sensitive receptors to the proposed Deepdell activities.
2. Assess the dust effects associated with construction activities, notably construction of the large bund on the eastern side of the haul road that is indicated in the plans. In this assessment consider methods proposed to control potential effects on the Howard residence and property during the construction period.

3. Having specific regard to the location of the Howard residence, assess the merit of employing continuous particulate monitoring methods during the 2-year period of proposed activity at Deepdell. Monitoring should be located between the proposal and the Howard residence and provide 1-hour and 24-hour suspended particulate concentration data with reference to trigger levels that could be used to instigate additional dust control conditions as required.
4. Propose specific consent conditions for the proposed discharge to air permit. In this refer to the specific dust gauges of relevance (DG07 and DG15), the suspended particulate monitoring, reporting proposed and appropriate trigger levels with response actions. When proposing conditions include any changes that may be proposed as a result of questions 1-3 of this letter.

Deepdell East Waste Rock Stack Design

5. From the volumes discussed in Section 1.0, it appears that the volume of waste rock will exceed that of the proposed waste rock stack (WRS). Clarify that other appropriate locations have been or will be identified for disposal of the balance of waste rock, and that appropriate consents are in place or will be applied for.
6. Confirm that the large tension cracks observed in the Deepdell South Pit eastern wall have been appropriately considered in the slope stability analyses. It may be appropriate to undertake a sensitivity analysis considering a significantly reduced cohesion value for the schist.
7. Clarify when and how the design requirement for shear keys will be reviewed. Comment on whether additional test pits be carried out in the vicinity of the potential shear key prior to construction of the WRS.
8. We note that mapped dips are not always in the downslope direction, however, there is variability in both dip and downslope directions across the WRS footprint. Provide justification for the use of a downslope dip of 15 degrees at Section B-B' (20 degree dip mapped nearby), 10 degrees at Section C-C' (25 degrees mapped nearby) and 0 degrees at Section D-D' (25 degrees mapped nearby). Undertake sensitivity analyses to assess the effect of more unfavourable dip/slope combinations which may exist.

Geotechnical Review for Deepdell Stage 3 Pit

9. The Mohr-Coulomb strength parameters for intact schist are significantly different from those used for assessing stability of the waste rock stack and Deepdell South backfill. Provide further discussion on the development of the adopted parameters and/or demonstrate that the stability objectives can be achieved with lower strength parameters.
10.
 - (a) Comment on whether the potential for block failure (such as planar sliding, wedge failure, and toppling) under seismic conditions been considered.
 - (b) Provide further information if this has been assessed, or justification if this assessment is not warranted.

- (c) If block failure or bench failure could occur post-closure under seismic conditions, please comment on the potential effects on the pit lake, such as a bench failure large enough to result in a wave overtopping the pit wall.

Mining Airblast Assessment

11. This report refers to a previous report. Confirm that the previous report referenced is the document titled “*Technical Report, January 2018b, Mining Vibration Assessment – Deepdell North Stage III Project, Macraes New Zealand, dated 30 January 2018*”, and that the mining vibration assessment part of this January 2018 report is still valid for the Deepdell North Stage III project.
12. Subject to comment 11 above, the vibration formula constant and exponent referenced in the above January 2018 report are the same as that used for the Coronation Pit assessment. Comment on whether any monitoring been undertaken for the Coronation Pit project which can be used to verify these parameters.
13. Subject to comment 11 above, the historical vibration readings from Deepdell North (referenced in the above January 2018 report) are reported in terms of RPPV (mm/s). Clarify this parameter, i.e. is this raw peak particle velocity, or a root mean square (RMS) value.
14. AS2187.2 – 2006 J7.3 states that “...*ground vibration levels can vary from two-fifths to four times that estimated.*” Confirm whether the adopted K factor suitably accounts for this variability, or if the assessment accounts for this variability in another way.
15. Clarify how the airblast levels presented in the table in Section 4 of the report have been calculated. The formula and overpressure (kPa) levels presented appear to correspond to higher airblast levels.

Surface Water

The following information is required to help understand model suitability for predicting water quality:

16. Model hydrological calibration:
 - (a) Provide a presentation of the 6.5 year hydrological calibration period (graphically)
 - (b) Provide analysis and tabulation of model performance by comparing simulated flows to observed based on Moriasi *et al.* 2007, using hydrological parameters NSE and PBIAS.
 - (c) Provide a presentation of any calibration data for runoff or water levels within the existing mine site, to assess suitability of the water balance model for simulating disturbed site flows (and subsequently, predicting water quality loads).
17. Water quality modelling:

- (a) Provide context on why the normal distribution was utilised versus a DWC/EMC approach, and how the 20% standard deviation applied to these distributions captures the range of observed concentrations from monitoring data.
 - (b) Describe how the Deepdell Creek and wider Shag River catchments outside of the mining domain were simulated for water quality. This may include describing any landuse mapping that was undertaken, or if 'natural' water quality modelling parameters were applied to any landuse outside of the mining footprint.
 - (c) Describe (and present) how the baseline water quality model was calibrated for Deepdell Creek and Shag River based on the current state (including current mining operations) in order for scenarios of the Deepdell North Stage III project to be assessed.
18. Provide all of the available nutrient data for Deepdell Creek and Shag River, and a detailed assessment of what suitable nutrient guidelines would be to control periphyton growth. As the Ecological Effects Assessment states that dual nutrient management will be considered, standards should be provided for both dissolved inorganic nitrogen and dissolved reactive phosphorus.
 19. Provide a breakdown of the total length of reclamation undertaken by Oceana Gold in the Deepdell Creek catchment to date. This is to understand the potential for cumulative effects.
 20. Provide the likely contaminant concentrations in both Highlay Creek and its Western Tributary (location shown in appendix 1) and proposed water quality standards for these creeks that can be applied in consent conditions. For nutrients, these standards should be set to control plant growth rather than toxicity.
 21. Provide an assessment of the effects of culverting the "Highlay Tributary" (location shown in appendix 1), particularly around construction effects.
 22. Provide an assessment of the effects of the expected increase in nitrate concentration (see figures 10, 11, 17 and 18 of Appendix E in the application) on periphyton growth in Deepdell Creek and Shag River based on existing water quality and ecological data. The Ecological Effects Assessment does not do this to an appropriate standard.

Freshwater Ecology

23. Provide an assessment of the cumulative loss of habitat since the mine was started and compare this to the mitigation already undertaken to offset habitat loss.
24. Water quality impacts are to be mitigated via water releases from the to be constructed Camp Creek dam.
 - Provide detail regarding how the effectiveness of this mitigation will be monitored.
 - The dam must be designed to release flows of sufficient size to scour algal and macrophytes, and have the water capacity to do this through the summer.

Provide an assessment that addresses these issues and investigates the overall feasibility of the dam to be able to provide flushing flows.

- It is also proposed that dam flushing flows can be used to manage algal and macrophyte build up in Deepdell Creek if the increase in nitrates promotes excessive plant and algal growth. Provide the proposed trigger levels for algae and macrophyte growth that will result in flushing to be required, and how these levels are to be monitored.

25. Provide details of the frequency of the existing monitoring of flora and fauna and the water quality sampling regime are required.

26. Provide an assessment of the cumulative effects of stream loss.

We require this information to enable a complete assessment of your application to be undertaken.

What are Your Options? – You may

- (a) Provide the information requested within 15 working days s92A(1)(a) of this letter (18th March 2020) or
- (b) Tell us in writing the date you will be providing the information, if you need longer than 15 working days [s92A(1)(b)]. If you choose this option we would expect to receive the information no later than (8th April 2020).
- (c) Tell us in writing that you refuse to provide the information [s92A(1)(c)].

What Happens Then?

Straightforward Option: If you decide to provide the information under option (a) or (b) above, your application will be placed on hold until the information arrives on the agreed date [s88C(2)(b)]. After that it will be taken off hold and processing of the application will continue.

Complex Option:

1. If you choose option (c) above and refuse to provide the information, or
2. If you agree to provide the information by an agreed date and don't do so or
3. You don't respond at all:

Then your application will be publicly notified; we have no choice in this [s95C(2)] . This means that an advertisement will be placed in public newspaper(s) and a site notice erected, and submissions on the application invited from the public at large. This can be expensive, and an up front deposit of further money will be required. This deposit could be in excess of \$5,000.

For our future

After public notification the application will be assessed and it may be declined if the lack of information prevents a proper assessment of the proposal.

We strongly urge you to choose either option (a) or (b) above, to avoid the unnecessary cost of public notification and the potential declining of your application.

If you have any further queries please contact me on (03) 474 0827 or 0800 474 082.

Yours sincerely



Elyse Neville
Senior Consents Officer

For our future

Appendix 1: Watercourse Map (Source: Oceana Gold Expansion initial assessment by Aquanet)

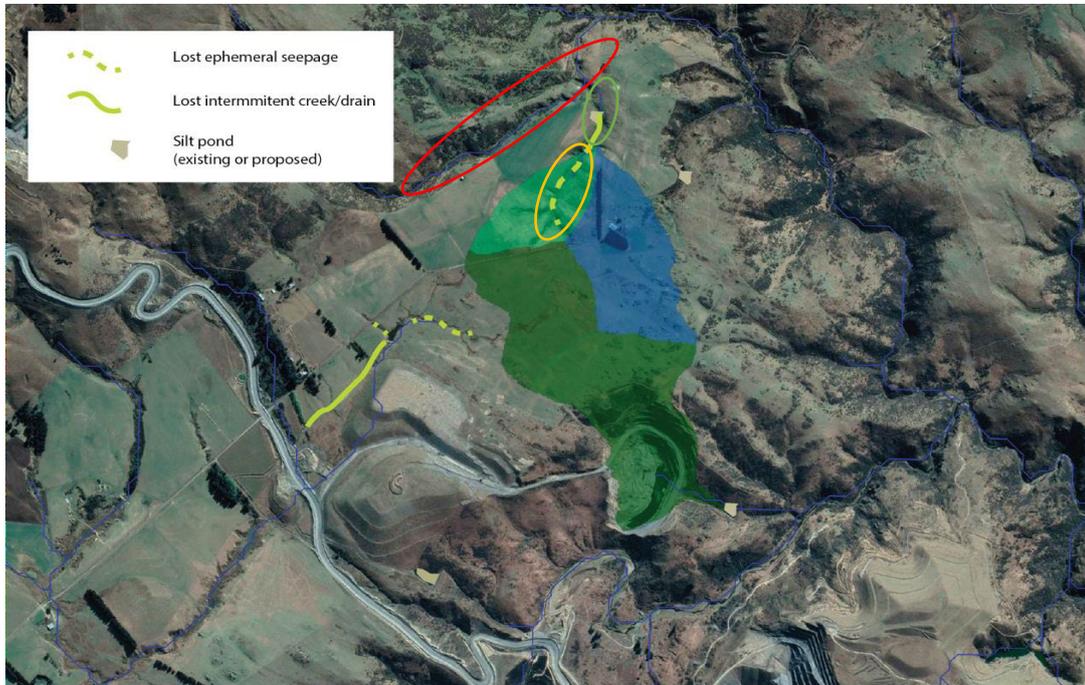


Figure 1: Watercourse map. The western tributary of Highlay Creek that could be impacted by discharges is indicated by red oval, the Gully Stream which will be reclaimed is indicated by the purple oval and the Highlay Tributary that will be culverted is indicate by the orange oval.