OCEANAGOLD
WAIHI OPERATION

Noise Summary Report

Fourth Quarter 2024

Contents

1. Summary

Compliance against the consented noise limit(s) and New Zealand Standards was achieved during the fourth quarter of 2024. Two mean corrected noise level (MCNL) assessments were made during the period; both were compliant. For the night-time MCNL, one of the three readings was taken in suitable meteorological (met) conditions.

Seven single corrected measurement levels (SCML) were made during the quarter; two were taken in suitable met conditions. Suitable wind conditions (<3 m/s), as recorded at the Kenny St meteorological station, occurred on 2 of the 7 monitoring occasions. Day-time measurements ranged from 40.8 to 45.1 dB L_{Aeq}[1]; the dominating noises were birds, cicadas, and wind. The MCNL from these measurements was 43.2 dB. Night-time measurements ranged from 34.3 to 37.6 dB; the dominant noises were crickets and traffic. These measurements returned a MCNL of 34.8 dB.

There were 36 noise complaints received during the reporting period, relating to helicopter flights to and from Wharekirauponga.

2. Introduction

This report provides a summary of noise measurements and assessments undertaken by OceanaGold (NZ) Ltd Waihi Operations (OceanaGold) for the fourth quarter of 2024. The report is prepared to comply with the requirements of four consents:

- Hauraki District Council (HDC) Land Use Consent (LUC) for Project Martha (LUC 202.2018.857.1, condition 26A). OceanaGold is required to submit quarterly summary reports to Council on representative noise levels.
- Under the Noise Conditions of the LUC for the Favona Underground Mine (No. 85.050.326.E, condition 9) a summary report is required at the end of each 3-month period from commencement to completion of work.
- Under the Noise Conditions of the LUC for the Trio Underground Mine (RC-15774, condition 6d) a summary report is required at the end of each 3-month period from commencement to completion of work.
- Under the Noise Conditions of the LUC for the Correnso Underground Mine (RC-202.2012, condition 11d) a summary report is required at the end of each 3-month period from commencement to completion of work.

Although a report is required, there was no active mining in the areas of the later three consents during the period.

For exploration drilling operations, the conditions set out in section 8.3.1 of the Hauraki District Plan apply. Any monitoring of these activities is also included in this report.

[1] Unless specified otherwise, subsequent noise reading units are in dB L_{Aeq}

3. Methodology

Sound measurements and assessments by OceanaGold comply with the consent conditions and the New Zealand Standards *NZS 6801:2008 Acoustics - Measurement of Environmental Sound and 6802:2008 Acoustics - Environmental Noise.*

Compliance noise is measured for a minimum of 15 minutes as required under the consent conditions. Compliance readings cannot always be made on every site visit or check due to excessive wind conditions (i.e. greater than 5 m/s).

Monitoring checks are made in response to complaints whenever necessary; initially to verify the noise level and subsequently (if necessary) to determine the effectiveness of any mitigating actions and/or the effect of changing wind conditions (changing wind strength or direction influences noise transmission between the mine and the receiver).

OceanaGold uses noise monitoring procedures to ensure compliance with the above standards and consent conditions, and to support noise mitigation protocols documented in the site Noise Management Plan. The noise mitigation protocols require review of wind conditions that could potentially result in noise levels generating complaints. Monitoring has shown that wind speeds over 3 m/s (as measured at the OceanaGold meteorological station at Kenny St) are likely to increase mine noise downwind of an activity to levels that may generate complaints. When such wind conditions occur, OceanaGold implements mitigating actions to reduce noise levels where practicable. During periods when high frequency sounds such as birds, cicadas and crickets become the controlling noise, a filter may be applied to noise measurements to exclude four and eight kHz (kilo-hertz) and enable analysis of the lower frequency noise levels (i.e. those usually associated with mine operations).

Wind has a significant influence on sound propagation. Sound measurement and assessment must take the effect of wind into account. Sound measurements are taken in conditions ranging from nil wind up to 5 m/s at the receiver (*NZS 6801:2008 Acoustics - Measurement of Environmental Sound*). Wind greater than 5 m/s is generally unacceptable for monitoring due to wind noise effects in the nearby environment (e.g. trees) and on the microphone.

Downwind, wind speeds of 3 - 5 m/s are considered marginal due to propagation of sound by wind from source to receiver. Conditions like those for which the compliance limits are set generally occur when wind speeds are less than 3 m/s *(Hegley, 2003: Evidence of Nevil Hegley – Favona Underground Project 2003 Final – 11/11/03*).

Wind speeds are recorded at the OceanaGold met station. These wind readings are assumed to represent the general wind conditions across Waihi and at the noise source (e.g. the mine).

Other meteorological factors influencing the overall sound environment include solar radiation, cloud cover, sunrise and sunset times, wind direction and the direction from source to receiver. These factors were also measured to derive a meteorological stability rating at the time of monitoring. Meteorological stability categories of 4 (neutral) or 5 (slightly positive) are considered suitable meteorological influences on sound propagation and are used to determine noise compliance (*NZS 6801:2008 Acoustics - Measurement of Environmental Sound* (HDC LUC 97/98-105, Condition 3.8 (e))).

4. Results

4.1. General

Monitoring activity for the period is shown in Table 1.

Table 1. Noise monitoring activity.

	Number of days checked	Number of days measured	Number of checks (compliance & other)	Number of complaint days	Number of complaint checks
October	0	0	0	19	0
November	0	0	0	12	0
December	3	3	7	15	0
QR Total	**3**	**3**	**7**	**36**	**0**

4.2. Wind

Adverse wind conditions (≥3 m/s, as measured at the met station) occurred on five (5/7) of the compliance monitoring occasions (see Table 2). While it is the general prevailing wind condition as measured at the met station that primarily affects noise propagation, measurements may be made under adverse conditions if the wind at the receiver or at street level is generally more favourable for monitoring. Even then, representative noise measurements of mining activities are not always possible due to wind noise. Periods of high wind strengths above 5 m/s were not experienced during monitoring this period.

Table 2. Percentage of monitoring occasions average wind speeds ≥ 3 m/s.

	Receiver	Met Station
October	0%	0%
November	0%	0%
December	0%	71%
QR Total	**0%**	**71%**

29% (2/7) of the compliance measurements made in the reporting period were in suitable wind conditions (<3m/s at the met station). Adverse wind conditions can influence suitable met assessments, as well as other factors including wind direction, solar radiation, and cloud cover. Monitoring in suitable wind conditions was lower during this reporting period compared to the previous (57%).

4.3. Compliance

No mine dominated SCML exceeded compliance levels in suitable met conditions during the reporting period (see Table 3).

Table 3. Summary of Single Corrected Measured Levels (SCML).

	Total SCML readings	Mine dominated SCML over (limit + 5 dB)	SCML in suitable met	Mine dominated SCML over in suitable met
October	0	0	0	0
November	0	0	0	0
December	7	0	2	0
QR Total	**7**	**0**	**2**	**0**

Two MCNL assessments were made during the quarter (see Table 4) and were within consent limits.

Table 4. Summary of Mean Corrected Noise Levels (MCNL).

	Total MCNL calculations	Marginal MCNL	MCNL 5 dB over limit	MCNL in suitable met	MCNL over limit in suitable met
October	0	0	0	0	0
November	0	0	0	0	0
December	2	0	0	0	0
QR Total	**2**	**0**	**0**	**0**	**0**

4.4. Complaints

There were 36 noise complaints received from one complainant during the reporting period (Figure 1) and all were related to helicopter flights. SkyWorks pilots try to mitigate the nuisance factor of flights to Wharekirauponga by regularly adjusting their flight routes and flying well above the legal minimum height for a rural environment.

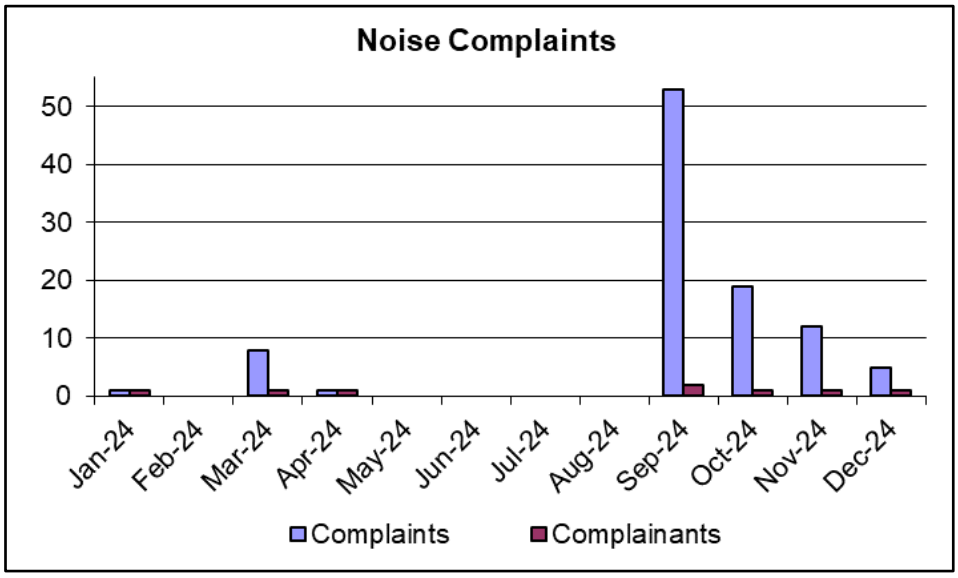

Figure 1. Noise complaint history

4.5. Operations Assessment

4.5.1. Processing and Underground Operations

Processing and underground mining operations continued as usual during the quarter. Seven compliance measurements were made of activities at the processing plant and surface-related activities supporting underground operations; all were compliant with noise limits. Day-time noise levels ranged between 40.8 and 45.1 dB (MCNL 43.2 dB), with birds, cicadas, and wind being the dominant noises. Night-time noise levels ranged between 34.3 and 37.6 dB (MCNL 34.8 dB), with crickets and traffic being the dominant noises.

4.5.2. Exploration & Other Drilling

Exploration drilling during the quarter continued underground. Local surface drilling occurred at the Willows Road site for geotechnical and hydrogeological investigations to inform the Waihi North Project consent application.

4.5.3. Martha Pit

In-pit stockpiling of waste rock from underground has continued during the quarter. No significant surface-related works were conducted in the Martha Pit, with only essential maintenance (drainage, weed control, and security) and low-impact geotechnical monitoring being undertaken.

5. Mitigation

5.1. Mine & Exploration

Commitment to the management and mitigation of mine noise was sustained during the reporting period. In accordance with the Noise Management Plan (noise mitigation), no yellow or red assessments were determined during the quarter.