

# **Oceana Gold (New Zealand) Limited Coronation North Project**

Nevil Hegley Evidence Summary Presentation  
Noise

## **Introduction**

My name is NEVIL IAN HEGLEY. I have the experience and qualifications as set out in my evidence.

I have read the Code of Conduct for Expert Witnesses contained in the Environment Court's Consolidated Practice Note 2014 and agree to comply with that Code as if this matter were before the Environment Court.

I prepared the report entitled Oceana Gold (New Zealand) Ltd, Coronation North Project, Assessment of Noise Effects dated 3 May 2016 (Appendix 13 of AEE) submitted in support of the resource consent applications.

The nearest residential neighbours to the Coronation North project site are identified in Figure 1

- Howard house is approx 2km away;
- O'Neil house 3.5km away;
- Roy, Tisdale and farm house >5km
- The Peddie property is owned by OceanaGold.

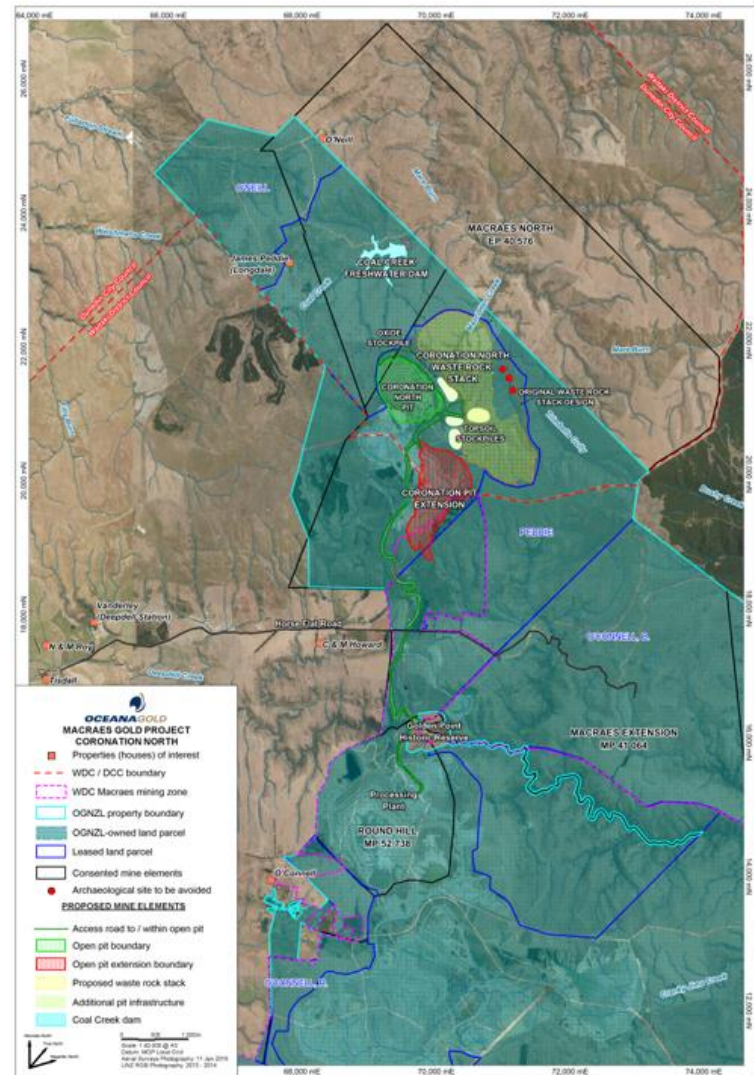


Figure 1: Location of Closer Neighbours

## Plan provisions – operation noise

- a) the Coronation consent conditions adopt 55dB/40dB  $L_{Aeq}$  for the day/night limits; the Waitaki District Plan and Dunedin 2GP adopt 55dB/40dB  $L_{Aeq}$  for the day/night limits - i.e. the same as the Coronation consent conditions; the Operative Dunedin District Plan adopts 50dBA/40dBA  $L_{10}$  within 50m of a residence.
- b) the 2GP also sets a site boundary level of 60dB  $L_{Aeq}$  24 hours of the day.
- c) All conditions include a night time  $L_{Amax}$  level, although in every case if the  $L_{10}$  or  $L_{Aeq}$  level is complied with the relevant night time  $L_{Amax}$  will also be complied with. As mining is a 24 hours a day operation the lower night time limit will control the noise levels.

## Noise modelling

The following was considered with the noise modelling:

- a) The stripping of topsoil and transporting the material to the Topsoil Stockpiles;
- b) Mining early in the life of the mine when there is the minimum screening of the mining plant and transporting waste rock to the Coronation North Waste Rock Stack (WRS);
- c) Transferring low grade material to the Low Grade Stockpile; and
- d) Transporting ore along the haul road to Horse Flat Road.

## **Noise predictions are based on:**

- all activities occurring at the original ground surface;
- the Waste Rock Stack at half the height of the final fill;
- as the pit is excavated and the mining surface goes lower the noise exposure for neighbours will reduce by 10 - 12dBA
- the exact reduction being dependent on how the plant is operating within the pit; and
- at the same time the WRS height will increase, exposing the equipment working this area. However, cumulative noise from equipment on the increased height of the WRS and reduced noise from the equipment lower in the Pit will be less than with equipment working at original ground level.

## Equipment noise levels

Field measurements were taken of the main plant to be used. This includes:

A Cat 5230 excavator loading a Cat 789C dump truck - 75dB  $L_{Aeq}$  at 70m;



Hitachi EX3600 excavator loading a Cat 789C dump truck - 66dBA  $L_{Aeq}$  at 130m;





Cat 789C dump  
truck - 74dBA  $L_{Aeq}$   
at 26m;



Rock drill at 20m –  
82dBA  $L_{Aeq}$  at 20m.





## Predicted noise levels

Used a computer prediction model:

- ground contours varying between 2.5m and 20m intervals;
- ISO 9613-1/2 Acoustics – Attenuation of Sound during Propagation Outdoors;
- slightly positive meteorological effect;
- ground absorption of 0.7
- grid to calculate the noise contours varying between 30 – 120m; and
- spot levels calculated at the notional boundary of each dwelling.

The predicted noise levels at each of the closer houses not owned by OceanaGold are:

- a) Howard - 29dBA  $L_{10}$  (this is identical to the noise prediction previously made for Coronation project);
- b) O'Neil 24dBA  $L_{10}$  (this is identical to the noise prediction previously made for Coronation project);
- c) Deepdell Station 21dBA  $L_{10}$ ; and
- d) Roy, Tisdale, O'Connell – 19dBA  $L_{10}$ .

These are relatively low noise levels but does not mean the noise will not be heard. It means that the periods when the mine and haul road are heard are limited to specific weather conditions (calm and light winds (up to approximately 3m/s) or with a strong temperature inversion).

## **Response to submissions - David and Jocelyn Kinney**

Submitted they are already affected by noise from the Coronation pit, particularly at night, and are concerned about increased noise from the closer Coronation North site.

This property was not included in my original report as it is approximately 10km from the Coronation North project.

The predicted noise at this dwelling would be <15dBA for the design conditions. At this level the noise effects at this site are considered to be less than minor.

OceanaGold will ensure it maintains communication with it's neighbours.

## Response to submissions - Craig and Erin Howard

Noise from trucks on the haul road on cold and frosty nights

Detailed noise monitoring undertaken from 16 to 29 March 2016 showed:

- Once the effects of high wind speeds are excluded, a noise level of 50dB  $L_{Aeq}$  is achieved during the daytime period on all days.
- Once the effects of high wind speeds are excluded, a noise level of 40dB  $L_{Aeq}$  is achieved during the night time period on all nights;
- The noise requirements of the Coronation consent conditions are being complied with and will also be complied with for Coronation North.

Again, communications will be maintained.

## **Response to submissions - Matt and Kate O'Connell**

Submitted they are experiencing “substantial” noise from the Coronation project at their home located in Macraes Village.

- Noise monitoring undertaken by OceanaGold near to the O'Connell residence (addressed in Debbie Clarke's evidence) shows the noise is <50dB at all times.
- Noise levels at the O'Connell residence has been predicted at 19dBA.

Understand affected party approval given.

## **Response to submissions - Macraes Community Inc (MCI)**

Submitted their concern “about the amount of noise that the trucks carting ore from the Coronation site to the mine site at night will generate. Recently bulldozers working on the road at night awoke residents in nearby houses.”

- I have measured noise from trucks operating on site travelling both downhill and uphill and these noise effects from the actual activity are included in the noise modelling.
- I remain confident that the noise levels generated by trucks will not exceed consented noise limits during day or night time.

Again, OceanaGold do already engage with the community around noise effects and will ensure MCI is aware of planned operations



## Response to WDC/DCC recommending report

I support the proposed conditions as:

- being appropriate limits;
- monitoring methods, measures and assessments to control noise and vibration as reasonable; and
- consistent approach which aligns the Coronation North project conditions with existing consent conditions.

## Conclusions

- Computer noise prediction model taking into account all possible variables has allowed a detailed noise assessment of the site and the prediction of spot levels at each of the closer dwellings that OceanaGold does not own;
- Predictions demonstrate compliance with:
  - a) the existing Coronation conditions of consent;
  - b) the proposed Coronation North conditions of consent; and
  - c) The District Plan noise limits  
with what is a good factor of safety.
- Mining noise may be heard at night with assisting meteorological effects although even under these conditions there will be no adverse noise effects.
- For the majority of the time with winds above approximately 2m/s the noise from the Coronation North project will be below the noise environment.