Before an Expert Panel **FTAA-2507-1089**
Bendigo-Ophir Gold Project

Under the	Fast Track Approvals Act 2024
In the matter of	an application for approvals to establish, operate, and remediate an open pit and underground gold mine at Bendigo and Ardgour Stations
By	**Matakanui Gold Limited** Applicant

SUPPLEMENTARY STATEMENT OF EVIDENCE OF DR WILLIAM HENRY KAYE-BLAKE ECONOMICS

19 AUGUST 2026

Contains confidential information. Only unredacted version to be circulated and uploaded to website.

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Introduction and scope

1. My full name is Dr William Henry Kaye-Blake.

2. I have been asked by the Environmental Defence Society Inc. (**EDS**) to provide supplementary expert evidence on the responses to RFI 11 questions relating to bonding and long-term management and economics.

3. My qualifications and experience are set out in my evidence of 10 April 2026.

Code of conduct

4. I understand that this is not a hearing under the Resource Management Act (RMA). However, I have read the code of conduct for expert witnesses contained in the Environment Court's Practice Note 2023 (the Code). I have complied with the Code when preparing this written statement of evidence. The data, information, facts, and assumptions I have considered in forming my opinions are set out in my evidence. Unless I state otherwise, this evidence is within my sphere of expertise, and I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

5. In preparing this evidence, I have had access to confidential information provided by the Applicant to the Panel (as identified by Minute 44). Review of this information by me was subject to a Non-Disclosure Agreement and I therefore request that the relevant part of this evidence is redacted from any publicly released version of this evidence to prevent inadvertent or public disclosure of that information. I understand that Counsel for EDS is conferring with Counsel for the Applicant to address this further.

Material considered

6. I have reviewed two further documents from Santana Minerals Limited and Matakanui Gold Limited. I do not currently know who has prepared the documents as they do not identify the authors or contributors.

7. While those documents are untitled, they have been provided to me in pdf format with file names as follows:
    a. 'RFI 11 Q12 - Q16 Bonding.pdf' (the bonding response), which responds to questions about funding for various activities; and

b. ‘RFI 11 Q23 - Q30 Economics.pdf’ (the economics response), which responds to questions relevant to the net economic impact of the application.

8. While I was initially provided with redacted versions of these documents, I was subsequently provided with unredacted versions, which I have reviewed for the purposes of preparing this evidence.

9. The economics and bonding responses illustrate two key things:
    a. financial provisions for the area post-closure are insufficient; and
    b. there is not enough information to reliably estimate the net regional or national economic impact from the application.

10. To provide more detail:

[redacted]

    b. The bonding response took an activities-based approach rather than effects-based approach to estimating costs, which removes risk from the applicant and places it with the Matakinui Trust and the Crown.
    c. The economics response provided partial data and results from calculations, but did not provide sufficient detail or transparency to assess their correctness. It also did not consider likelihood, probability, or risk in a structured way, so the expected value of the Project cannot be determined. Without the expected value, the net economic impact cannot be reliably estimated or tested.

[redacted]

12. The documents did not provide sufficient information to calculate the net regional economic benefit and the net national economic benefit of the application.

Response to RFI 11 - Economics

Question 25 – projected level of debt

[redacted]

[redacted]

[redacted]

Question 28 – sensitivity analysis of NPV of project

18. In my opinion, the applicant's response to Question 28 is deficient in three ways:
    a. The assumptions that produce the results for the sensitivity analysis for the Project's NPV in a "best-case" and a "worst-case" scenario are not stated;
    b. The figures for Total Cash Operating Cost show too little difference between Table 2 (best case) and Table 3 (worst case), and it does not appear that the discount rate was varied at all; and
    c. Relevant information that would support any calculation as being either "the best case" or "the worst case" is not provided.

19. While these issues remain outstanding, it is impossible to know whether the dollar amounts reflected in the sensitivity analysis represent the full range of possible outcomes, or whether calculations were correctly made. Thus, it is impossible to know the net economic impact of the application.

20. In terms of deficiencies in assumptions, part (a) of the response indicated that the best case is based on the following, citing 'paragraph 31 of the Statement of Evidence of Benje Patterson on behalf of Matakanui Gold Limited in response to Request for Information - Economics dated 17 April 2026':

a.	Gold price	+10%	NZ$4,208
b.	Grade	+10%	2.79g/t
c.	Opex	-10%	NZ$1,913m
d.	Capex	-10%	NZ$480m
e.	Recovery	+5%	98%
f.	Discount rate		7%.

21. Part (b) of the response then combined all the downside assumptions. However, it did not provide a list of those downside assumptions as was provided in part (a), nor did Table 3 specify all the assumptions. The assumptions were not stated in paragraph 31 of the 17 April 2026 response to Request for Information, nor were they all available elsewhere in that document. Thus, the calculations cannot be checked for accuracy. The following are the available assumptions from Table 3 for the worst case:

a.	Gold price	NZ$3,443
b.	Grade	not stated
c.	Opex	NZ$2,141m
d.	Capex	NZ$586m
e.	Recovery	not stated
f.	Discount rate	not stated.

22. One example demonstrates the problem with the lack of explicit assumptions. The best-case gold price was 4,208, which is 10 percent greater than a price of 3,825. If the worst case was 10 percent lower, then the calculated result is 3,443, which ties to the number in Table 3 and shown in the list above. This calculation validates this approach to back-calculating the analysis in the document.

23. If the same calculation is attempted on the operational expenditure (opex) figure, the results are: best case, 1,913; central number, 2,126; worst case, 2,338. That is, if a 10 percent decline in opex results in a cost of 1,913 as stated in paragraph 28a, a 10 percent increase should result in a cost of 2,338. However, the number in Table 3 is 2,141. Furthermore, the best-case opex in paragraph 28a is $1,913 million, while the best-case Total Cash Operating Cost in Table 2 is $2,139 million. The numbers presented are not consistent between the text and tables, and are not consistent between the numbers and the explanations.

24. The document is inconsistent and does not provide sufficient information to verify the calculations or estimate the net economic impact of the application.

25. In addition, the information that leads to the determination that these assumptions are “the best case” and “the worst case” are not provided. The response to Question 13 discussed gold price assumptions but provided no similar discussion about other assumptions.

26. There was also no consideration of the impact of foreign exchange rates on the best-case or worst-case calculation. The Reserve Bank historical exchange rate data[1] indicate that

[1] https://www.rbnz.govt.nz/statistics/series/exchange-and-interest-rates/exchange-rates-and-the-trade-weighted-index

the NZD:USD rate varied from 0.40 and 0.87 between January 1999 and July 2026, which is 68 percent to 150 percent of the 0.58 rate used in Table 2 and Table 3 of the economics response. This suggests the range from best case to worst case was too narrow.

27. An analysis is presented below that uses the available information to calculate the likely assumptions for the worst case. The assumptions appear to be roughly the opposite of the best-case assumptions.

28. Whether the worst case should be the mirror image of the best case is arguable. Large projects can and do have cost overruns. The application involves approximately $500 million of capital investment, that is, roughly a half a billion dollars. This is a large undertaking by New Zealand standards. Professor Bent Flyvbjerg has studied cost overruns in megaprojects round the world (Flyvbjerg 2014; Flyvbjerg and Gardner 2023). Although the application is not for a megaproject, defined in 2014 as a venture that cost US$1 billion or more, it is likely to have some similar characteristics. He stated, 'Nine out of ten such projects have cost overruns; overruns of up to 50% in real terms are common'. He also noted, 'Overrun is a problem in private as well as public sector projects, and things are not improving'. The worst-case analysis should account for well-known and well-documented issues with planning and budgeting.

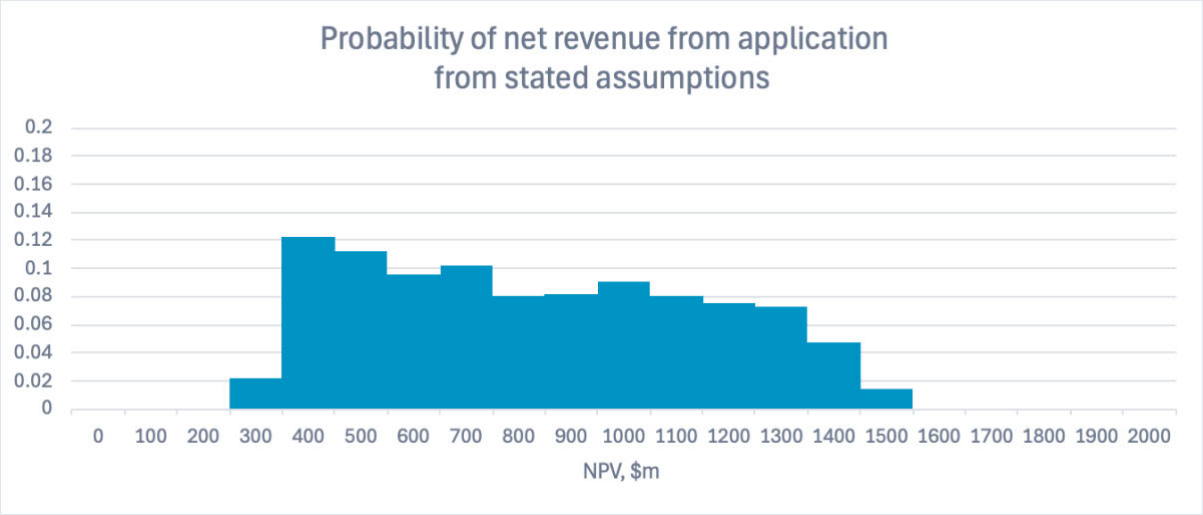
29. The net economic impact depends on the likely results, which can be expressed as the expected value, which is a function of probability of impact and size of impact. The document stated the size of the impact, but did not indicate the probability. It did not indicate how likely the applicant is to achieve the stated results. Without the probability information, it is impossible to have an expectation of the economic outcome, which is what the expected value measures.

30. The information from the economics response has only three estimates for possible results with no associated probabilities. Having reviewed the further information provided by the applicant on best and worst case scenarios, I consider the Panel may be better assisted to understand the expected value of the Project via a risk analysis approach, that includes the probabilities associated with assumptions and the likely impacts on net results. An example of this approach is provided below, based on the available information, in the event that the Panel considers this approach to be helpful.

31. The risk analysis was based on gross revenue and total cost from the economics response, used to calculate net revenue. Gross revenue and total cost were estimated as falling between the high and low values given by the applicant. The analysis randomly selected a value in that range (based on a uniform probability distribution). The graph below shows a frequency diagram with the results from 1000 estimates, grouped by $0–$100, $100–$200, etc. The horizontal axis indicates the maximum value for each group. The

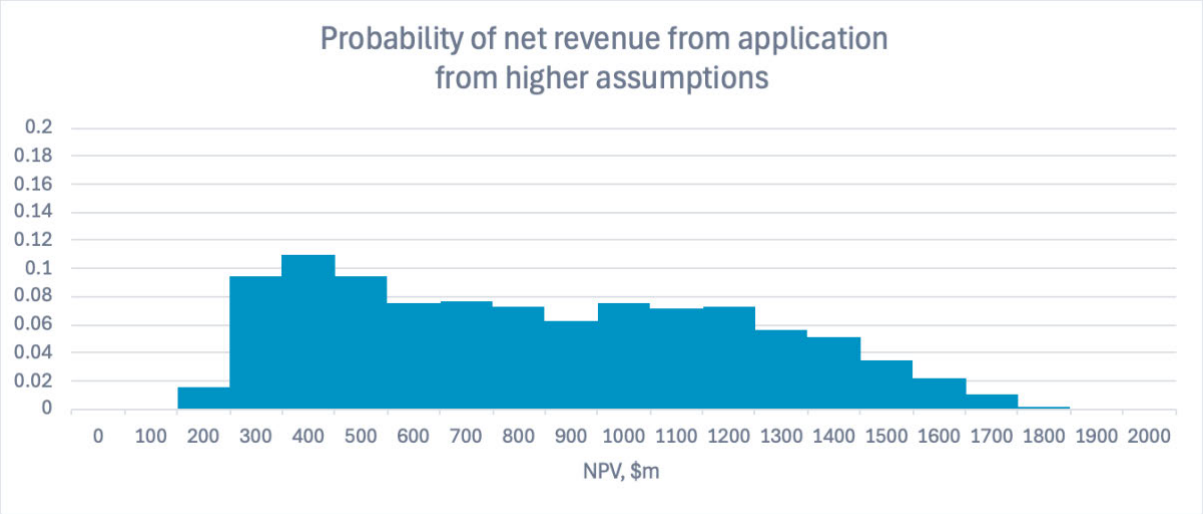
vertical axis indicates the proportion of total results that fall into each group. Thus, the $400–$500 group contained 11 percent of results.

32. The graph shows a fairly flat distribution of outcomes, except at the extreme high and low results. The probability of obtaining the stated best case (NPV = 1,436) is about 4 percent, and the probability of the worst case (NPV = 197) is zero. Instead, most results are closer to the average, which is consistent with expectations for statistical analysis.[2] The best-case and worst-case results from the economics document are unlikely to occur, according to this analysis.

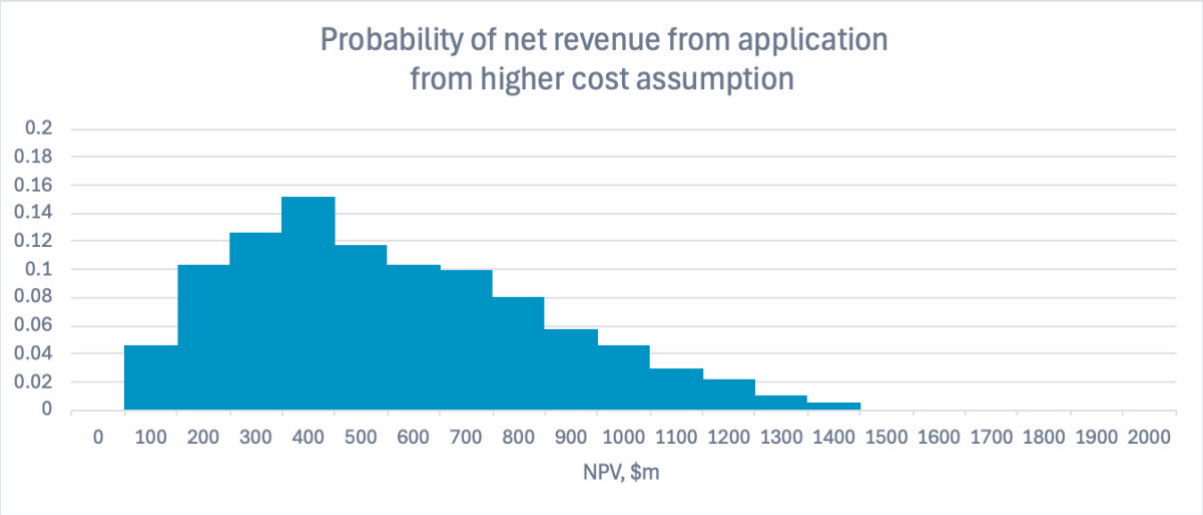


33. With a risk analysis, it is possible to assess the impact of assumptions. The assumptions regarding the best case and worst case were tested. A second analysis was conducted that assumed a 10-percentage-point change in gross revenue and total cost. The result is shown below. The same axes are maintained, both the range of dollar amounts on the horizontal axis and the probabilities on the vertical axis. The distribution is even wider and flatter: the range of outcomes is larger and results are spread more thinly. The likelihood of achieving the stated best-case result is now about 10 percent, while it is about 2 percent for the worst case.

[2] That is, ideas like The Law of Large Numbers and regression to the mean.



34. The aim of a risk analysis is to understand how assumptions affect results. As this analysis shows, changing the assumption about cost estimates has a large effect on the final estimated net revenue. Research on megaprojects suggests that a 50 percent cost overrun is likely. That possibility was tested, as well, by combining the original gross revenue assumptions with an assumption that costs could be between the original assumption and 50 percent greater than that assumption. The results are shown below, again with the axes kept the same as in the previous graphs. The results show that there is a zero likelihood of achieving the best-case results, and about a 14 percent likelihood of achieving the worst-case results or worse. The likelihood of achieving the originally estimated result (NPV = 748) or better is only about one-third.



35. The risk analysis presented above demonstrates the value of a full and structured approach to testing revenue and cost assumptions. That approach provides more information about the likely range of outcomes and therefore the likely economic impact of the application. The results of the risk analysis indicate three things:
    a. On the assumptions provided, the best case and worst case are unlikely to occur, and something closer to the original estimate is more likely.

b. Small changes in the assumptions – changing them by 10 percentage points – makes the best and worst outcome more likely. It makes extreme outcomes more likely.
c. Using cost overrun estimates from published research suggests that results could be worse than forecast. It produces a one-third chance of achieving results at least as good as presented in application, and a two-thirds chance that economic impacts will be smaller than estimated.

Question 29 – sensitivity analysis for tax and royalty payments

36. The response to Question 29 provides figures for government tax and royalty payments. There are three issues with the numbers:

a. The numbers do not match figures provided in the 17 April 2026 RFI response, and there is no explanation for this. The best case in the economics response is $1,364 million, while it is $1,600 million in the 17 April 2026 RFI response. Without clarity about how the numbers are generated, it is impossible to know whether any of them are correct.
b. The tax and royalty payments depend on assumptions about debt. The response to Question 25 indicated that the figures were calculated without debt (on an ungeared basis). Projections of tax and (potentially) royalties cannot be made without information about debt expenses, so the projections cannot be relied upon.
c. Likely tax and royalty payments depend on the same assumptions about performance discussed above with the risk analysis. The same conclusions apply.

Summary for economics response

37. My conclusion after assessing the economics response is that there is insufficient data to accurately or reasonably estimate the likely net economic impact of the application to either the region or the nation. The reason for my conclusion is that the relevant data and assumptions have not been provided or are inconsistent, and therefore the analysis is insufficient. In my view, this leads to the conclusion that it is not reasonably possible to establish the net economic impact of the Project based on the information provided.

Response to RFI 11 – Bonding and long term management

38. The bonding response addresses the relationship among the three funding mechanisms. My comments primarily address the Matakinui Trust, which is a separate organisation

that will be endowed with up to $50 million in funds. While I hold similar concerns in some cases to the other mechanisms, the potential impacts of those concerns are smaller.

39. Funds of $5 million per year must be set aside from Year 6. By Year 9, the Trust must be established. All accrued funds are to be transferred to the Trust at that point. Operations cease in Year 14. At this point, there are three key numbers:
    a. The accrued funding, which is eight or nine years at $5 million per year (from Year 6 to Year 14), or either $40 million or $45 million;
    b. The maximum funding, which is $50 million; and
    c. Sufficient funds for the Trust to fulfil its obligations, which the applicant must provide 'to the extent required'.

40. The bonding document demonstrates three issues with the proposed arrangement:
    a. The figures showed that the Matakinui Trust will have an insufficient endowment to pay for the components identified in the table in response to question 13 (b);
    b. The arrangement is activities-based rather than effects-based. It enumerates a set of activities, rather than specifying a set of results that must be achieved; and
    c. There is a lack of back-stop or residual resources if the funding is insufficient.

41. Each of these is discussed in turn below.

Insufficient funds in Trust

[redacted]The Matakinui Trust is intended to have $40 million to $50 million when it takes over the obligations of the site. Post-closure obligations are to be transferred to the Trust. The response to Question 13 listed nine components that have been identified as obligations to be transferred to the Trust, including water treatment, pest control, public access, and various insurances. Costs were provided in a confidential table in response to Question 13 (b). These costs need to be verified by experts to determine whether they are accurate, that is, whether funding is sufficient to achieve the stated aims. It is not clear whether that has occurred. [redacted]

[redacted]

[redacted]

Activities-based rather than effects-based arrangement

44. The calculation for the Trust endowment was based on the list of components and the costs to do the activities. This approach does not require the Trust or the applicant to achieve any stated level of impacts, effects, or outcomes. There is no requirement that water be clean, that species populations be established, that the local community be satisfied. Instead, the approach is to list a set of activities now and assign a budget now, and presume that they will be sufficient in the future. First, this approach does not hold the applicant responsible for mitigating or offsetting the consequences of its activity in accordance with the conditions of consent. Second, this approach does not account for any uncertainties that develop in the meantime that may result in additional cost not accounted for in the quantum of the endowment fund.

45. The effect on the calculation of economic impact is this: the value of any negative impacts many years in the future is unknown, but the value of efforts to offset those impacts is fixed. The net impact – the net negative impact – is therefore unknown. If the net negative impact is unknown, then the net economic impact for the application is unknown.

The lack of back-stop is concerning

46. The arrangement with the future Matakinui Trust is intended to place all post-closure obligations with the Trust. No obligations are intended to remain with any other entity – not any land-owner and not any limited liability company. The Trust is explicitly a vehicle to transfer obligations from the applicant to a separate entity.

47. In the economic theory of the firm, the owners of a business have a claim on the residual earnings; they get what is left over after everyone has been paid. This residual works both ways: it can be positive or negative. If a company loses money, it can go to its owners or shareholders and ask for more funds. That is a back-stop: a business that has a bad year can turn to its owners and obtain more money. A bad year can happen because of

[3] https://www.treasury.govt.nz/information-and-services/public-sector-leadership/guidance/reporting-financial/discount-rates/discount-rates-and-cpi-assumptions-accounting-valuation-purposes

poor planning, or because of unforeseen events, such as a global pandemic or war in the Middle East.

48. With the proposed arrangement, there is no back-stop. The endowment for the Trust is essentially a one-off payment that shifts the responsibility for future outcomes from the applicant to the Trust. The applicant walks away with its money, and the Trust is left with whatever happens next. There is no entity that will provide additional funds if the original plan was wrong or if something unforeseen happens. The cost of that risk will fall on the local community, local government, and ultimately the Crown.

49. One solution is to require a larger endowment for the Matakinui Trust. An estimate of the required endowment would start from a list of negative impacts that could happen, assign a value to ameliorating them, and then require an endowment that has a 99 percent probability of covering all costs. That approach would leave just a 1 percent 'tail risk' that falls to the Crown. This approach is similar to building infrastructure that can survive a 1-in-50-year event but not a 1-in-100-year event.

Dr Bill Kaye-Blake
19 August 2026

Table 1 Financial analysis of Matakinui Trust endowment and obligations (based on confidential data)

Project year	Year post-closure	Assets Funds ($m)	Return	Revenue Earnings ($m)	Cost Water treatment ($m)	Cost Decommissioning WTP ($m)	Cost Passive WTP ($m)	Cost Eco-sanctuaries ($m)	Cost Pest control ($m)	Cost Ecological uplift ($m)	Cost Public access ($m)	Cost Insurance ($m)	Cost Administration ($m)
[redacted]													