

OCEANAGOLD (NEW ZEALAND)
LIMITED

WAIHI NORTH PROJECT

ESTIMATING THE PROPORTION OF THE COROMANDEL'S ARCHEY'S FROG POPULATION IN THE AREA AFFECTED BY VIBRATIONS FROM THE PROPOSED WHAREKIRAUPONGA UNDERGROUND MINE.

Evidence of Dr Brian D. Lloyd Regarding
Technical Assessment of the
Proportion of the Coromandel's
Archey's Frog Population in the Area
Affected by Vibrations from the
Proposed Wharekirauponga
Underground Mine.

5 February 2025

INTRODUCTION

My name is Brian Donald Lloyd.

My role in relation to the Waihi North Project (“**WNP**”) has been to provide expert advice in relation to the proportion of the Coromandel’s Archey’s frog population in the area affected by vibrations from the proposed mine. I wrote the report *Estimating the Proportion of the Coromandel’s Archey’s Frog Population in the Area Affected by Vibrations from the Proposed Wharekirauponga Underground Mine*, which is provided within *Part H – Supporting Technical Assessments* of the application.

This evidence has been prepared to accompany the application by Oceana Gold (New Zealand) Limited (“**OGNZL**”) for approvals required for the WNP under the Fast-track Approvals Act 2024 (“**FTAA**”). It has been prepared on the understanding that the process for determining applications under the FTAA does not require a hearing to be held, and accordingly the purpose of this evidence is to confirm that, relative to my area of expertise the report *Estimating the Proportion of the Coromandel’s Archey’s Frog Population in the Area Affected by Vibrations from the Proposed Wharekirauponga Underground Mine* provides an appropriate description of the relevant environment, the proposed activities comprising the effects of the WNP on that environment.

My findings are set out in full in the report *Estimating the Proportion of the Coromandel’s Archey’s Frog Population in the Area Affected by Vibrations from the Proposed Wharekirauponga Underground Mine* included within *Part H – Supporting Technical Assessments* of the application.

While this application is not being considered by the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2023 and that I have complied with it when preparing this evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

QUALIFICATIONS AND EXPERIENCE

My qualifications include a Ph. D. in ecology (Massey University, 2002) and a M.Sc. in zoology (Victoria University, 1988).

I am currently an independent ecological consultant trading as Lloyds Ecological Consulting and have held that position since 2008.

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My previous work experience includes working as a scientist investigating endangered and protected native species for the Department of Conservation from 1989 to 2008. Prior to that, I worked as a science technician assisting investigations of endangered and protected native species for the Department of Conservation from 1987 to 1989 and NZ Wildlife Service from 1980 to 1987.

In providing this evidence in relation to the proportion of the Coromandel's Archey's frog population in the area affected by vibrations from the proposed mine, I have considered the following matters as relevant to that topic:

- (a) The project description provided by OGNZL as set out in Section 2 of the Substantive Application prepared by Mitchell Daysh Limited;
- (b) The description of the existing environment, the effects of the WNP on that environment and their significance, and the proposals to manage those effects all as set out in the assessment of environmental effects accompanying the application;
- (c) The technical assessments of
 - I. van Winkel, D. (2022). *Vibration effects on amphibians (Archey's frog)*.
 - II. Lane, M. (2021). *Assessing Frog-Safe Blasting Vibration Levels*.
 - III. McNeill, R. (2021). *Waihi North Project: Project Description*.
 - IV. Boffa Miskell Limited. (2016). *Fauna Management Plan: Access Arrangement Application R92455*.
 - V. Boffa Miskell Limited. (2018). *WKP Fauna Surveys: Survey Findings (October 2017-March 2018)*.
 - VI. Boffa Miskell Limited. (2019). *WKP Fauna Surveys: Survey Findings (October 2018 – April 2019)*.
 - VII. Boffa Miskell Limited. (2021). *WKP Fauna Surveys: Survey Findings (October 2020 – June 2021)*.
 - VIII. Boffa Miskell Limited. (2022). *Coromandel Frog Distribution Surveys: July 2021 – June 2022*.

and

- (d)
 - I. Geo-referenced records of Archey's frog sightings held in the Amphibian & Reptile Distribution Scheme (ARDS), held in DOC's BioWeb Herpetofauna database,
 - II. Hotham, E. R. (2019). *Abundance and microhabitat use of Leiopelma archeyi in relation to land-use*. (MSc). Massey University, Palmerston North, NZ.
 - III. Hotham, E. R., Muchna, K., & Armstrong, D. P. (2023). Abundance of *Leiopelma archeyi* on the Coromandel Peninsula in relation to habitat characteristics and land-use. *New Zealand Journal of Ecology*, 47(2).

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CONFIRMATION OF CONTENTS OF REPORT

I confirm that in my opinion the report *Estimating the Proportion of the Coromandel's Archey's Frog Population in the Area Affected by Vibrations from the Proposed Wharekirauponga Underground Mine* contains an accurate and appropriate description of the environment, the actual and potential effects of the WNP, within my area of expertise.

I confirm that in my opinion the contents of the report *Estimating the Proportion of the Coromandel's Archey's Frog Population in the Area Affected by Vibrations from the Proposed Wharekirauponga Underground Mine* may be relied on in making a decision on the approvals sought for the WNP.

Brian Donald Lloyd

Dated this 5th day of February 2025