BEFORE THE ENVIRONMENTAL PROTECTION AUTHORITY
AT WELLINGTON

IN THE MATTER	of the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (**EEZ Act**)
AND	
IN THE MATTER	of an application for marine consents under section 38 of the EEZ Act and an application for marine discharge consents under section 87B of the EEZ Act by Trans-Tasman Resources Limited to undertake iron ore extraction and processing operations offshore in the South Taranaki Bight
BETWEEN	**Trans-Tasman Resources Limited (TTRL)** Applicant
AND	**Environmental Protection Authority (EPA)**

EXPERT SUPPLEMENTARY EVIDENCE OF ROBERT EWOUT LIEFFERING ON CONDITIONS AS REQUESTED BY THE EPA FOR THE DMC

Dated: 24 May 2017

Qualifications and experience

1. My name is Robert Ewout Lieffering. I have a BSc and an MSc (Hons), both in Earth Sciences, from Massey University, and a PhD, also in Earth Sciences, from the University of Waikato. I am a full member of the New Zealand Planning Institute (NZPI) and an accredited hearings commissioner (Chair endorsement) under the Resource Management Act 1991 (RMA).

2. I currently work for MWH New Zealand Limited as a Senior Environmental Consultant and also work privately as an independent hearings commissioner (under the RMA). My previous work experience includes holding the position of Consents Manager at Northland Regional Council and also Tasman District Council. In 2014 I worked for the EPA (on contract) as the decision support writer for two marine consent applications associated with offshore exploratory drilling in the Taranaki Basin.

3. I prepared the EPA's Key Issues Report (September 2016), the Conditions Report (February 2017), and the Analysis of Conditions Report (May 2017) on TTRL's current application. I took part in the Planning and Conditions Expert Conferencing on 2 March 2017 and the Conditions Expert Conferencing on 23 May 2017, including preparation of the Joint Witness Statements from that conferencing.

4. I have read TTRL's application forms, the impact assessment (IA) and its appendices, the supporting technical documents, and the EPA's technical expert reviews.

Code of Conduct

5. I confirm that I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Practice Note dated 1 December 2014. I agree to comply with this Code. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express – noting again that I have not read all the evidence that has been presented at the hearing nor have I read the daily transcripts.

Scope of Evidence

6. My instructions from the EPA in respect of this Statement of Evidence were to:

a) Summarise the key points of the Analysis of Conditions Report that I prepared – this being an analysis of TTRL's most recent volunteered conditions[1]; and

b) Summarise the key points of agreement and disagreement reached during the Conditions Expert Conferencing held on 23 May 2017 (yesterday).

7. This Statement of Evidence does not summarise the Key Issues Report or the Conditions Report which I previously prepared.

Analysis of Conditions Report – Summary

8. Overall TTRL's latest set of conditions are much better structured compared to previous iterations and are set out in a more logical sequence.

9. TTRL's latest set of conditions include discharge limits and also receiving environment limits for suspended sediment concentration (SSC) and seabed sediment quality at seven compliance sites away from the project area. There are also conditions that limit the rate at which seabed material can be extracted and the nature of that material. TTRL has proposed a new receiving environment limit relating to benthic ecology at six compliance monitoring sites away from the project area[2] as well as a new condition on benthic ecology recovery of the mine site.

10. I consider that the discharge and extraction limits are clear. The limits for seabed sediment quality are clear and are established environmental effects thresholds, being the ANZECC ISQG-High concentrations. However, I have concerns regarding the receiving environment limits for SSC, benthic ecology, and benthic ecology recovery.

11. The SSC limits are statistically derived and include both an upper SSC limit, being the 95th percentile SSC, and also a restriction on the amount of change allowable in the 25th, 50th, 80th, or 95th percentile SSC statistics, which I have previously referred to as the 'bell curve' statistics. In terms of the SSC upper limits, which are listed in Schedule 2 attached to the conditions, the DMC will need to be satisfied that these provide appropriate environmental protection at the seven sites and also elsewhere in the

[1] The conditions attached to Dr Mitchell's Expert Supplementary Evidence dated 2 May 2017

[2] One of the seven sites that are to be used for SSC and seabed sediment quality compliance is not proposed to be included for the benthic ecology compliance – the site not included for benthic ecology compliance is 'Source A to Whanganui 1 km'.

South Taranaki Bight. The appropriateness of using a statistically derived SSC limits as an effects threshold limit is outside my area of expertise but it is an important matter that the DMC needs to test in my opinion. I understand the DMC has sought further information from TTRL on environmental thresholds for SSC, including whether guidelines/standards for SSC have been established in New Zealand or overseas.

12. TTRL's latest set of conditions also includes what was Condition 20(b) in the original set of conditions provided with the IA. This condition (now Condition 6(c)) would not allow any 'significant' change to the bell curve statistics at the seven compliance sites, however what constitutes a 'significant' change is not specified. Condition 6(c) would leave that decision to EPA staff to determine following advice from the TRG and means that EPA staff would be put in a position of an arbitrator on something that is a key effect of the proposal. This condition should specify the maximum allowable change in the bell curve statistics – that is, it needs to specify what 'significant' change means. I am unable to provide a recommended wording as this is a technical matter outside my area of expertise. I discuss this matter later in my evidence as this was the subject of discussion during yesterday's expert conferencing on conditions.

13. Likewise, TTRL's new 'environmental limit' condition on benthic ecology (Condition 8) does not specify what constitutes an 'ecologically significant change' in the species diversity and abundance is. That decision too is left to EPA staff to determine. This condition needs to specify the maximum allowable ecological change at the specified compliance sites. Again, I am unable to provide a recommended wording as this is a technical matter outside my area of expertise. I discuss this matter later in my evidence as this was the subject of discussion during yesterday's expert conferencing on conditions.

14. TTRL's new benthic recovery condition (Condition 9) does specify what constitutes 'recovery', however it does not outline what TTRL's obligations are in the event that recovery has not occurred or if the recovery is not 'on track'. The condition needs to specify what TTRL is be required to do if recovery is not occurring – I discuss this matter later in my evidence as this too was the subject of discussion during yesterday's expert conferencing on conditions.

15. TTRL has retained the seven compliance sites that it has previously included in earlier iterations of the conditions. I note that these sites do not include 'The Crack' or 'The Project Reef' and if the DMC considers that these sites, or any other sites for that

matter, should be included as compliance sites, then they will need to be added to the conditions and schedules.

16. The conditions require TTRL to prepare a large number of management and monitoring plans. In respect of the various monitoring plans, I consider that the monitoring locations, parameters/determinands to be monitored, and the frequency/duration of monitoring (i.e. the where, what, and when) should be 'hard coded' in the conditions rather than embedded in the respective plan. The monitoring plan that is then prepared and submitted to the EPA would outline 'how' the specified monitoring would be undertaken – that is, how compliance with the specified monitoring programme will be achieved. I note that Condition 12(a), (d), (e), and (f) already hard codes the noise monitoring that must be undertaken into the conditions and I consider the same approach should be taken for the other monitoring.

17. TTRL's proposed conditions would allow the locations, frequency, and duration to be amended through the conditions (once certified by the EPA), however I consider that any changes to these should be by way of a formal application to change conditions provided for by sections 87 and 87J of the EEZ Act[3]. This would ensure that there is full transparency in respect of any changes and does not result in EPA staff acting as an arbitrator in respect of approving any such changes. It should be noted that the sections 87(3) and 87J(3) of the EEZ Act allows minor changes to consent conditions for marine consents and marine discharge consents, respectively, to be processed without notification and if only some persons are considered to be affected by the change then section 87(4) of the EEZ Act allows the EPA to notify only those persons (akin to the 'limited notification' process under the RMA).

18. I do not consider that those plans that are either prepared under other Marine Management Regimes (MMRs) or are prepared in consultation with other parties/agencies need to be certified by the EPA. I do, however, recommend that these plans first be independently reviewed by a suitably qualified and experienced person and that they then be submitted to the EPA so that the EPA has a copy of the plan. The EPA can then monitor compliance and can take enforcement action if the plans are found lacking. The only plans which I consider the EPA should certify are the Pre-commencement Environmental Monitoring Plan (PCEMP), the Environmental

[3] Section 87 relates to changes to marine consents and section 87J relates to changes to marine discharge consents – My Analysis of Conditions Report only refers to section 87 but should have also included section 87J as TTRL has applied for both marine consents and marine discharge consents.

Monitoring and Management Plan (EMMP), the Post-extraction Monitoring Plan (PEMP), and the Operational Sediment Plume Model (OSPM). EPA staff have confirmed that they agree with this recommendation.

19. Maritime New Zealand (MNZ) has suggested some changes to conditions to avoid conflicts between TTRL's conditions and the MMRs that it administers. In my Analysis of Conditions Report I incorrectly interpreted MNZ's comments in relation to Conditions 30 and 63. TTRL will be required to prepare an Oil Spill Contingency Plan (OSCP) under Marine Protection Rule Part 131 and a Shipboard Marine Oil Spill Contingency Plan (SMOSCP) under Marine Protection Rule Part 130A and these plans will need to be approved by MNZ. Condition 63 of TTRL's latest set of conditions would require it to prepare and submit a Spill Contingency Management Plan (SCMP) and MNZ considers that this Plan may result in a conflict with the plans required to be prepared under the Marine Protection Rules – that is, if the EPA condition requires a different standard to what the MNZ requires then a conflict may result. Given that TTRL must comply with the Marine Protection Rules, which requires it to prepare an OSCP and SMOSCP, I do not consider that an SCMP needs to then also be submitted and certified by the marine and marine discharge consents. I therefore recommend that TTRL's Condition 63 be deleted and Condition 30 be reinstated but include the following amendments:

> *Notwithstanding Condition 29, in the event that there is a discharge or spill of oil or fuels, the Consent Holder shall implement all necessary operational responses, including the measures set out in <u>the oil spill contingency plans required under Parts 130A and 131 of Marine Protection Rules</u> ~~the Spill Contingency Management Plan (Condition 63)~~, to ensure that any adverse effects associated with such event/s are remedied or mitigated.*
>
> *As soon as practicable, <u>but no later than twenty four (24) hours</u> following any spill or discharge of oil or fuels, the Consent Holder shall notify the EPA of any such event. Notification shall include a description of the event, its location and the Consent Holder's response.*
>
> *<u>Advice Note: Parts 130A and 131 of the Marine Protection Rules require oil spill contingency plans to be approved by MNZ for ships and installations.</u>*

20. My amendments to Condition 41 incorrectly references the 'Maritime Safety Act 1994' and this should be corrected to 'Maritime ~~Safety~~ Transport Act 1994'.

21. Worksafe New Zealand (Worksafe) provided the DMC a letter on 2 May 2017 in which it provided some suggested wording if the DMC considers that a permissioning document is considered appropriate. In my Analysis of Conditions Report I recommended a new condition (Condition 66A) be included in the event that the DMC considered such a condition necessary or appropriate[4]. Since writing that report I have, following feedback from Worksafe, revised Condition 66A and a copy of my revised wording is included in Appendix 1 (attached).

22. TTRL's conditions would require it to attempt to establish a Kaitiakitanga Reference Group and if formation of that Group were to be unsuccessful then TTRL would not need to extend an invite to any other party to be represented on the Technical Review Group and not need to prepare or implement the proposed Kaimoana Monitoring Programme. I consider that preparation and implementation of a Kaimoana Monitoring Programme should not be dependent on whether the Kaitiakitanga Reference Group is able to be established. In addition, even if the Kaitiakitanga Reference Group is unable to be established I consider that TTRL should be required to continue to inform and seek to engage with relevant iwi entities for the duration of the consents. I have recommended a new condition (Condition 75A) accordingly.

23. The DMC has been provided with legal advice on the matter of bonds and I discussed this previously in my earlier Conditions Report (February 2017). In the event that the DMC considers that a bond conditions is appropriate in this case, then I recommend that the wording of such a condition be drafted by Legal Counsel advising the DMC.

24. Given complex and extensive nature of TTRL's conditions I have, at the request of EPA staff, recommended that an additional condition be included (Condition 105) that would require an independent audit of compliance after one year of mining and every five years thereafter. This audit would not replace the EPA's compliance monitoring and/or enforcement functions, but rather it would supplement the EPA's compliance approach.

[4] It should be noted that in the Comments column for Condition 66A I state that the Safety Case would be prepared in consultation with 'MNZ', but that should read 'Worksafe'.

Expert Conferencing on Conditions

25. On May 23 2017 I attended the expert conferencing on conditions held in Wellington. Dr Mitchell, for TTRL, and I were the only attendees and Mr B Rainey was present as facilitator.

26. Dr Mitchell tabled a set of amended conditions which incorporate changes in response to my Analysis of Conditions Report, additional evidence recently presented to the DMC on noise, and some changes which were inadvertently not included in Dr Mitchell's 2 May 2017 set of conditions (which relate to agreed conditions with the Kupe Operator).

27. We carefully reviewed each condition. With the exception of a few matters, which I discuss later in this Statement, TTRL has generally agreed to all the changes that I recommended in the Analysis of Conditions Report albeit with some minor amendments. This includes the amended Safety Case condition included in Appendix 1 and also the changes I discussed earlier in relation to MNZ's suggestions.

28. Additional changes to some conditions were discussed and agreed to between us. Dr Mitchell has prepared a set of revised conditions which, subject to my detailed review, reflect all the changes that we agreed upon.

29. There are some conditions which we both agreed require additional work and some which we do not agree on. I discuss these now.

30. As I discussed earlier, Condition 6(c) seeks to define what constitutes a 'significant' change in the SSC bell curve statistics. Dr Mitchell has now put forward a suggested wording which attempts to define what constitutes a significant change (or possibly more correctly an *acceptable* change) in the SSC bell curve statistics. I support Dr Mitchell's proposed change to Condition 6(c) in terms that it now removes the decision making of what is 'significant' from EPA staff. However, I do not know what the basis is of the proposed magnitude of allowable change – being no more than 10% of the SSC statistics predicted by the model – or whether that allowable change will provide acceptable environmental protection. That is a matter outside my area of expertise but it is a matter that the DMC needs to investigate and confirm if this condition is to be imposed in its current form.

31. New Condition 8 seeks to define what constitutes a 'significant' change in the benthic species diversity and abundance. Dr Mitchell has now put forward a suggested wording which attempts to define what constitutes such a significant change. Again, I support the change in respect that it removes this decision making from EPA staff. However, whether the proposed magnitude of allowable change – being no more than a 5% reduction in various benthic metrics compared to pre-mining monitoring data – will provide acceptable environmental protection is a matter that is outside my area of expertise. Further, the wording of this condition in its current form requires amendments because it is unclear:

    a. How the various metrics will be calculated from the pre-mining monitoring data against which the during-construction monitoring results will be compared. It is likely that the pre-mining monitoring results will be variable due to seasonal and temporal effects. It unclear how the 5% maximum allowable reduction will be determined if the pre-mining data has variability; and

    b. How '*natural variation and any wider environmental changes not related to the mining activity*' – these being Dr Mitchell's suggested words in the condition – will be taken into account when assessing whether any reductions greater than 5% are measured. This will make checking compliance difficult.

32. Dr Mitchell has proposed changes to Condition 9 which relates to benthic recovery within the mining area. This condition now requires TTRL to cease mining activities if monitoring shows that benthic recovery has not occurred or is not 'on track'. These changes address the concerns I previously had regarding what TTRL's obligations should be in the event that benthic recovery of the mining area is not occurring.

33. One of the major points of difference between Dr Mitchell and myself is that Dr Mitchell does not consider that the location of monitoring sites, the parameters/determinands to be monitored, and the frequency/duration of monitoring (i.e. the where, what, and when) should be 'hard coded' in the conditions (or in Schedules) and he considers that changes to these should be able to be made by way of the conditions or the monitoring plans. It is my opinion that these should be hard coded and any change to them should be by way of a formal application to change conditions under section 87 and 87J of the EEZ Act, noting again that any application which seeks minor changes to conditions can be processed by the EPA without notification. In paragraph 17 (above) I explain the reasons why I consider that a formal application to change conditions is appropriate

and I note that Ms Anderson (for the Fisheries submitters), who is also an expert planner, agrees with my recommendation on these two matters[5].

34. Dr Mitchell does not consider that the PEMP needs to be independently peer reviewed before it is lodged with the EPA for certification. The PEMP is one of the three core monitoring plans and Dr Mitchell agrees that the other two monitoring plans (the PCEMP and EMMP) should require an independent peer review before being submitted with the EPA for certification. I see no reason why the PEMP should be exempt from a similar independent peer review process.

35. Dr Mitchell does not consider that the management plans that are prepared in consultation with other parties (e.g. DoC, Worksafe, MPI etc) need to be independently peer reviewed before they are submitted to the EPA – however I note that he considers that the Collision (Loss of Position) Contingency Management Plan (CCMP) and the Simultaneous Operations Plan (SIMOPP), and the Safety Case should be independently peer reviewed before being submitted to the EPA.

36. Dr Mitchell also considers that all the management plans that are prepared in consultation with other parties should be the subject of a certification process by the EPA – again I note that Dr Mitchell's position on this is not consistent as the conditions do not require the SIMOPP or the Safety Case to be certified by the EPA. It is my opinion that all these plans should be independently peer reviewed and, provided such an independent peer review is completed, there is no need for the EPA to then certify any of these plans. I note that Ms Anderson (for the Fisheries submitters), who is also an expert planner, agrees with my recommendation on these two matters[6].

37. Dr Mitchell has incorporated the advice notes below Conditions 63, 64, and 86 into the respective conditions. The (now) condition relates to the engagement of a reviewer that has to be mutually agreed to between TTRL and the Kupe Operator – in the event that no agreement can be reached the (now) condition would require the Chief Executive Officer of the EPA to make the decision on which reviewer is used. In my Analysis of Conditions Report I recommended that these advice notes be deleted as the EPA should not be put in the position of an arbitrator. Converting these advice notes into the conditions codifies this arbitrator function further and conditions should not be imposed which put the consent authority in such a position. In this case I

[5] Paragraph 12(b), H Anderson, Supplementary Statement of Evidence dated 22 May 2017.
[6] Paragraph 12(c), H Anderson, Supplementary Statement of Evidence dated 22 May 2017.

understand that the relevant conditions have been requested by the Kupe Operator as part of the consultation that TTRL has had with it.

38. Dr Mitchell does not support my recommended new Condition 105 which would require TTRL to engage an independent auditor. The audit would cover all the conditions of consent, including supporting plans, and environmental systems and processes that are in place to ensure compliance with the conditions of consent is being met. I consider that such an independent audit would be extremely valuable for TTRL, as it would identify any actual or potential compliance risks and it would include recommendations on solutions to remedy or minimise these risks. Such an audit would also supplement the EPA's compliance approach, however it would not replace the compliance monitoring functions that the EPA is responsible for.

39. Subject to the changes recommended and matters clarified and addressed as highlighted and discussed my Analysis of Conditions Report and in this Statement, I consider the TTRL conditions to be generally acceptable and appropriate for the marine consents and marine discharge consents being sought. If imposed and complied with I believe that the conditions appropriately deal with the adverse effects of the proposed activities on the environment and on existing interests.

Dr Rob Lieffering
24 May 2017

Appendix 1

66A [NEW] Safety Case

The Consent Holder shall, following consultation with Worksafe New Zealand, prepare a Safety Case which shall, as a minimum identify:

a) *What the principal hazards associated with the activities authorised by these consents are from a safety and environmental perspective; and*
b) *What control measures are necessary to prevent harm arising from these principal hazards; and*
c) *The standards that such control measures would need to meet.*

For the purposes of this condition a 'principal hazard' is defined as being any hazard arising that could create a risk of multiple fatalities in a single accident or a series of recurring accidents.

The Safety Case shall include the matters set out in Appendix 1 and Appendix 2 attached to Worksafe New Zealand's letter to the EPA dated 2 May 2017 presented during the hearing process.

The Safety Case shall be prepared by a suitably qualified and experienced person(s). The Safety Case shall then be independently peer reviewed by a suitably qualified and experienced person(s) to ensure that the requirements of this condition have been met before it is submitted to the EPA.

No seabed material extraction shall commence until the independently reviewed Safety Case has been submitted to the EPA.

The Consent Holder may amend the Safety Case at any time provided such amendments have been prepared in consultation with Worksafe New Zealand, and any changes are consistent with purposes of this condition.

The activities authorised by these consents shall be undertaken in accordance with the latest Safety Case and a copy of the latest Safety Case shall be held on-board each of the Consent Holder's project vessels and at the Consent Holder's head office, and provided to the EPA upon request.

The Consent Holder shall review the Safety Case at least once every two (2) years from the date on which the Safety Case is first submitted to the EPA and also reviewed after any of the following:

i. *the occurrence of an accident involving a principal hazard that the Safety Case was intended to manage;*
ii. *a material change in the management structure at the mining operation that may affect the Safety Case;*
iii. *a material change in plant used or installed that may affect the Safety Case; or*
iv. *the occurrence of any other event as provided in Safety Case as requiring a review of the Safety Case.*

Each review of the Safety Case shall include a review of the risk assessment in relation to the relevant principal hazard and a review of all other aspects of the Safety Case.

The Consent Holder shall ensure that records of all reviews and revisions of the Safety Case are kept for at least twelve (12) months from the date on which the mining operation ceases.

The Consent Holder shall provide records relating to any review of the Safety Case to the EPA upon request.

The Consent Holder shall engage a suitably qualified and experienced independent person to carry out an external audit of the Safety Case at least once every three (3) years from the date the Safety Case has first been submitted to the EPA. The results of the external audit shall be made available to the EPA upon request.

The Consent Holder shall ensure that records of all audits of the Safety Case are kept for at least twelve (12) months from the date on which the mining operation ceases.