

Review of Bendigo-Ophir Gold Project FTAA RFI 11 response material

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Water quality and freshwater ecology

On behalf of Otago Fish and Game Council and New Zealand Fish and Game Council

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Executive summary

1. The RFI 11 response material fundamentally alters the technical basis of the application and confirms that the environmental risks of the proposed mine are significantly greater, more immediate, and more uncertain than previously disclosed.
2. The new information demonstrates that the mine will enter water-surplus conditions much earlier than anticipated in modelling submitted with the application, generating excess mine-impacted water that carries contaminant loads requiring active management and treatment.
3. A new Water and Load Balance Model (WLBm) covering the operational period now predicts exceedances of compliance limits for antimony in Year 10 and nitrate in Year 11 at SC01, driven by cumulative unrecovered seepage from multiple mine domains, including newly identified seepage sources that were not previously assessed in the application.
4. The new operational WLBm relies on a fixed assumption of 95% seepage capture, despite updated groundwater modelling showing unrecovered seepage could reach 8–10% under conservative conditions, meaning the model may underrepresent worst-case contaminant loads and compliance exceedances.

5. The original WLBM (which modelled closure and post-closure) did not include unrecovered seepage and has not been updated to include unrecovered seepage, leaving downstream contaminant loads, water quality effects, and compliance risks during and after mining unresolved but likely underestimated.
6. Baseline water quality monitoring remains insufficient, with only two downstream samples collected under elevated flow conditions, leaving baseline variability, seasonal trends, and true background contaminant levels poorly understood. New water quality assessment and ecological investigations nonetheless confirm there are high ecological values in downstream receiving environments, including diverse macroinvertebrate communities, sensitive taxa, indigenous fish, trout habitat, and high water quality, reinforcing the need for precautionary contaminant limits and robust protection measures.
7. The revised compliance limits remain insufficiently protective, with nitrate limits based on toxicity rather than eutrophication effects, antimony and molybdenum limits lacking adequate justification, and less stringent limits proposed for RS03 without ecological basis. Exceedances of compliance limits are predicted.
8. The operational WLBM incorrectly compares mean and median contaminant concentrations with compliance limits, contrary to ANZG guidance requiring assessment against higher percentile exposures, resulting in understated risks, unassessed acute effects, and unsupported conclusions of “low risk.”
9. Drinking water risks are still not adequately addressed and are likely underestimated. The predicted antimony exceedance of drinking water Maximum Acceptable Values (MAVs) is downplayed on the basis exceedances are predicted to be temporary, despite MAVs being absolute limits intended to protect human health at all times.
10. Passive treatment systems proposed for Rise and Shine Creek remain conceptual, with unresolved uncertainties regarding contaminant removal performance, nitrogen treatment, antimony and molybdenum removal, treatment capacity, and implementation timeframes.
11. The Applicant continues to rely heavily on adaptive management despite known exceedance risks, without clearly defined triggers for commissioning treatment plants, expanding storage, implementing seepage controls, or deploying mitigation measures, creating potential for prolonged environmental exposure before controls become operational.
12. Management plans have not been updated to incorporate expert recommendations, leaving significant issues unresolved and requiring transfer of those recommendations into enforceable consent conditions.
13. The new covenant revocation assessment understates freshwater values and cumulative downstream risks, relies on uncertain future rehabilitation outcomes, and fails to adequately consider connectivity, high existing water quality, seepage uncertainties, and degradation of ecological values.

14. Overall, the RFI 11 response material confirms that environmental risks are greater, earlier, and more uncertain than previously presented, and that proposed mitigation measures are insufficiently developed to ensure protection of downstream ecosystems, water quality, and human use values.

Introduction

15. My name is Kathryn (Kate) McArthur. I have been asked by Otago Fish and Game Council and the New Zealand Fish and Game Council to review material provided by experts on behalf of Matakanui Gold Limited, in response to the Hearing Panel's Request for Information 11 (RFI 11). My qualifications and experience are set out in my initial statement on water quality and freshwater ecology, dated April 2026.
16. Since preparing that initial statement I have participated in expert conferencing on 8 – 10 June, which resulted in the preparation of two joint witness statements (JWS):
- Geochemistry, water quality, hydrology, water management and freshwater ecology conferencing, 8 & 9 June 2026 – herein referred to as JWS1
 - Reconvened geochemistry, water quality, hydrology, water management and freshwater ecology conferencing, 10 June 2026 – herein referred to as JWS2
17. I appeared before the Hearing Panel on 11 June 2026 to give expert evidence on these topics.

RFI 11 response represents significant new information rather than minor refinement

18. A recurring theme from review of the RFI 11 responses is that the additional information substantially changes the technical basis of the application rather than merely clarifying existing assessments. The RFI process has generated approximately 600 pages of new material relating to water, including new groundwater investigations, additional monitoring wells, updated groundwater modelling, operational water and load balance modelling, downstream ecological and water quality investigations, ecotoxicological assessments, revised compliance limits, proposals for secondary seepage capture systems, and refined water treatment requirements and timeframes.
19. Several of these investigations were requested because the original information was insufficient for an assessment of effects on drinking water, aquifers, and freshwater habitats. The need for major revisions to the water management approach indicates that material uncertainties remained unresolved at the time of lodgment of the substantive application, many of which were highlighted in my initial statement.
20. Despite the significant volume and content of the RFI 11 response documents, many potential adverse effects and uncertainties remain unresolved.

Operational water management predictions have changed significantly

21. A consequential change arising from the response to RFI 11 is the shift from the earlier concept of a largely water-deficit mining operation to an operation that is predicted to experience water surplus conditions much earlier. The RFI 11 response includes a new WBLM covering the BOGP's operational period. It includes a 5% allowance for unrecovered seepage reporting to surface water receptors and predicts surplus mine impacted water exceeding compliance limits and requiring management and newly proposed engineering controls sooner than previously predicted.
22. Newly identified sources of unrecovered seepage documented in the new operational WBLM are associated with the processing plant pad and the Shepherds Creek Valley fill. These are now predicted to contribute small but continuous loads of mine impacted water directly to SC01 and are part of the cumulative load driving predicted exceedances of compliance limits.
23. Uncertainties and risks from unrecovered seepage were identified in my previous statement and that of other water quality and geochemical experts. Unrecovered seepage was not accounted for in the outputs of the WBLM included in the substantive application, which only covered closure and post-closure phases. The new operational WBLM incorporates a fixed estimate of unrecovered seepage at 5% (i.e., assumes 95% seepage capture and recovery).
24. However, estimated rates of lost/unrecovered seepage reported in the updated groundwater modelling report (response to RFI 11 Q 2b and 2c) give an upper bound range of lost seepage up to 8–10% under conservative or unfavourable conditions. For SC01, where compliance limits are now predicted to be exceeded, the operational WBLM therefore under-represents worst case seepage risks and subsequent compliance limit exceedances.
25. The closure/post-closure phase WBLM in the substantive application did not include an allowance for unrecovered seepage and has not been updated to include unrecovered seepage. The effects of unrecovered seepage on discharge water quality and compliance with limits during and post-closure therefore remain unpredicted and uncertain. Net percolation estimates¹ have also not been updated, and do not represent worst-case scenarios, potentially under-representing effects. Post-closure unrecovered seepage has not been estimated for underdrain blockage or collapse scenarios.
26. The inclusion of a fixed rate (5%) of unrecovered seepage in the operational WBLM has significant predicted consequences for the ability of discharges from the site to comply with water quality limits, without the addition of new controls. The feasibility, efficacy, and risks associated with any new management and engineering controls are unknown. The conceptual nature of those controls mean they may have flow-on consequences that have not been fully assessed, for example the applicant recognises that its suggestion of using bore water to increase stream flow to dilute contaminants in Shepherds Creek during operations may mean there is less bore water available for dust suppression, leading to use of pit sump water and potential for contamination.

¹ Noted as uncertainties by some experts in JWS1 paragraph 36 and JWS2 paragraph 37.

27. The operational WLBM predicts surface water quality at SC01 will exceed compliance limits for nitrate toxicity² in Year 11 of operations and compliance limits for antimony in Year 10 of operations. The WLBM states that “additional engineering controls may be needed to adaptively manage the[se] risks [of nitrate and antimony exceedances]” but does not describe what these controls might entail, when they would need to be commissioned, how feasible or effective the controls might be, and ultimately whether they could reliably reduce nitrate and antimony concentrations before seepage reaches waterbodies in the receiving environment.

28. The implications of the significant changes and remaining uncertainties outlined above include:

- Requirements for active water treatment within a short timeframe from start of mining operations (prior to rising concentrations in years 6 – 7) rather than during or post-closure.
- Without adequate and timely treatment there is a significant risk that mine impacted water, carrying significant concentrations and loads of contaminants, will be discharged to surface and groundwater.
- Additional water storage infrastructure³ and evaporation systems are now required to control surplus mine impacted water.
- Water treatment commissioning may be necessary many years earlier than previously anticipated.
- Engineering controls of surplus mine impacted water appear to be responding to newly identified operational risks rather than risks that were fully recognised in the original application.
- Seepage capture infrastructure and other engineering controls are conceptual; their feasibility, efficacy, and risks are highly uncertain.
- The revised modelling introduces a substantially different operational risk profile than that originally presented and does not update previous uncertain predictions.
- Passive treatment for discharges to RS03 may also be needed earlier than anticipated and may not be sufficient to ensure discharge quality does not exceed adequate compliance limits.

29. Studies to determine the style and capacity of passive treatment systems are needed five years before treatment is required (Paul Weber: JWS2 paragraph 26(a)) and may therefore need to be designed and commissioned soon after commencing mining operations.

Ecological and water quality risks remain insufficiently addressed

30. The operational WLBM predicts compliance limits will be exceeded at SC01 in years 10 and 11 for antimony and nitrate respectively. This risk was not described previously in the substantive

² Noting that nitrate toxicity limits are significantly higher in concentrations than nitrate limits to protect stream ecosystems from adverse eutrophic effects.

³ This may increase the standing water area that attracts waterfowl.

application because water surplus conditions had not yet been identified. Suggested management responses and controls of contaminant concentrations in discharges are conceptual, and outcomes are therefore uncertain.

31. Information has not been provided that calculates estimated concentrations and loads entering downstream receiving environments (surface and groundwater) during operational phase discharges. Effects on water quality, ecological and human use values resulting from exceeding compliance limits at SC01 during mining operations remain unknown.
32. The original closure and post-closure WLBM did not include unrecovered seepage estimates and therefore the concentration and load calculations (provided in response to the April Panel RFI) for downstream receiving environments (e.g., Lindis River) are under-representations. These have not been updated, and significant uncertainties remain.
33. Risks to ecological, trout fishery and spawning habitats, and drinking water values of downstream receiving environments from discharges occurring prior to adequate treatment and control are unknown.

Ecological values confirmed

34. The downstream ecological and water quality investigations undertaken in response to RFI 11 reinforce the importance of the downstream receiving environments. The Lindis River and Bendigo Creek were found to support:
 - diverse macroinvertebrate communities;
 - pollution-sensitive EPT taxa;
 - indigenous fish species;
 - species of conservation significance;
 - generally fair to good ecological condition; and
 - good water quality.
35. These findings strengthen rather than weaken the case for precautionary contaminant limits and a greater degree of certainty about adverse effects on the receiving environment. The presence of sensitive macroinvertebrate taxa, trout fishery, spawning and habitat values, and indigenous fish of conservation-concern is inconsistent with characterising the receiving environments as highly disturbed systems suitable for lower levels of protection, as was suggested in the substantive application assessments.
36. Notwithstanding that new water quality investigations were very limited (two samples) and should be considered indicative only, Bendigo Creek water quality was broadly comparable to Rise and Shine Creek at compliance site RS03 and indicates historic mining activities are not currently impacting water quality in the downstream Bendigo Creek catchment (Water resources impact assessment

summary, ENM August 2026; Boffa Miskell 2026, and Geocontam Risk Management 2026). This is a change in perspective from the findings of Ryder (2025) which assumed historical mining impacts and therefore an impacted baseline condition.

37. Assessment of the ecological and human use values of the Bendigo Wildlife Management Reserve, identified as a potential downstream receiving environment by Otago Fish and Game Council, was not included in the new assessments.

Compliance limits remain insufficiently protective

38. The revised compliance framework does not fully reflect the outcomes of expert conferencing or all of the matters raised in my initial statement. Some changes to compliance limits are not explained or justified in the technical response documents.
39. Of concern is the recommendation for a nitrate toxicity limit of 1.5 mg/L in the RFI 11 response to Q8 (Sulphate and nitrate compliance limits, Palich (2026)) based on an Australia New Zealand Guidelines for Fresh and Marine Water Quality 2018 (ANZG) 90% species protection level. Limits based on 90% species protection are inappropriate for higher value systems with low to moderate existing⁴ human impact, instead corresponding with 'highly disturbed systems'. This does not align with ANZG (2018) guidance for a conservative and precautionary approach where uncertainty is high.
40. Expert agreement that the receiving environments are more appropriately characterised as slightly to moderately disturbed systems requiring 95% species protection levels (JWS1 paragraphs 96 to 98) has been carried through to the operational WLBM and the compliance limits in consent conditions, which specify a nitrate limit of 1.1 mg/L (Attachment 5 to Schedule 2 of ORC conditions).
41. However, the proposed nitrate limit of 1.1 mg/L:
- remains substantially greater than existing concentrations measured in receiving waters on the site and in the downstream waterbodies;
 - is based on toxicity considerations rather than nutrient enrichment effects, and therefore does not adequately address eutrophication risk;
 - is inconsistent with the water quality and aquatic ecological values described in the RFI 11 responses for the streams on the site and connected downstream receiving waters; and
 - would allow substantial degradation from existing water quality conditions while still being deemed "compliant".
42. Some contaminant limits for Rise and Shine Creek in the Bendigo Creek catchment are less stringent than equivalent limits for Shepherds Creek with no clearly justified ecological or water quality

⁴ It is important to reiterate here that determining the level of current impact and the relevant species protection level under the ANZG framework is required because the objective of setting these limits is to maintain and protect the existing ecosystem state. It is incorrect application of the guidelines to set limits predicated on the predicted mine-impacted state.

maintenance basis given, for example antimony and molybdenum. I recommend that more stringent compliance limits are applied at RS03, consistent with those proposed for SC01 to protect downstream values. No justification is provided for less stringent limits at RS03, with the exception of arsenic, which is already elevated by historic mining.

43. The ecological and water quality values described in the new assessments of downstream receiving environments are relevant when considering the degree of change from baseline state when discharges meet or exceed compliance limits. In many cases (e.g., nitrate, sulphate, and antimony), the contaminant compliance limit is many times greater than the receiving environment baseline concentration⁵ and will result in a direct degradation of water quality values, even when limits are met.
44. Justification of boron and antimony limits for SC01 and RS03 are absent and create uncertainty over the potential for adverse effects on receiving environments. Acute limits for antimony are not included despite predicted peak concentrations.
45. Additional compliance limits were discussed and agreed in expert conferencing (JWS1 paragraph 106), and sulphide limits were agreed for inclusion for treatment plant discharges, active and passive (JWS2 paragraph 106(a)). These limits need to be imposed for both treatment discharges.
46. Boron, iron, and manganese have been included in the updated surface water compliance limits. Mercury and selenium were proposed for inclusion in sediment monitoring (JWS1 paragraph 106(d)); mercury is included, but selenium is not. Selenium is included in surface water compliance limits, but mercury is not.
47. TPH was raised in expert conferencing (JWS1, paragraph 56) with some experts considering the risks associated with release of TPH into surface water receptors could be managed through operational controls. TPH are identified as a contaminant of concern during the construction and operational phases within the Water Resources Impact Assessment Summary document and have been addressed in conditions as operational controls without limits, limits for TPH are available in the ANZG (2018).
48. Dissolved oxygen (DO) requires management in the discharges from all treatment systems to avoid adverse effects on receiving waters. The JWS1 supports implementation of continuous DO monitoring in active and passive treatment systems prior to discharge, in place of COD. Some experts (JWS1 paragraph 105) specified a dissolved oxygen limit of 4 mg/L for the Shepherds Creek and Rise and Shine discharges to ensure DO in the receiving waters remains above the NPS FM (2020) national bottom line for ecosystem health. I recommend these limits are included in consent conditions. Treatment discharges (active or passive) are not identified as performance monitoring sites in the water resources impact summary document. DO is not included as a monitoring parameter for active

⁵ Baseline state can be robustly established through long-term ORC monitoring data for the Lindis River at Ardgour Road. Presumably monthly monitoring has continued at RS03 and SC01 sites, but no updated description of baseline state was included in the RFI 11 response.

treatment discharges. DO limits have not been applied and in my opinion are critical to manage adverse effects on aquatic life from treatment system discharges.

49. JWS1 paragraph 111 notes that the Water Management Plan should be updated to clearly outline the performance monitoring parameters such that all potential contaminants of concern are included. This has not happened (current descriptions are general).

Performance monitoring

50. Treatment discharges require identification as performance monitoring sites, specifying the requirement for continuous DO monitoring and with a compliance limit of no less than 4 mg/L prior to discharge into receiving waters (Shepherds and Rise and Shine Creeks).
51. Operational phase surficial runoff from infrastructure, roads, and ELF construction will be discharged via sediment control structures. However, performance monitoring is not proposed for all sediment control structures (Fig. 4.1 water resources impact assessment summary) and these remain a potential impact pathway for mine impacted water (see JWS1 paragraph 73), particularly for dissolved contaminants.

Lack of connection between groundwater and surface water limits

52. The complex connectivity between groundwater and surface water, particularly in the vicinity of SC01 and where Shepherds Creek and Bendigo Creek drop into the Ardgour and Bendigo Aquifers and then resurface in downstream rivers, is further described in the groundwater modelling response. Different sets of groundwater and surface water limits are still proposed, some of which vary hugely (for example nitrate-nitrogen: 11.3 mg/l in groundwater compared to 1.1 mg/l in surface water). I support applying the more stringent of the groundwater and surface water compliance limits for each parameter across all sites, to ensure the values of the connected receiving environments (ground and surface water) are adequately protected as contaminants move beyond the mine footprint (JWS2, paragraph 87). Uncertainties remain in whether separate surface and groundwater compliance limits will adequately manage the transport of contaminants through the connected water system beyond the mine site.

Incorrect comparison of predicted concentrations with compliance limits

53. The operational WLBM compares predicted mean and median contaminant concentrations with compliance limits and then concludes that ecological risks are low. These comparisons are also relied on by Palich (2026) when determining ecotoxicological risk. This method is flawed and inconsistent with the application of ANZG guideline values, which are intended to be assessed against higher percentile exposure concentrations (i.e. 95th percentile, see Statement of K McArthur, April 2026 Appendix 1, page 65). As a result:
- exceedances of antimony and molybdenum may be understated;

- chronic ecological risks may be underestimated;
- acute effects are largely unassessed;
- characterisation of mean and median concentrations as ‘infrequent’ and ‘not sustained exposures’ are statistically incorrect;
- peak acute exposures are not considered; and
- conclusions regarding "low risk" are insufficiently supported.

Drinking water risks remain insufficiently addressed

54. The RFI 11 material continues to downplay the significance of predicted antimony exceedances of drinking water standards in groundwater. Exceedance of the drinking water Maximum Acceptable Values (MAVs)⁶ are characterised (in the RFI 11 response to Q5; Assessment of Environmental Effects) as ‘low risk’ because they are predicted to be transient. However, MAVs are specifically intended to protect against unacceptable exposure, even on a transient basis.

55. The assessment also:

- does not consider the potential for domestic drinking water takes from the Bendigo Aquifer;
- provides limited consideration of groundwater drinking supplies;
- does not fully address treatment requirements for antimony, or other contaminant removal from domestic supplies; and
- underestimates the significance of exceedances relative to drinking water standards.

56. Compliance limits for sulphate at RS03 allow for double the concentration of the limit set for SC01 without a clear assessment of potential drinking water takes from the Bendigo Aquifer.

Baseline monitoring remains inadequate

57. The new downstream water quality dataset is extremely limited, consisting of only two sampling rounds undertaken during a similar season and under elevated flow conditions that were not adequately described, i.e. the flow percentile at the time of sampling was not stated. At least one of the sampling events occurred during and following significant snowmelt fresh events.

58. The comparisons of the water quality data in the Lindis River and Bendigo Creek with SC01 and RS03 should be viewed with caution, given only two samples were collected. These two results do not “provide important context for future interpretation of monitoring data” as the baseline water quality

⁶ These regulations, which come into force on 14 November 2022, set the Drinking Water Standards for New Zealand. The standards set limits for the concentration of determinands in drinking water. The limits are referred to as maximum acceptable values (MAVs). The MAVs for any determinand must not be exceeded at any time.

response says. Inferences about agricultural land use effects on water quality should also be viewed with caution. While there is agricultural development in the catchments, the concentrations of nitrogenous contaminants in the Lindis River and Bendigo Creek are very low when compared to agricultural catchments in Aotearoa New Zealand more generally, and with agricultural effects in similar climatic conditions of the central South Island.

59. Whilst samples were collected during high flows, which generally exhibit greater concentrations of nitrogenous contaminants, concentrations were still many orders of magnitude less than the updated nitrate compliance limits. I remain of the view that even if discharges meet the nitrate compliance limits, water quality will be significantly degraded in the immediate receiving environments. No updated investigation of load and concentrations effects on the Lindis River has been provided with the operational WLBM. However, I would assume that nitrate concentrations will increase in the Lindis River, based on modelled concentrations.

60. Consequently:

- baseline variability remains poorly understood;
- long-term seasonal trends have not been determined; and
- several conclusions regarding background contaminant concentrations are incorrect within the context of the ORC record (for the Lindis River) and remain uncertain (for the Bendigo Creek catchment).

61. Additional baseline monitoring should have been completed, particularly for Bendigo Creek, which does not have a long-term state of the environment monitoring record. This remains an area of significant uncertainty.

Passive treatment remains insufficiently developed

62. The Applicant continues to propose significant reliance on passive treatment systems but simultaneously acknowledges that further investigations are required to determine the design, capacity, and effectiveness of those systems. Passive treatment remains the only proposed treatment system for treating the discharge of mine impacted water into Rise and Shine Creek in the Bendigo catchment.

63. Expert conferencing records agreement (JWS2 paragraphs 24 – 28) that additional studies will be required before the appropriate treatment systems can even be selected. This creates uncertainty regarding:

- contaminant removal performance;
- suitability for, and effectiveness of, nitrogen removal;
- treatment of metals such as antimony and molybdenum;
- treatment capacity; and

- timing of implementation.
64. In my opinion, these uncertainties need to be resolved before consent could be granted, rather than deferred to future adaptive management processes, because there is currently no certainty that effects on the Bendigo catchment can be adequately managed. This is particularly important given significant risks to downstream receptors and ecological values, and in the context of updated modelling outputs that show volumes may differ substantially, limits will be exceeded at times, and treatment requirements greater and needed earlier. Further studies on passive treatment may elicit similar outcomes; requirements for active treatment and a second treatment plant may be triggered and have not been anticipated in the application or detailed in the further information provided.
65. This is particularly a problem for the Rise and Shine Creek and Bendigo catchment, which is not proposed to receive active treatment. No justification is provided for less stringent limits at RS03, with the exception of arsenic, which is already elevated by historic mining. If more consistent limits were applied across both catchments, treatment requirements may be greater for the discharge into Rise and Shine Creek. I recommend that more stringent compliance limits are applied at RS03, consistent with those proposed for SC01 to protect downstream values.

Continued reliance on adaptive management rather than predetermined controls

66. The Applicant continues to rely heavily on adaptive management despite modelled exceedance risks being identified in advance. Predicted exceedances of nitrate and antimony compliance limits at SC01 are acknowledged, with additional engineering controls potentially required. However, the nature, timing, and performance requirements of those controls remain uncertain.
67. A particular concern is the absence of clearly defined and enforceable triggers for:
- commissioning the water treatment plant;
 - commissioning and construction of increased storage capacity;
 - implementing additional seepage controls;
 - use of pit sump water for dust suppression;
 - discharge of contaminated surficial runoff via sediment control structures;
 - passive treatment efficacy;
 - timing of commissioning of increased water storage infrastructure prior to reaching maximum loads; and
 - deploying any other mitigation measures.
68. The proposed approach risks treatment being implemented only after adverse trends have become apparent. Given that results from long-term compliance and performance monitoring are required to determine a reliable water quality trend, and water treatment infrastructure may require

approximately 26 months to commission, and in the case of passive treatment for Rise and Shine Creek require 5-years of study, there is potential for prolonged periods of environmental exposure to untreated mine impacted water before mitigation becomes operational.

Management plan updates

69. Water quality, ecology, and geochemistry experts agreed to address several concerns relating to environmental risk arising from the proposals through updates to the management plans, e.g. water management, TSF, ELF, and other plans. I understand that the management plans have not been updated and are intended to be considered and certified later, if consent is granted by the Panel. This means that, despite the best endeavors of the expert group, several matters raised remain unresolved. Recommendations for adjustment to management plans to address significant issues and uncertainties should be transferred into consent conditions in the absence of management plan updates to provide certainty that effects are to be appropriately managed.

Covenant revocation effects on freshwater values are understated

70. The supplementary landscape response (Question 18 – Landscape – Supplementary Evidence of David Andrew Norton, Ian Kenneth Grant Boothroyd and Rhys James Girvan) adopts a narrow interpretation of freshwater values within the Bendigo Conservation Covenant. However, the covenant expressly recognises ecosystem functioning, watercourses, flora and fauna and their ecological relationships.
71. The assessment places substantial reliance on future (uncertain) rehabilitation and management outcomes while paying insufficient attention to:
- downstream connectivity;
 - existing high water quality;
 - cumulative effects;
 - uncertainty regarding treatment performance and ability to meet compliance limits;
 - suitability of compliance limits to manage effects (the assessment incorrectly assumes compliance limits will be sufficiently protective of water quality and downstream receiving environment values);
 - significant changes to baseline water quality, even if limits are met;
 - altered hydrology;
 - seepage uncertainties; and
 - risks to receiving environments.

72. As I explained in my initial statement, tenure review enabled rapid land use change and diversification for the flats around Bendigo Station (now largely under centre pivot irrigation). In contrast, the covenant has protected areas of indigenous cover and non-intensive grazing practices. Good water quality in the streams and rivers within and downstream of the covenant area is at least partly due to the protections afforded by the covenant. Good water quality benefits the ecosystem function in those streams and in the wider receiving environment, and the interrelationship between 'native fauna' and their 'water course' habitats. Contamination from mining that would be enabled by the proposed revocation will negate any water quality benefits that have been and would have continued to have been provided by reduced intensity of land use on the hillslopes, resulting in direct effects on the site's hillslope waterbodies, and cumulative effects on downstream waterbodies that are already impacted to some extent by the more intense agricultural and horticultural development of land on the flats, that was enabled by tenure review.
73. As discussed in my evidence, existing water quality in the lower Lindis River, Bendigo Creek, the Mata-au Clutha River, and the Bendigo Aquifer is very good. Nutrient concentrations are low, clarity is high; and the receiving environments are sensitive to additional contaminant loads. Contrary to the applicant's technical reports, streams within the project footprint are not degraded by agricultural land use; nitrogen concentrations are actually very low (see my initial statement paragraphs 40 and 41). Nitrogenous monitoring results from the project site do not support or justify a categorisation of baseline water quality as 'degraded' by agricultural land use.

Kathryn McArthur

7 September 2026