Additional comments on the Fast-Track Approval Act 2024 – Matakanui Gold Limited – Substantive Application for the Bendigo-Ophir Gold Project

Our property[1] is mentioned in Matakanui Gold Limited (MGL) - Substantive Application for the Bendigo-Ophir Gold Project (BOGP) - Lodged Document I.04. "Records of Title - Properties Adjacent to the BOGP Consent Area"[2].

We, my father James Hanan, my brother and sister Grant and Kate Hanan and myself Ross Hanan seek representation under Section 53(h) of the *Fast-track Approvals Act 2024* (the Act) and Minute 46 of the Expert Panel.

We ask that this be read alongside our previous submission[3] and hearing comments[4]. In these, we have expressed a number of concerns around the long-term quality of the water in the lower Lindis catchment that we and others drink.

In this supplementary submission we focus on the applicant's RFI 11 responses as they relate to the re-issued Water Management Plan of June 2026 (the Plan).

We believe that the application in its current form fails in its legal requirements, and that various responses and consent conditions are either missing or are not suitable for managing the potential risks to the water resources in this part of Central Otago.

We present these additional comments as community members and not as legal or technical experts.

We have concerns relating to the standards that the Applicant is relying on in their proposed Adaptive Management Approach

The Plan uses adaptive management as central to its plan for addressing environmental risk. It adopts a Plan-Do-Check-Act (PDCA) cycle and frames adaptive management as a mechanism for continuous improvement, something akin to a feedback loop. It follows the AS/NZS ISO 14001:2016 Environmental Management Systems standard.

This graphic was provided by the Applicant:

[1] [redacted]

[2] List of lodged Documents – https://www.fasttrack.govt.nz/__data/assets/pdf_file/0025/15559/A.04-List-of-Lodged-Documents.pdf

[3] Comments from invited parties - https://www.fasttrack.govt.nz/projects/bendigoophir-gold-project/comments-from-invited-parties

[4] Conferences, workshops and hearings - https://www.fasttrack.govt.nz/projects/bendigoophir-gold-project/conferences,-workshops-and-hearings

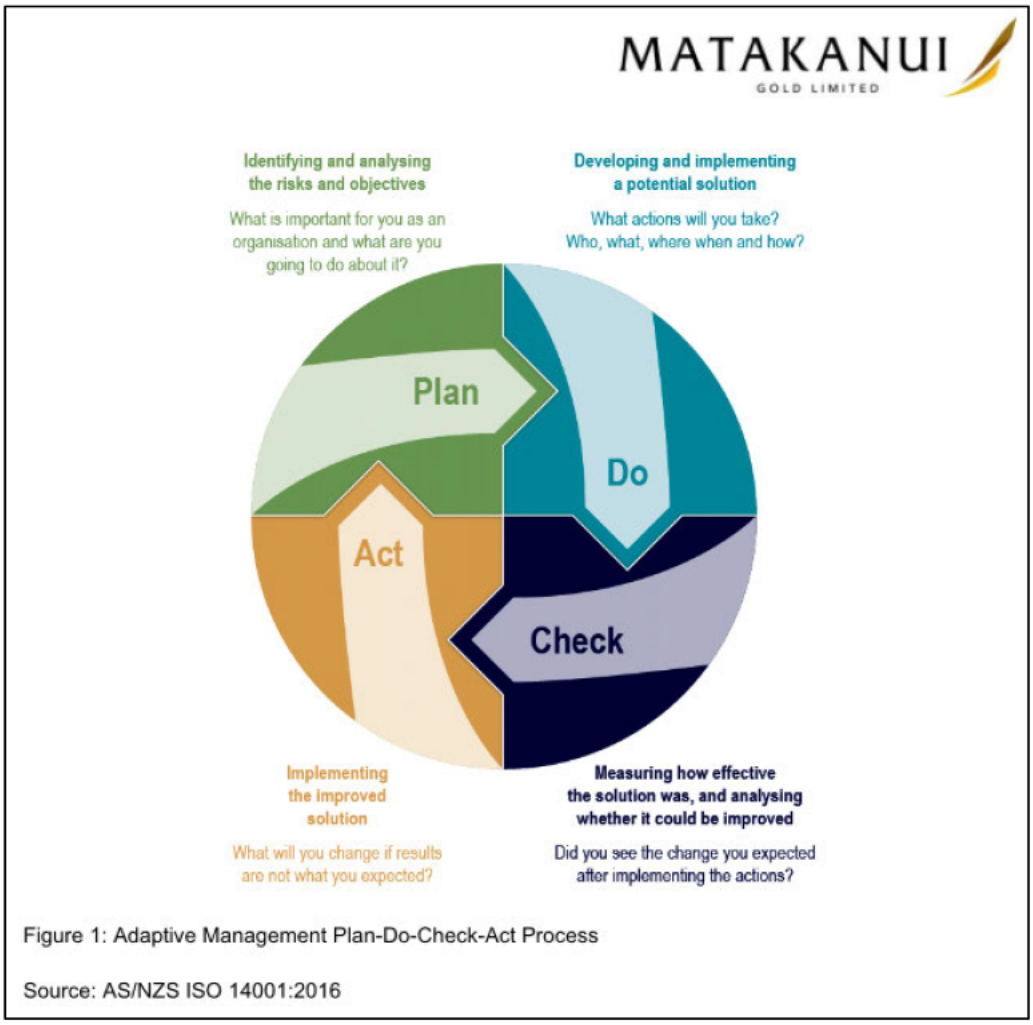
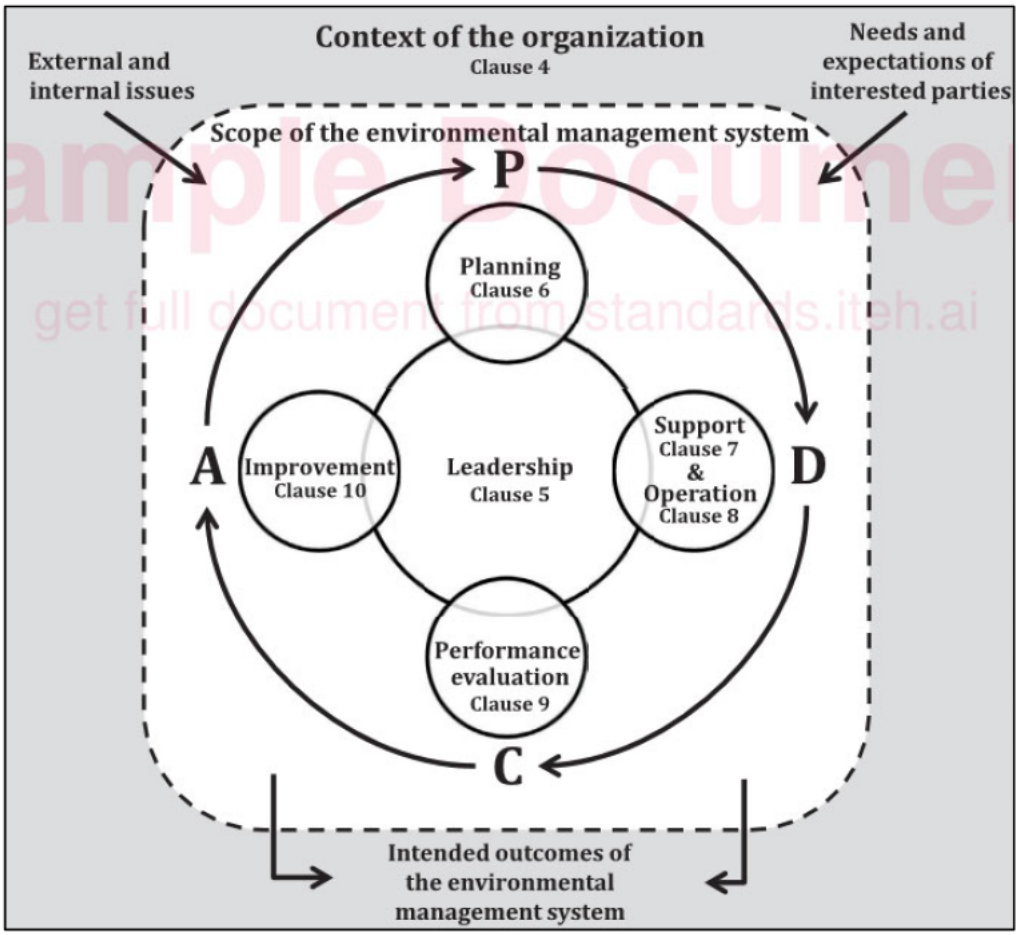


Figure 1: Adaptive Management Plan-Do-Check-Act Process

Source: AS/NZS ISO 14001:2016

It is worth noting that the global standard ISO 14001:2015 (on which AS/NZS ISO 14001:2016 is substantially based) has been replaced with ISO 14001:2026[5]. A new schematic, imaged below, has now been developed to understand the process, along with further refinement of the standards.

[5] https://www.iso.org/standard/14001



ISO 14001:2026

The ISO describes the new standard thus, "**Environmental responsibility is no longer defined by commitments alone, but by the ability to demonstrate real, measurable performance**. "

There are a number of changes in the new standard. One of note, Clause 6.1.4 on *Risks and opportunities* states that, "…**environmental aspects need to be assessed. This specifically includes emergency situations** …"

We note the Applicant's commitment to ensuring that work is carried out in accordance with industry's best practice, as detailed in section 14.1 of MGL's Tailings Management Plan.

14. CHANGE MANAGEMENT

Review of This Plan will be undertaken by SQEP's that have experience in the assessment and management of tailings and dams. The SQEPs will be part of a Peer Review Panel (PRP) that will be appointed by the Otago Regional Council (ORC). The members of the PRP must be fully independent of the planning, design, and operations of BOGP. Such independence will be confirmed by the ORC.

14.1. Peer Review Panel Purpose

The purpose of the PRP is to:

- Ensure that work is being undertaken in accordance with industry's best practice.

G.16 Tailings Management Plan page 34

We further note that the updated AS/NZ version[6] is currently being edited and that it is anticipated that this new standard will published in September 2026. Given the Applicant's heavy use of Adaptive Management in its application, we ask that they adopt all areas of the new standard **and apply its principles** prior to any consent being granted.

Some additional commentary on the adaptive management approach is set out in **Appendix One**.

We have concerns as to the extent to which the Applicant is proposing to rely on an Adaptive Management Approach as part of its Water Management Plan

Adaptive management has inherent risks:

The Applicant is using adaptive management processes in a significant number of areas. Each one of those areas has inherent risk. The text box below details a list of potential events for adaptive management proposed by the Applicant in their Water Management Plan.

[6] Standards Australia - https://www.standards.org.au/

Adaptive management processes relevant to This Plan, which will be developed throughout the course of the BOGP operations, shall include (but not be limited to) a response to the following:

- Uncontrolled discharge of MIW surface and seepage waters.
- ELF and TSF seepage rates higher than expected.
- ELF and TSF seepage quality poorer than expected.
- Turbidity levels of retention and silt ponds not reducing.
- Collection sumps, retention pond or silt pond spills are of limited capacity and efficacy.
- Active water treatment plant cannot achieve water quality limits.
- Passive water treatment system cannot achieve water quality limits.
- Pit sump water used for dust suppression.
- Creek flow augmentation rate either too high or too low.

G.01 Water Management Plan – page 12

Each of the potential events listed above requires a pre-developed Plan before operations commence. Without a plan, the PDCA cycle cannot begin. Adaptive management is only possible against an established plan, which then feeds a continuous feedback loop enabling refinement. Each plan must include measurable benchmarks to evaluate performance and guide adaptation. The Applicant has not submitted Plans for these events listed above, a risk assessment register is as substantive as we have been privy to. In our previous comments we identified areas where benchmark data remains insufficient.

The risks listed above are detailed as singular risks. These risks, however, can also be additive – they can occur concurrently and these risks can compound.

To build a hypothetical example of a simple rainfall event using the list above:

1. Heavy rain makes the sediment ponds too muddy to discharge. (*Turbidity levels of retention and silt ponds not reducing).* **This is a singular risk.**
2. To reduce the waters turbidity water is pumped through the water treatment plant. The plant fails and cannot treat the water anymore. (*Active water treatment cannot achieve water quality limits).* **Risks can also be additive**. One event occurs and then another event occurs.
3. While the plant is down, all excess water is sent to the TSF. But the extra water causes the dam to leak too fast (*TSF seepage rate higher than expected*) and the water that escapes is acidic and toxic (*TSF seepage quality is poorer than expected*). **Risks can also occur concurrently,** with multiple events occurring at the same time.
4. The main retention pond overflows because it is full (*Collection sumps, retention pond or silt pond are of limited capacity and efficacy*). The leaking dam water and the overflowing muddy ponds mix and spill into the creek (*Uncontrolled discharge of seepage waters*). **Risks can also compound,** with one event causing a cascade of other events.

Each adaptive management technique cannot be looked at in isolation. The potential for additional, concurrent and compounding of risks extends beyond the Water Management Plan to other operational areas of the proposal. These other areas of the applicant's proposal, such as the Soil Management Plan & the Tailings Management Plan, are also employing adaptive management as a technique. This further complicates and increases the risk profile.

This risk to the environment can occur from day one of the commencement of consent yet these adaptive management plans will be developed in some unspecified timeframe "*throughout the course of the BOGP operations.*"

We ask that not only singular risk management plans are developed but also that composite risk scenarios are created before any approval by the panel. To use an idiom, buses normally arrive in groups, the reason for one event occurring is likely the cause of some environmental stress, that stress is also likely to be felt on other parts of the operation at the same time. For example a 1-in-100-year rainfall event combined with a power outage can be foreseen and consequently modelled. We can see no evidence that the applicant has modelled such failures; consequently their risk assessment is not adequate.

Adaptive Management and Remediation must consider the achievability and likely costs of remediation:

The Applicant has insufficient information regarding remediation processes or costs should serious downstream issues occur.

Sustain Our Sounds Incorporated v The New Zealand King Salmon Company Limited 2014 is often used in support of adaptive management. The case provides some clear guidance as to the weighing of risks and suggests when adaptive management is an appropriate tool.

> [139] The answer to the overall question from [129](d) of whether risk and uncertainty will be diminished sufficiently for an adaptive management regime to be consistent with a precautionary approach will depend on the extent of risk and uncertainty remaining and the gravity of the consequences if the risk is realised. For example, a small remaining risk of annihilation of an endangered species may mean an adaptive management approach is unavailable. A larger risk of consequences of less gravity may leave room for an adaptive management approach.

We have sought, in our previous submission, remediation plans to understand the cost and achievability of such remediation.

6. remediation plans should the aquifers become polluted, these should include Plan 5A water dynamics; and

Hanan -Detailed Concerns and Evidence 20160314 – Conclusion

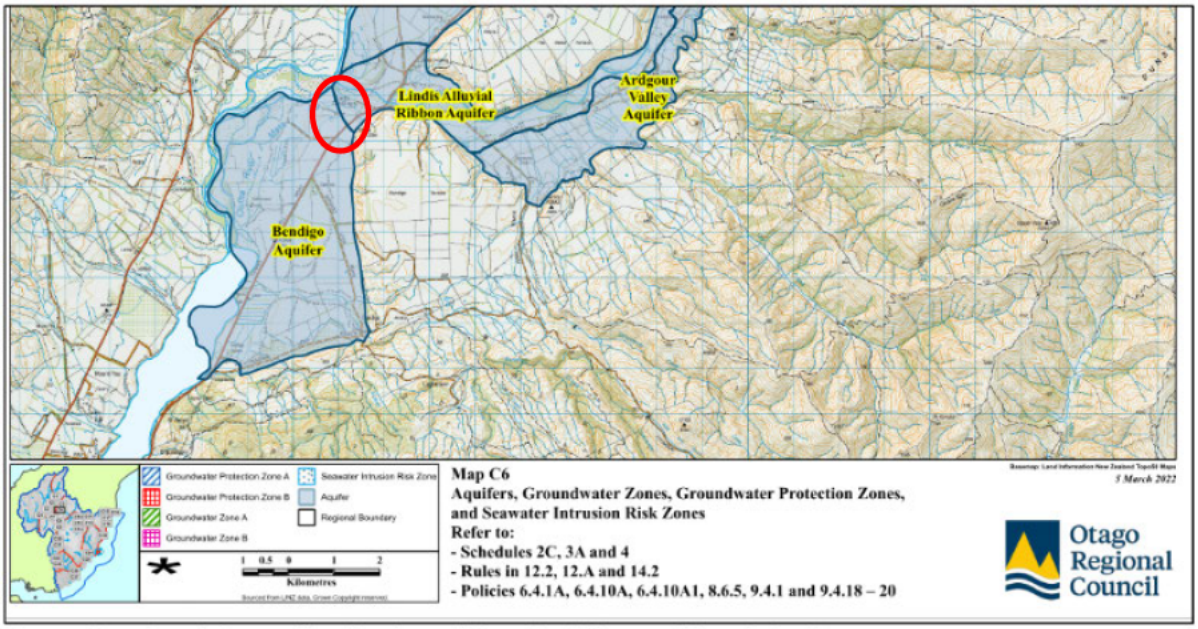
The Applicant's Water Management Plan fails to mention a water remediation plan at all.

Without some understanding of the cost implications for remediation the ability to determine very long-term funding requirements becomes guesswork. A fully costed scenario where both aquifers are significantly and permanently polluted will provide important information as to the Bond or insurance requirements required over the life of the TFS.

In our view, without detailed remediation plans, the Panel do not have sufficient information to determine "*the gravity of the consequences if the risk is realised.*" We ask the Panel seek further information on the achievability and costs of remediation should the Ardgour and Lindis aquifers become polluted.

The risk to the Lindis aquifer is not acknowledged in the Applicant's Water Management Plan:

We note that is no mention of the Lindis aquifer and there is only one mention of the Ardgour aquifer in the entire Water Management Plan. All other references to these areas are described as in euphemistic terms - the 'receiving environment, receiving streams, receiving water bodies or receiving groundwater systems'. Equally there are no images of the Ardgour or Lindis aquifers in the Plan. This is added below.



Otago Regional Council – Regional Plan for Water - Map C Series

We also note that there has been simply no analysis on the interaction between the Lindis Alluvial Ribbon Aquifer (LARA) and Bendigo aquifers. This is the area circled in red above and incorporates our property.

In his statement of evidence 17th April 2026[7] Jens Rekker, on behalf of the Applicant, pointed out uncertainty regarding the interconnectedness.

> 96. Of relevance to the Hanan situation, the original Schedule 2C declaration of the LARA extended to the State Highway 8 Lindis Bridge and no further. The extension of the LARA to the Clutha River to encompass small parts of the Bendigo Aquifer was made in a subsequent Plan Change to be in line with the groundwater modelling outputs of Scott Wilson in March 2011. Without the extension by plan change, the Hanan well was considered to rest within the Bendigo Aquifer.

Water generally follows gravitational laws, and one might assume that the water upstream in the LARA would migrate to the Bendigo aquifer as the LARA is up river. However springs or natural upwelling and other dynamics may create other dynamics adhering to the reclassification mentioned by Mr Rekker. However we have no knowledge of how that might work as there has been no analysis performed. That interaction is simply conjecture. **There is a lack of information on reversibility in the Water Management Plan:**

In the King Salmon case the ability to reverse negative environmental outcomes is also wisely considered. In this instance reversibility was regarded as achievable.

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[7] *17 April 2026 Statement of Evidence of Jens Haaye Rekker on behalf of Matakanui Gold Limited in response to Section 53 Feedback - Water Page 16*

Sounds that might be difficult to reverse.[109] Dr Gillespie, an expert called by King Salmon, "expected the rapidly flushed environment of the Sounds to ensure easy reversibility and a rapid return to the trophic condition pre-development following the closure of the salmon farms".[110] The Board did not make any explicit finding on this conflict of evidence but, given its rejection of Dr Henderson's concerns on the issue of the dangers of trophic change, may have done so implicitly.

Sustain Our Sounds Incorporated v The New Zealand King Salmon Company Limited 2014, Paragraph 53

The timelines for that reversibility were suggested by King Salmon experts to be between one to two months.

81.1 A number of submissions (*e.g.* 0134 - L. Plaisier, 0158 - P. Chapman, 0102 - MDC) question the reversibility of water column enrichment effects from the proposed farms. The length of time required for this to occur would be dictated by the flushing rates, expressed as estimated residence times, in the evidence of **Mr Ben Knight**. These estimates suggest that Pelorus Sound, Queen Charlotte Sound and Port Gore would be completely flushed within one month, approximately two months and one month, respectively. Thus the majority enrichment effects would be relatively short-lived although nutrient recycling from zones of enriched sediments would continue to provide low-level contribution to water column nutrient concentrations for a longer period. This latter contribution would be expected to decline rapidly during the first few months after cessation of production.

Statement of Evidence of Paul Albert Gillespie – June 2012, paragraph 81.1

Reversibility in the King Salmon case seemed succinct and conceptually easy to understand: stop the activity and let the tides flush it out.

The BOGP proposal bears no similarity in terms of reversibility, and there is no accompanying commentary around reversibility should the receiving environment be contaminated. This leaves a void of information on to which to make a decision. We have no approximation of the time required to reverse possible contamination from the Applicant, and we have no understanding of whether it is achievable and how much it might cost. It may well be that aquifer remediation is relatively straight forward, but we have no way of knowing because this information has not been provided.

We have concerns about the accuracy of the benchmarks and data being employed by the Applicant and their inability to adequately assess the true environmental effects

We have previously dealt with the lack of proven calibrated modelling. Experts are all in agreement that more modelling is required, particularly in the Ardgour aquifer.

> Ardgour Aquifer
>
> 18. With respect to aquifer mixing data, AB, DA, LM, RB, and JR note that there was limited data to support the modelling completed, as outlined in JR's report titled 'Post Closure Impacts on the Ardgour Aquifer' dated February 2025[1]. Data used

Groundwater Joint Statement of Expert Witnesses – 14th 15th May 2026

This contrasts with the King Salmon case whereby all Experts were satisfied with the modelling presented.

> [126] The Board had before it modelling showing that water quality would not be compromised at the initial maximum feed levels for all nine locations. The Board accepted that the modelling of the nutrients introduced to the water column was conservative.[242] The experts were agreed too that the results of the modelling were satisfactory except in the very short term and for minor bays.[243] Although there was no modelling for the maximum feed levels, as King Salmon points out, there is no guarantee that these levels will actually be reached.[244] Under the consent conditions, they will only be reached if water quality (and the seabed) will be protected.[245]

Sustain Our Sounds Incorporated v The New Zealand King Salmon Company Limited 2014, Paragraph 126

This gap in understanding means that the true environmental effects cannot be adequately assessed. It is therefore inappropriate to rely on the current modelling to inform decision-making, and that further calibrated modelling agreed upon by all the experts must be completed before the impacts can be properly evaluated.

We have specific concerns regarding lack of information, or inadequate consent conditions, in the Applicant's Water Management Plan and request a number of amendments to the Plan

9.2.4. Review and Adaptive Management

Performance monitoring data will be reviewed as per the PDCA cycle and in accordance with Section 14:

- Annually, to assess trends and refine monitoring programmes.
- Following significant rainfall events, to evaluate infrastructure performance (>15 mm of rain within a 24-hour period; see Erosion and Sediment Management Plan, section 8.2 (MGL, 2025a)).
- In response to exceedances or anomalies, to trigger adaptive management actions (see Section **Error! Reference source not found.**).

Monitoring results will inform updates to the WMP, risk register, and adaptive management processes.

Water Management Plan June 2026 page 73

REQUEST – In BOGP's *response to exceedances or anomalies* – BOGP must suspend all activity until the cause has been determined and rectified. We also ask for the Reference source not found be found and inserted into an updated document.

9.3. Active Water Treatment

In accordance with D.02#New8, the active WTP will be constructed and commissioned where monitoring indicates a sustained and attributable need to avoid adverse effects on receiving environment. This requirement is triggered upon the earliest occurrence of:

a. Persistent deterioration in surface water quality (defined by the Advice note below) at compliance monitoring locations attributable to mine-related runoff.
b. Development of a water surplus condition, as predicted by water balancing monitoring where mine circuit water requires discharge.
c. Permanent cessation of mining where ongoing water management is required.

Advice Note: Surface water deterioration is where measure sulphate concentrations, a key indicator of MOW at compliance monitoring locations exceeds 50% of the applicable compliance limit on three occasions within 12 months, including at least one exceedance of the limit, where attributable to site activities and not resolved with adaptive management processes.

Water Management Plan June 2026 page 73

REQUEST: That '*exceeds 50% of the applicable compliance limit three occasions within 12 months including one exceedance of the limit* **be changed to** *exceeds 50% of the applicable compliance limit three occasions within 12 months* ***OR*** *one exceedance of the limit* - to require the BOGP operation to be suspended pending a suitable solution. Operations should remain suspended until a suitable, verifiable, and permanent solution is identified, implemented, and confirmed to effectively address the water quality deterioration and prevent future exceedances.

Table 7: Groundwater compliance monitoring

Site ID	Location	Description	Monitoring	Water Quality Monitoring Frequency
MW-102 (GW01)	Ardgour Station Compliance Bore	Located near Shepherds Creek, this bore monitors groundwater quality and levels in the Shepherds Creek alluvium. It is used to assess potential impacts from mining activities on downstream groundwater users.	- Quality [1] Other: - Groundwater level	Monthly
Base Bore	Abstraction Borefield – Production Bore	Located within the Bendigo Aquifer Borefield, this bore monitors groundwater abstraction rates and quality for operational use. It ensures compliance with consented abstraction limits and drinking water standards.	- Quality [1] Other: - Groundwater level - Flow meter - Pumping records	Monthly

1. *Groundwater quality monitoring will include but is not limited to: in-situ general parameters (temperature, EC, pH, dissolved oxygen etc.), all parameters listed in Table 8,major cations and anions, hardness, ionic balance.*

Water Management Plan June 2026 page 61

REQUEST: **We request groundwater monitoring in both the Lindis and Ardgour aquifers.** There is no groundwater monitoring of the Ardgour nor the Lindis aquifers detailed. Contaminants may spread in unforeseen, un-modelled ways. Groundwater monitoring locations that directly impact local users with **transparent public-facing data** and alerts should be provided to monitor drinking water standards. This will ensure that should contaminants enter the aquifers then local inhabitants are safely protected and notified in perpetuity.

It is anticipated, following at least two years of monthly performance monitoring and the identification of stable trends that performance monitoring could be assessed through an adaptive management process. This will include:

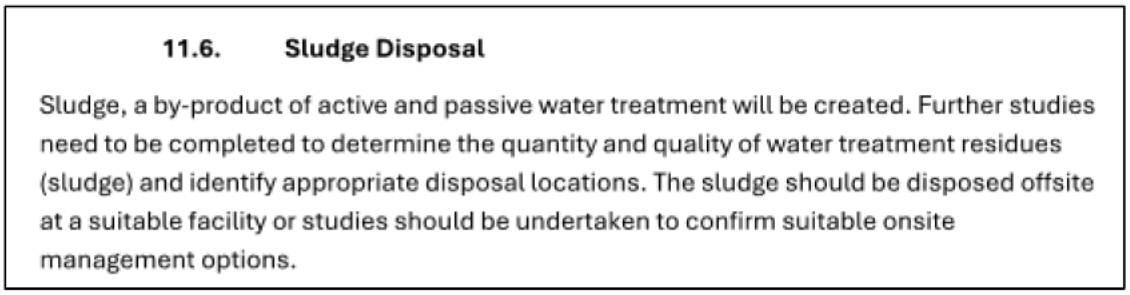
- A review of monitoring site selection to ensure performance monitoring is providing the most informative results.
- A review of monitoring frequencies for suitability.
- A review of water quality monitoring parameters, including flow measurements, and parameters of concern, which may also be amended.

Water Management Plan June 2026 page 63

In accordance with consent conditions and the adaptive management process described in further detail in Section 2.4 and **Error! Reference source not found.** , the frequency of compliance and performance monitoring will be reviewed on a yearly basis in accordance with Section 14 of This Plan. This may include a change in monitoring frequency and/or monitoring variables if risks change. It is proposed that 2 years of monitoring (monthly testing) is required once stable trends are identified before any reduction is considered as confirmed by a SQEP. This timeframe is in alignment for the ANZG baseline monitoring requirements of 2 years and provides a mechanism to ease unnecessary monitoring requirements.

Water Management Plan June 2026 page 86

REQUEST: **We ask for sustained permanent frequent monitoring through the full lifecycle of the mine and the TFS.** The current proposal asks for monitoring to be reduced within a two year period. The potential for an unforeseen contamination event is a real possibility.

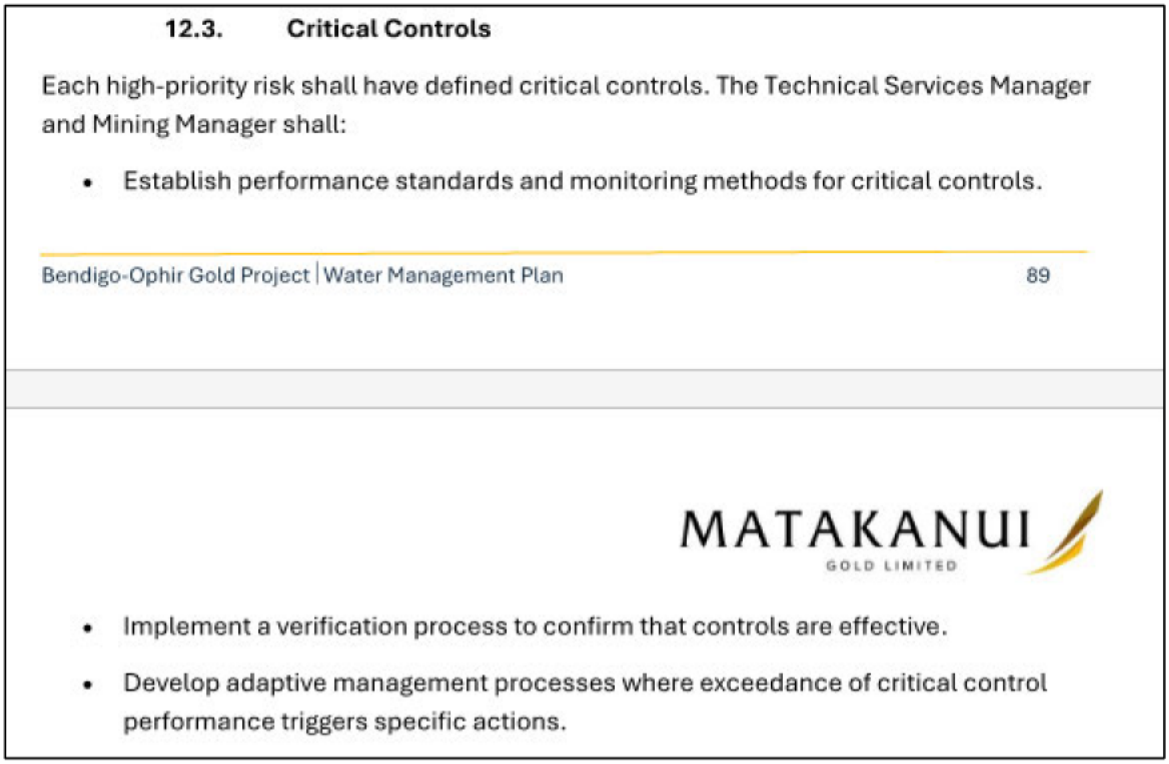


11.6. Sludge Disposal

Sludge, a by-product of active and passive water treatment will be created. Further studies need to be completed to determine the quantity and quality of water treatment residues (sludge) and identify appropriate disposal locations. The sludge should be disposed offsite at a suitable facility or studies should be undertaken to confirm suitable onsite management options.

Water Management Plan June 2026 page 85

REQUEST: **We ask that there is no commencement of mining operations until a sludge disposal location is identified.** There is a risk that finding an appropriate cost-effective disposal location proves difficult and that sludge is stored on-site as an interim measure, heightening environmental risks.



12.3. Critical Controls

Each high-priority risk shall have defined critical controls. The Technical Services Manager and Mining Manager shall:

- Establish performance standards and monitoring methods for critical controls.

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MATAKANUI GOLD LIMITED

- Implement a verification process to confirm that controls are effective.
- Develop adaptive management processes where exceedance of critical control performance triggers specific actions.

Water Management Plan June 202 page 85

REQUEST: **That critical control standards, monitoring methods and management processes be developed before mining operations commence.** Considering the use of the word 'Critical' it would seem unwise to progress until these issues have been dealt with.

We have substantive concerns regarding the Applicant's RFI 11 reponses.

RFI 11 has failed to allay our concerns particularly in regards to:

- the adequacy of baseline data;
- the lack of robust calibrated modelling; and
- the absence of climate modelling

We detail these below:

1.

> 1. Please provide further information to understand the downstream catchment's baseline environment including:
>
> a. water quality; and
>
> b. aquatic ecology.

Data issues:

- The Applicant has provided only two months of new baseline data. Two months of data fails to capture full seasonal variation.
- The data that is provided is compromised by the winter conditions the consultants experienced. These conditions have meant that measurements were not taken at testing site SW14.

> 5.2.2 Riparian and in-stream habitat
>
> **Lindis River - SW14**
>
> Riparian and instream measures were not taken due to high flow conditions.

1b) response page 16

- There are calibration issues noted.

> ○ The field and laboratory reported pH at SW14 is lower than the range of values historically reported at the Lindis River at Ardgour Rd continuous monitoring station. This may reflect slight calibration issues with the continuous pH probe at the monitoring station given field and laboratory pH from the sampling events at SW14 exhibited a close correlation.

1a) response page 5

Characterisation Issues:

- The characterisation of the Lindis River as "fair to good" also fails to take in to account the impact of Plan Change 5A (PC5A). Recent flows in the past few years have been observed by the local community to have been considerably better than previous, making historic data of less value.

5.1.1.10 Implications for future sampling of the SW14 monitoring site

The combination of long-term ORC biomonitoring, fish survey information, and recent eDNA results provides a high degree of confidence in the interpretation of ecological condition within this reach of the Lindis River. While individual macroinvertebrate surveys may show substantial year-to-year variation due to flow conditions, the weight of evidence indicates that the river continues to support a diverse gravel-bed river community characteristic of fair to good ecological condition.

1b) response page 14

- Further characterisation of this section having broken dry reaches is now even less likely especially under the full implementation of PC5A which is due to be fully operative in October of 2026.

The catchment in this area is water short and dominated by surface and groundwater abstraction during the irrigation season, particularly in late summer - early autumn when the river is typically broken by dry reaches. However, the ORC flow recorder site is a perennially hydrated reach of the lower Lindis River. During low flows, it is sustained by groundwater interflow that surfaces along the reach, perhaps due to a squeeze in the thickness of the braid plain alluvium.

1a) response page 3

- Accordingly the aquatic ecology of the Lindis River is likely to further improve now that there is mandated permanent water flow and continued connectivity with the Clutha/Mata Au River.

2.

2. Please provide additional information to better understand the hydrogeological characterisation of the site and wider receiving environment in terms of groundwater and contaminant movement from the site and the ultimate effects on the surface and groundwater receiving environment. This requires additional baseline data collection and modelling, including but not necessarily limited to:

   a. General hydrogeological field data.

   b. Three-dimensional groundwater contamination modelling.

   c. Quantification and demonstration of uncaptured seepage, including details of the seepage scenarios through the site and wider receiving environment.

Data issues:

- We had hoped that the applicant might have taken note of our previous comments regarding the use of calibrated proven models. Instead we have been provided with a predictive model – an un-calibrated, unproven model.

C.5 Observations / Outputs

The seepage model is a purely predictive model (e.g., no inversion is preformed), so there are no target observations in the typical sense. Instead, we capture a series of model prediction values for each simulation; these

2b) response page 129

- It is also noted that an inversion test was unable to be performed due to a lack of real world data.

> **Inversion of the seepage model:** The seepage model was not inverted to the parameterisation of the hydraulic properties or other model parameters, instead it was run as a prior stochastic suite of models to assess the potential for contaminated seepage loss to the shallow and deep groundwater systems. We chose not to invert the seepage model for several reasons. First, there is relatively little data available to constrain the seepage model. Although there are some head measurements in the QALCL and weathered schist units and a parameter inversion to replicate these heads could potentially provide a slightly constrained parameter range, the outcome would likely be non-unique and compromised by uncertainty in model structure. For example, we assume a uniform thickness of 5 m for the QALCL and 20 m for the

2b) response Page 9

> There is minimal data to inform an inversion (optimisation) of the seepage model. Instead, we undertook a prior parameter stochastic suite and sensitivity analysis to assess the potential for contaminated seepage loss to the shallow and deep groundwater systems. Essentially we defined a conservative range of potential parameter values for the seepage model, and ran a suite of models across the parameter space to assess the
>
> 7 | KSL Updated Groundwater Modelling for Bendigo Ophir Gold Deposit

2b) response page 7

- The sample size is limited

> - Weathered bedrock (n=2), K ranged between $7x10^{-5}$ to $3x10^{-4}$ m/s. These results, although from a limited sample size, indicate zones of elevated K are present, at least locally, within weathered bedrock. Note that the test at GW02B suggested lower K (likely $<10^{-7}$ m/s) than these test results with a consistently slow (and non-ideal) test response. Overall results suggest weathered bedrock K can be highly variable.

2a) response page 9

- The slug tests were not done independently.

> **Slug Testing**
>
> Falling and rising head slug tests were completed by MGL staff on the installed monitoring wells after well development. A solid slug that created a theoretical displacement of 0.32 m (in a nominal 50 mm diameter pipe) was used on all monitoring wells except for GW03A. Here, the solid slug could not be advanced sufficiently due to a PVC pipe connection rivet protruding too far past the pipe internal wall. Therefore, 0.75 L of clean water was used to initiate a falling head test (38 m of theoretical displacement).

2a) response page 5

- And the test results were compromised. Out of the ten tests, three in particular are significantly compromised:
  - GW02B had a “consistently slow (and non-ideal) test response”
  - GW02C had the “possible influence of well skin”
  - GW19 had a “strange test response”

Table 4: Slug test analysis results summary.

MW ID	SCREENED UNIT	FHT K (m/s)	RHT K (m/s)	REMARK
GW02A	Alluvium/colluvium	$1x10^{-4}$	*	Screened across water table. B-R analysis method used with correction for effective well radius based on Bouwer and Rice (1979) with an adopted effective porosity value of the filter pack of 0.3.
GW02B	Weathered Bedrock	*	*	No quantitative analysis performed due to non-ideal test response. Initial rapid response (first 20 seconds) followed by extremely slow decline without full recovery. In addition, recorded displacement (0.374 m) higher than theoretical (0.32 m) Possibly indicative of low hydraulic conductivity or influence of well skin.
GW02C	Fresh Bedrock	$1x10^{-5}$	*	H analysis method used. Post-test level stabilised at high level and pre-test; possible influence of well skin.
GW03A	Alluvium/colluvium	$5x10^{-4}$	*	0.75 L water slug used. Screened across water table. B-R analysis method used with correction for effective well radius based on Bouwer and Rice (1979) with an adopted effective porosity value of the filter pack of 0.3.
GW03B	Weathered Bedrock	$6x10^{-5}$	$3x10^{-4}$	H analysis method used. Rising Head Test displaced cleaner test response increasing confidence in test result.
GW03C	Fresh Bedrock	$4x10^{-8}$	*	H analysis method used.
GW06A	Alluvium/colluvium	*	$5x10^{-5}$	Screened across water table. B-R analysis method used with correction for effective well radius based on Bouwer and Rice (1979) with an adopted effective porosity value of the filter pack of 0.3.
GW06B	Weathered Bedrock	$7x10^{-5}$	$8x10^{-5}$	H analysis method used.
GW06C	Fresh Bedrock	$5x10^{-8}$	*	H analysis method used. Extremely slow response without full recovery. Indicative of low hydraulic conductivity.
GW19	Alluvium/colluvium	$1x10^{-6}$	*	H analysis method used. Strange test response suggests possible influence from well skin.

*Note: MW = monitoring well; FHT=falling head test; RHT=rising head test; H=Hvorslev (1951), B-R= Bouwer and Rice (1976). Tests marked with * did not show a suitable response for analysis.*

2a) response page 6

The report's conclusion that "lost seepage from the TSF is less than 8%", which sounds somewhat high, is based on a model that has not been compared to real-world data.

- Based on the revised stochastic suite, we suggest that a very conservative upper limit for likely lost seepage from the TSF is less than 8%, but more than 4%. Most model realisations suggest that the likely lost seepage is < 3%. These figures assume that the SHFILL is adequately underdrained.

2 b) response page iii

The conclusion also notes the challenging problems should seepage escape to the lower reaches.

collection can be expected. As the bedrock surface drops off and depths to water table increase towards the Lindis River, high levels seepage collection will become more challenging. As such, seepage

2 a) response page 12

3.

> 3. Please provide a contaminant load water balance model taking into account the above findings and the full array of potential climatic outcomes for the following phases:
>
> a. operation;
>
> b. active water treatment closure period; and
>
> c. passive water treatment closure.

Data Issues:

The Operational Phase Site Wide Water and Load Balance Model provided

- **Is not calibrated, neither is it real world proven.** The water balance model's components are explicitly stated as "not calibrated". This is a continual theme throughout the duration of this application.

> **5.1 Model Limitations**
>
> *5.1.1 Water Balance*
>
> As noted by MWM (2025a):
>
> - The Runoff Model did not provide a strong match to high or (daily average) peak flow conditions. In addition, peak flows typically occur at a finer temporal scale than the modelled daily time step. As such, the Runoff Model, and by extension the wider Water Balance Model results are not appropriate to inform engineering design criteria that are sensitive peak flows.
> - The Runoff Model was history matched to SC01 flows, which spatially average flow generation over the entire catchment. However, higher elevation sub-catchments (e.g., area reporting to SC03) are known to have higher unit flow yields (KSL, 2025a). As such, the Runoff Model may not be reliable at forecasting flows at smaller, lower elevation portions of the Project area.
> - Model inputs and outputs to the mine domain components of the WLBM were not calibrated and typically informed by experience at mine sites in similar settings (e.g., Macraes Mine, etc.). Performance monitoring during operations will be essential to confirm model results are reasonable.

3 abc) response page 32

- The runoff model parameters is described as providing only a "**reasonable fit" and that "professional judgement" has been employed.** Even with this non-scientific approach the runoff model was still not appropriate for high or daily average peak flow conditions. Again it is clear that the model does not reliably predict the water balance under more extreme conditions. The data provided is not fit for purpose.

> The runoff and recession coefficient input parameters are summarised in Table 7, with the runoff coefficient varying by month. Selection of parameters was based on professional judgment and attaining a reasonable fit with observed flows at SC01 (see MWM, 2025a for full calibration details).

3 abc) response page 18

- **Has no climate change projection.** The model relies entirely on historical climate data and does not incorporate any forward-looking climate change scenarios. Given the project's 14-year operational timeline extending to 2040, and its legacy activity lasting significantly longer, this is a critical failing. Climate change projections for Central Otago include more intense rainfall events. The model therefore cannot reliably predict the water balance under more extreme conditions

4.

> 4. We expect all models to be appropriately calibrated against existing conditions with consideration of:
>
> a. a range of potential geological scenarios that may realistically be foreseen; and
>
> b. variable environmental conditions which demonstrate the range of effects possible.

There has no response to this question. In the other responses filed little to no commentary can be found regarding future climate variables.

5.

> 5. The above information is to be reflected in updated expert assessments of the potential adverse impacts on the Ardgour and Bendigo aquifers and the associated surface water environments.

The expert assessment provided is done so with the applicant's consultants. It is not independently peer reviewed. Previous assessments provided by other independent experts have been, and remain, contested.

6.

> 6. In order to understand the potential effects on other users of the aquifers, please provide the results of a compliant bore pump test for the Bendigo aquifer.

Data issues:

- The applicant failed to achieve the pumping rate of 110l/s at the original site. A second site was also employed. The target pumping rate was still not achieved. Accordingly a direct comparison to the consent condition did not occur.

Overall, the implemented constant rate aquifer test conformed with the requirements of the guidelines. The main area of departure is that of maximum sustained pumping rate during the multi-day aquifer test. MGL's application specifies a daily rate in equivalent litres per second units of 110 L/s. During the July 2026 testing the use of portable generators / pumps, plus the nearby observation bore were required to be harnessed to develop constant pumping rate of 97.1 L/s. The taking of 110 L/s in a sustained fashion will only be feasible once the second production bore of the proposed bore field is installed and powered.

6. response page 9

- One test site was deemed unusable due to lumpy data. This is conveniently removed from the analysis.

6. The more distant observation bore, Obs-3 at 136 metre radial distance, was found to be affected by suspected Bendigo Creek interflow infiltrating to the regional water table producing a 'lumpy' groundwater level record, less suitable for analytical curve matching.

6 response page 35

- Of particular concern to us is the lack of knowledge on the interaction between the Bendigo and LARA aquifers as detailed earlier in this supplementary submission

Determining accurately the impact on the extraction of water on the aquifer is simply "kicked down the road."

In line with the Joint Witness Statement (Groundwater) and related statements, MGL has undertaken to conduct a staged set of commissioning aquifer tests, follow-up investigations and remedial measures as may be indicated necessary to protect the access of surrounding bore owners to groundwater. This set of post-grant measures is proposed to be conditioned within the Bendigo-Ophir Gold Project groundwater take consent.

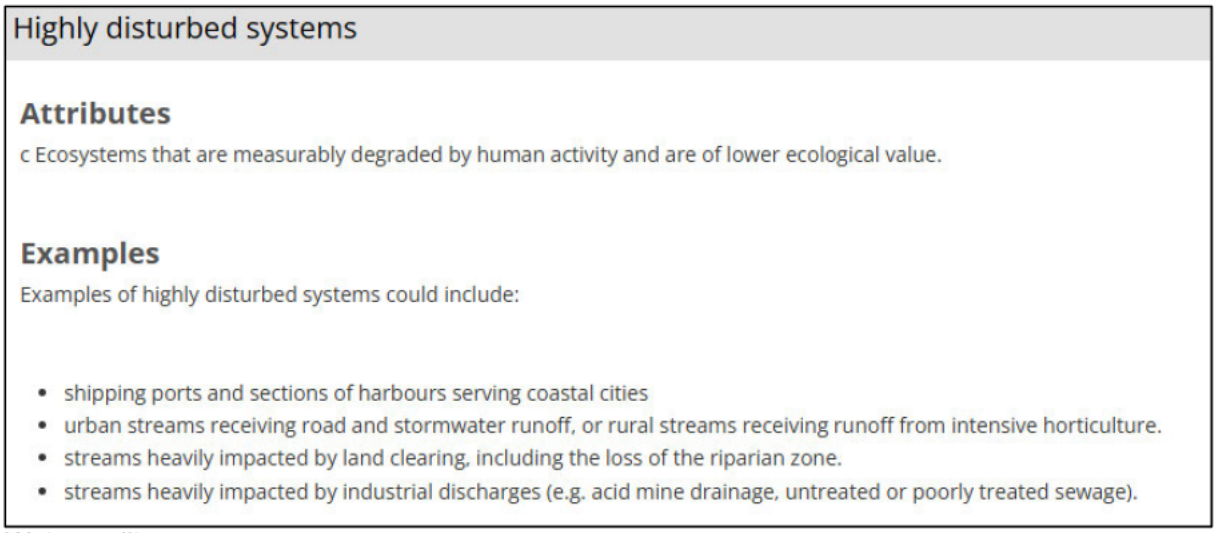
1. Therefore, a commissioning pumping test that builds on the results of this compliant aquifer test should be undertaken within the outlines of the relevant proposed conditions of consent and optimal technical practice to provide information relevant to the management of groundwater drawdown effects on Bendigo Aquifer water users.

6 response page 36

8.

8. Noting that the compliance limits for water quality have been amended in the 22June 2026 updated Conditions, please provide an explanation for the proposed new sulphate and nitrate-nitrogen levels.

It is disappointing that the applicant is proposing a 90% species protection as opposed to 95%. The ANZG framework specifies that the 90% protection level is reserved for "highly disturbed systems." The image below provides some examples that the panel may wish to compare with.



Highly disturbed systems

Attributes

c Ecosystems that are measurably degraded by human activity and are of lower ecological value.

Examples

Examples of highly disturbed systems could include:

- shipping ports and sections of harbours serving coastal cities
- urban streams receiving road and stormwater runoff, or rural streams receiving runoff from intensive horticulture.
- streams heavily impacted by land clearing, including the loss of the riparian zone.
- streams heavily impacted by industrial discharges (e.g. acid mine drainage, untreated or poorly treated sewage).

Waterquailty.gov.au

A 95% level would provide a more robust margin of safety against adverse effects on aquatic life and more specifically it will help protect the lower receiving environment by ensuring higher standards are in place upstream.

Conclusion and request

Despite the opportunity provided by the Panel and the Applicant's response to RFI 11, the Water Management Plan is still a work in progress. It continues to have multiple weaknesses. There are persistent problems with the accuracy of the data and there is some doubt around the standards being used. These issues may well stem from the speed of the consenting process.

We have detailed some of these knowledge gaps above. Please note that these observations are in addition to our previous correspondence.

We ask that the Applicant provider further responses to the following:

1. that the Applicant demonstrates compliance with the most recent ISO standard – ISO 14001:2026 or the upcoming AS/NZ standard number 14001:2026;

2. that Plans should exist before mining operations commence to enable effective adaptive management, not be developed during operations;

3. that the Applicant acknowledges our specific concerns in relation to the Water Management Plan with updated consents (groundwater monitoring, contamination alerts, sludge disposal location, aquifer interactions, enhanced exceedance levels and responses, increased length of monitoring);

4. that remediation plans be developed and costed before approval is granted and that these inform bonding and insurance consent conditions;

5. that reversibility is adequately addressed;

6. that fit for purpose baseline data be developed on the Bendigo, Ardgour and LARA aquifers;

7. that calibrated proven modelling be employed on all models and that data employed be of sufficient time period to enable seasonal variations; and

8. that climate change modelling over the life of the project is conducted on all models.

Once again we thank the Panel for its hard-work and professionalism in conducting this process.

Adaptive Management – Additional commentary

Although neither of these sections of legislation is currently operative - the Natural Environment Bill and the repealed National Building and Environment Act 2023 (we are in a form of interregnum) - they may provide some insight into the codification of adaptive management criteria, rather than the case law used above. This may help understand past and potentially future legislative intent regarding environmental risk but are clearly not a legal test.

Section 167 of the Natural Environment Bill and **Section 296 of the repealed National Building and Environment Act 2023** have the same wording in regards to adaptive management. They require that the consenting authority needs to be satisfied on risk and uncertainty across a number of areas.

296 Adaptive management approach

(1) A consent authority may grant a resource consent that includes a condition that requires, or conditions that form, an adaptive management approach.

(2) An adaptive management approach—

- (a) must allow an activity to commence on a small scale, or for a short period, or in stages, to allow its effects to be monitored; and
- (b) must require baseline information for—
  - (i) monitoring and reporting; and
  - (ii) setting triggers and limits (other than an environmental limit) for the purpose of monitoring and reporting; and
- (c) must require ongoing monitoring and reporting; and
- (d) may require certification and review of environmental management plans; and
- (e) may include provisions to allow for an activity to step back to a previous stage or cease temporarily where triggers are met, to allow for management practices or monitoring requirements to be adapted accordingly; and
- (f) may include provisions to allow for an activity to be discontinued permanently (in circumstances where the effects are found to be unanticipated at the time consent was granted).

(3) In determining the use of an adaptive management approach, the consent authority must consider—

- (a) whether there is adequate evidence that using an adaptive management approach will—
  - (i) sufficiently reduce uncertainty about the effects of the activity; and
  - (ii) adequately manage any remaining risk; and
- (b) the extent of any environmental risk (including the consequences if the risk is realised); and
- (c) the importance of the activity for which the consent relates; and
- (d) the degree of uncertainty about the effects of the activity; and
- (e) whether and the extent to which the adaptive management approach will sufficiently diminish the risk and the uncertainty.

(4) A consent authority may decide that an adaptive management approach sufficiently diminishes the risk and uncertainty if it is satisfied that—

- (a) there is sufficient monitoring of the receiving environment to set appropriate indicators and compliance limits; and
- (b) the conditions provide for effective monitoring of adverse effects using appropriate indicators; and
- (c) indicators are set to prompt remedial action before adverse effects occur or reach unacceptable levels; and
- (d) any effects that might arise can be remedied before they become irreversible.

Section 296 of the Natural and Built Environment Act 2023

167 Permit authority may grant application with adaptive management approach

(1) A permit authority may grant a natural resource permit that includes a condition that requires, or conditions that form, an adaptive management approach.

(2) An adaptive management approach—

(a) must allow an activity to commence on a small scale, or for a short period, or in stages, to allow its effects to be monitored; and

(b) must require baseline information for—

(i) monitoring and reporting; and

(ii) setting triggers and limits (other than an environmental limit) for the purpose of monitoring and reporting; and

(c) must require ongoing monitoring and reporting; and

(d) may require certification and review of environmental management plans; and

(e) may include provisions to allow for an activity to step back to a previous stage or cease temporarily where triggers are met, to allow for management practices or monitoring requirements to be adapted accordingly; and

(f) may include provisions to allow for an activity to be discontinued permanently (in circumstances where the effects are found to be unanticipated at the time permit was granted).

(3) In determining the use of an adaptive management approach, the permit authority must consider—

(a) whether there is adequate evidence that using an adaptive management approach will—

(i) sufficiently reduce uncertainty about the effects of the activity; and

(ii) adequately manage any remaining risk; and

(b) the extent of any environmental risk (including the consequences if the risk is realised); and

(c) the importance of the activity for which the permit relates; and

(d) the degree of uncertainty about the effects of the activity; and

(e) whether and the extent to which the adaptive management approach will sufficiently diminish the risk and the uncertainty.

(4) A permit authority may decide that an adaptive management approach sufficiently diminishes the risk and uncertainty if it is satisfied that—

(a) there is sufficient monitoring of the receiving environment to set appropriate indicators and compliance limits; and

(b) the conditions provide for effective monitoring of adverse effects using appropriate indicators; and

(c) indicators are set to prompt remedial action before adverse effects occur or reach unacceptable levels; and

(d) any effects that might arise can be remedied before they become irreversible.

Section167 of the Natural Environment Bill 2025

There are a number of areas of concern regarding the applicant's adaptive management approach that directly relate to the Section 296.

1. Section 296(2)(b) of the NBEA requires that an adaptive management approach ***"must require baseline information for monitoring and reporting".***

Baseline data is missing in multiple areas. The downstream catchment and receiving environment is missing baseline data in water quality, aquatic ecology, hydrological data, stream metal concentrations, dissolved oxygen levels, sulphide concentrations to name some. Not only is it missing hard specific data, it is also missing proven calibrated modelling data such as in regard to water balance modelling and groundwater.

2. Section 296(3) of the NBEA requires the consent authority to consider ***"whether there is adequate evidence that using an adaptive management approach will sufficiently reduce uncertainty about the effects of the activity"*** **and** ***"adequately manage any remaining risk".***

There is considerable uncertainty about the adaptive management process suggested. Not least due to the large number of areas that this process is used

throughout the entire application, but also in regards to the frequency of use in the Water Management Plan alone. This leaves a lot of risk mitigation ‘up in the air’.

3. Section 296(4) of the NBEA requires that the consenting authority needs to be satisfied on risk and uncertainty across a number of areas. Of note (d) is particularly cogent - ***any effects that might arise can be remedied before they become irreversible.***

This ‘bottom line’ of Section 296 on irreversibility has not been covered at all in the Water Management Plan. Permanent aquifer contamination is a most grave potential outcome one that is highly suggestive of meeting any irreversible threshold.