Before the EPA
Trans-Tasman Resources Ltd Ironsands Extraction Project

In the matter of the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012

And

In the matter of a board appointed to consider a marine consent application made by Trans-Tasman Resources Ltd to undertake iron ore extraction and processing operations offshore in the South Taranaki Bight

Statement of Evidence in Chief of Tim Crossley on behalf of Trans-Tasman Resources Ltd

17 February 2014
Introduction

1. My full name is Timothy Elgon Savile Crossley. I hold the qualification of Bachelor of Applied Science Hons from Queensland Agricultural College and Diploma AICD (Australian Institute of Company Directors).

2. I have 20 years' experience in the mining industry, starting my career in the industry as an environmental specialist. I have now worked across the four commodity groups of coking coal, manganese, iron ore and thermal coal and both open cut and underground mines in senior managerial and executive roles.

3. Prior to being appointed as CE of Trans-Tasman Resources in October 2012 I was Deputy CEO Gloucester Coal. Gloucester Coal is an ASX listed diversified coal company with open cut and underground operations in NSW and Queensland. Gloucester’s NSW assets currently produce circa 5 Mtpa of both Semi hard coking coal and thermal coal from three open cut mines and two underground mines. Gloucester is expanding its NSW assets to produce 8.5 Mtpa of product by 2015.

4. Before working for Gloucester Coal I was Executive General Manager Carbon Steel Materials and Coal with Hancock Prospecting Pty Ltd. Hancock is a successful exploration company with a long history of discovery in iron ore and manganese. Hancock through its Hope Downs JV with Rio Tinto is now Australia’s fourth largest producer and exporter of Iron Ore.

5. I was also President and Chief Operating Officer of BHP Billiton Iron Ore (BHPBIO) Western Australia and prior to that was General Manager and Director of another BHP Billiton company BHP Billiton Manganese - Groote Eylandt Mining Company in the Northern Territory; and also Vice President Mining of BHPBIO Western Australia.

Information about Trans-Tasman Resources

6. Trans-Tasman Resources (TTR) was established in September 2007 to explore, assess and develop the rich iron ore deposits (iron sands) off the west coast of the North Island of New Zealand. As such it has no
other projects. Bill Bisset, one of TTR’s founding partners, in his
evidence will provide more detail on the early background to TTR and
in particular the opportunity that was seen very early on to create a new
off-shore iron sands mining industry in New Zealand. TTR since its
formation has built its business and continues to build its business
around the following value pillars:

(a) Living by our health and safety and environment policies;

(b) The mining, processing and delivery of low cost iron units to the
international steel business;

(c) Marine mining intellectual property; and

(d) The highest levels of Governance.

7. TTR has 34 listed shareholders with the largest holdings being TTR
Investment Holding Netherlands; Cook Investments Cooperatief U.A.;
one of the three founders, Paul Berend; and RockCheck Trading
Limited. Together these hold approximately 71% of TTR’s shares. The
remaining 28 shareholders include 11 New Zealanders.

8. I am Chairman and CEO of TTR’s Board. The other members currently
consist of; Kirby Adams, the Deputy Chairman and probably best
known in NZ as Former President and CEO of BHP Billiton Steel and
subsequently appointed the founding Managing Director and CEO of
Bluescope Steel; Paul Berend, founding shareholder of TTR and former
Managing Director of TTR; Hon Dame Jenny Shipley, an independent
director for TTR and ex-Prime Minister of New Zealand; Nitin Sibal,
Managing Director of Broadpeak Investment Advisors, formerly a
partner at Warburg Pincus focussing on equity investments, deal
sourcing, evaluation and monitoring of portfolio companies; Riaz
Siddiqi, managing Partner of Denham Capital with over 30 years
experience in energy and asset management; and Zhang Xiangqing,
the Chairman of Rockcheck Steel Group who has over 20 years steel
making experience, especially with titano-magnetite. This board is a
very experienced and talented group well suited to TTR in its current
stage of development.
9. TTR enjoys a number of strategic partnerships with competent other parties. In New Zealand TTR has had input from BECA, Fitzroy Engineering, Brightwater and Transfield Worley.

10. The overseas companies that TTR enjoys associations with include De Beers Marine, which mines for diamonds off the Namibian and South African coast using crawler technology developed for its use and similar to that being proposed by TTR; and IHC, a Dutch ship building company. IHC has a number of subsidiary companies that have been of benefit to TTR in developing its project. These include MTI Holland BV that assisted TTR with its plume modelling; and VUYK Engineering Rotterdam B.V and MPI who with De Beers marine also possess significant experience in crawler dredge marine mining techniques.

11. Vuyk Engineering Rotterdam is an international operating engineering company serving the maritime industry. Vuyk provides consultancy and engineering services in the areas of ship design, equipment design, marine operations and building supervision. This company also specializes in work vessels for the dredging and offshore industries and heavy lift shipping. VUYK has supplied a naval architect to verify TTR’s vessel design.

12. Also of value to TTR has been the South African company DRA. DRA has reviewed TTR’s proposed process flow sheet and separation processes and assisted with refining those to provide for optimal efficiency. DRA also possess significant experience in the installation of processing equipment on a floating platform such as TTR’s proposed integrated mining and production vessel.

13. TTR is a well-established professional company. Its structure is that of a mature organisation with work management controls. TTR has substantial and appropriate policies for key operational areas and risks such as health and safety and environment. These are publically set out on its website. With my own extensive industry experience as my guide, and with the external advice TTR has received, I am confident that TTR has been established and now operates to best practice standards in the industry. We are committed to continue to do so.

14. TTR holds a current Crown Minerals Act exploration permit for areas in the territorial waters from Oeo in South Taranaki down to approximately
Waverley. TTR also has applications for further exploration permits waiting to be processed. These are for areas that were included in TTR’s initial prospecting permits that have now expired.

15. TTR also holds a Continental Shelf Act prospecting licence. It is area within that prospecting licence area that TTR has applied for this, its first mining permit. The area of this mining permit application is the same as for this application for marine consents. TTR expects this permit to be granted in the near future.

Project Description

16. In my evidence I have defined the project as being that for which marine consent is being sought in this round of applications. TTR plans in addition and in the future to seek consents for further areas for mining in later rounds of applications. However the present application is “stand alone” and is not in any way dependent on any further or later application. If there are further applications by TTR, the effects of these will be considered during those applications. Cumulative effects of each project will need to be considered in the context of each such later application as may be made, if and when it is made.

17. In economic terms, TTR’s project differs from typical off shore oil and gas projects in that its operational costs for the mining of iron ore continue at a high level for the life of the proposal. This spend is principally within New Zealand and hence the project benefits to New Zealand extend for the full duration of the project and are also not confined to royalties and taxes.

18. The TTR leadership group has constantly looked to improve its mining proposal with particular focus on ensuring the proposal meets economic requirements and minimises the impact and scale of its environment footprint. In my time at TTR the Project has changed through a process of continual improvement and enhancement from being:

(a) based on a trailing suction hopper dredge mining proposal with 4 large vessels, 2 dredges, a mining vessel and two floating storage and offloading vessels, and very large out of pit de-ored sand dumping area,
(b) to now a single pass crawler operation with only 2 major vessels, (the integrated mining and processing vessel and a floating storage and offloading vessel) with nearly all de-ored sand being returned back to its place of origin.

19. This has substantially reduced the total footprint of the disturbance area. The current proposal involves much lower operating and capital costs than that originally proposed, which enhances the security and viability of the project over the longer term.

20. TTR’s proposed mining and processing systems are not new. The current mining proposal is based very closely on the process that De Beers has successfully used off the Namibian coast for more than 20 years to mine diamonds. The De Beers crawlers are a well proven technology. De Beers is currently employed by TTR as an operational adviser. As well, the iron sand separation process and the product handling are all well proven technology and TTR is using DRA, another South African company with significant engineering and mineral processing experience in a marine environment. DRA’s design and verification experience will be invaluable to TTR ensuring that our process flow design is assessed by an engineering firm with skills and competencies in offshore minerals processing.

21. The main vessels for the project consist of: the integrated mining and processing vessel, which is a 330 m long approximately 180,000 tonne vessel; a floating storage and offloading vessel (FSO) that will be approximately 60,000 tonnes; and an anchor handling tug. These are shown in Figs 1, 2 and 3 in the Appendix C.

22. The product that TTR will produce and market is magnetite concentrate. Magnetite is not the typical iron ore that is used in blast furnaces but it is nevertheless commonly used. For example, the NZ Steel Glenbrook steel mill uses a similar magnetite as its ore feed stock to its steel mill. This ore also contains some quantities of titanium and low levels of vanadium. Whilst these are also valuable metals the costs of extracting them is large and few plants are capable of doing so. TTR has not made any allowance for the value of these metals in its price and does not expect to get any margin for them. If TTR were to get such a margin this additional revenue would impact on the royalties to be paid to the Government. It is of note to TTR that New Zealand steel
successfully extracts a vanadium slag which it successfully markets and obtains a significant extra revenue for its steel business. Export of magnetite concentrate is a well established New Zealand industry, with a lengthy past history of export from the Waipipi area on the coast north of our project site, and continuing export from Taharoa near Kawhia. In both cases the sand is sourced from mining onshore.

23. The FSO will shuttle the concentrate from the mining vessel to a waiting bulk carrier for export. Amongst its capability will be to accept slurried concentrate from the integrated mining and processing vessel, dewater the concentrate on receipt down to a specified moisture level to allow safe shipping and handling through conventional cargo handling techniques and the ability to perform ship to ship dry cargo transfers to large bulk cargo vessels.

24. As noted earlier TTR is proposing to use a crawler dredge mining technology as its mining method. This method was originally developed by IHC and De Beers and since 1983 when the first crawler was deployed has gone through an ongoing process of continual improvement to lift reliability and performance. This technology has advantages over a standard trailing suction hopper dredge, the main ones being:

(a) A crawler can take the whole ‘face’ in a single pass thus minimising the area of seabed impacted by the mining operation;

(b) The crawler is readily operated from the processing vessel, thus eliminating any requirement for separate dredging vessels and the extra economic and environmental costs of operating them.

25. The processing plant on board the mining vessel is very similar to that used on land based operations with similar material. This will use proprietary equipment including screens, magnetic separators, pumps and milling equipment. This process does not involve the addition of any chemicals or other products.

26. The mining vessel will have a relatively large electrical power requirement. A range of options for power generation has been investigated and reported. Initially this was determined to be up to 80
MW but subsequent process refinements are reducing that amount with an internal target outcome for the BFS of less than 50 MW.

27. The separated iron ore, otherwise known as the concentrate, having been sourced from the sea, will contain standard sea salts including sodium chloride. Chlorides are an unwanted addition and are required to be reduced to levels acceptable to the shipper and end purchaser. To remove the Chlorides freshwater manufactured by an on board reverse osmosis plant is used to slurry the concentrate from the mining vessel to the FSO and in doing so “rinse” out the unwanted Chlorides. This is a well recognised process and transfer of iron ore by water-based slurry is part of the Taharoa export process.

28. TTR’s proposed Project will result in around 250 new jobs. These will be located in the Taranaki region although TTR cannot dictate where staff will live. With offshore operations such as TTR’s proposed Project and similarly to the FPSO’s currently operating off the Taranaki coastline, the staff tend to work on the vessel periods of up to 3 or 4 weeks, depending on the particular shift roster.

Commercial Viability

29. In May 2013 TTR completed its pre-feasibility study. This study showed the project to be economically robust. The Board and shareholders supported management’s recommendations to proceed to a Bankable Feasibility Study (BFS) and commence seeking all necessary project approvals. It is also important to note that if a Project is not assessed as viable it will not proceed – I understand viability is solely a matter of commercial assessment for TTR and its investors and does not arise in regulation for environment effects. That is, decisions on regulation of effects then have to be factored into the project by TTR.

30. TTR will be paying royalties to the NZ Government for the iron ore sold. These are as outlined in the Crown Minerals (Royalties for Minerals Other than Petroleum) Regulations 2013. In summary the royalties payable are the greater of an ad valorem royalty of 2% of the net sales revenue of the minerals obtained under the permit; or an accounting profits royalty of 10% of the accounting profits, or provisional accounting profits, as the case may be, for the minerals obtained under the permit.
31. As well as royalties, TTR will be paying normal New Zealand corporate taxes. These costs are all reflected in the information that TTR has provided NZIER for their economic assessment of TTR’s project.

**Commitment to Best Practice and Health and Safety**

32. TTR has committed to best practice, including in its Environment and Health and Safety practices. These are as outlined in its policies on Environment and Health and Safety that it has outlined on its website for the past year.

33. These policies are all based on TTR’s values. These values are those of:

   (a) **Sustainability** – wherein we commit to environmental responsibility, support the communities in which we work and place health and safety as a top priority

   (b) **Transparency** – where we embrace openness and keep things simple

   (c) **Integrity** – where we do what is right and do what we say, we are consistently reliable

   (d) **Respect** – where all our relationships are based on respect and are mutually beneficial

   (e) **Performance** - where we stretch our capabilities and achieve superior business results

   (f) **Accountability** – where we define and accept responsibility and deliver on our commitments

34. TTR’s Environmental Policy is attached as Appendix A of this document. In this “Trans-Tasman Resources Limited aims to take care of and use natural resources in a manner that minimises harm to the environment and provides benefits to New Zealanders”. TTR has been proactive in this regard having placed a self-imposed ban on not mining inside 2 Km of the shore line.
35. TTR’s Health and Safety Policy is in Appendix B of this document. In this “Trans-Tasman Resources Limited aims to promote a healthy workforce, maintain a safe system of work and to proactively support the wellbeing of our people”.

Project Management

36. TTR is well aware that for it to successfully attract the necessary capital to enable the company to progress to production it must have all necessary statutory and other approvals in place including a “social” licence to operate. Without these approvals TTR will most likely not advance its project beyond feasibility studies and New Zealand will lose a new and vibrant industry.

37. TTR acknowledges that this project is of global scale and hence requires the best international experts to be available to advise and ultimately deliver the most cost effective, safe and environmentally responsible marine mining technical solution.

38. To produce that engineering solution TTR has employed the best available engineering staff and employed the best project management techniques available. The staff employed has\ to the extent possible been sourced from New Zealand companies. These have been assisted by experienced and capable overseas companies such as De Beers, IHC Merwede and DRA, each being very experienced and leaders in their own fields and in particular offshore dredge mining and or mineral processing.

39. As well, in the environmental field, TTR has sought the best available New Zealand consultants to provide it with field information, modelling capability and also interpretative capability. Where necessary, such as in the plume modelling, TTR has also used the best available overseas consultants to not only assist the development and validation of the model but to peer review the results. Consequently I am confident that TTR has assembled the best in field experts who have and will continue to ensure the project is developed with the highest technical, environmental and safety standards and who will participate in the marine consent decision making process with the highest level of professionalism.
Community Trust

40. TTR's Board has agreed in principle to the setting up of a Community Trust to benefit the South Taranaki coastal communities. This Trust would be to benefit the communities that are adjacent to or impacted as a result of Trans-Tasman Resource’s (TTR) commercial operations producing iron ore in the South Taranaki Bight. The operational details of this have yet to be confirmed but I see this as being a trust managed at arms length to TTR and will effectively be under the community’s control. TTR proposes that this trust be developed in consultation with the South Taranaki Community. The proposal is that it will receive funds annually and these funds would be based on TTR's rolling 3 yearly economic success, in much the same manner as the royalties that TTR will be paying the Crown.

41. TTR has suggested a condition providing for this Trust if the EPA should decide to grant consent. The Consent Holder shall fund the Trust through a transparent process that ensures that 0.3% of TTR’s pre-tax profit (on a 3 year rolling average basis) is contributed. The first payment to the Trust shall be made on the anniversary of 3 years after commencement of operations. Based on TTR's predictions, the average annual value of the trust is likely to be of the order of $150,000.

Issues arising from submissions:

42. There are some comments in submissions that I wish to respond to. These are:

43. Many submissions refer to TTR being an overseas owned company, and imply that this is bad for NZ. New Zealand does not have deep capital markets and the market evidence is that on the whole New Zealanders are not inclined to finance venture capital projects. This leaves companies like TTR no option but to tap capital markets that are prepared to finance venture capital. Substantial New Zealand investors were afforded an opportunity to invest in the past, at a point where project risk was high. Not many did so. To date approximately $50 million has been spent on the project, and the majority of this has been spent within NZ. This expenditure alone has been of value to NZ. If TTR gets into production NZ will benefit significantly, as outlined in the NZIER evidence, including both national and regional benefits. In fact, I
consider that the fact that TTR has secured overseas funding is good for New Zealand in that New Zealand has already benefitted from the investment in TTR through employment, payment of contractors and consultant's, and will benefit throughout the term of the project.

44. Some submissions state or imply that TTR’s proposal is deep sea mining. TTR’s proposal is not deep sea mining. My understanding is that “deep sea mining” is typically characterised by depths (>100 m). At these depths the seabed is little influenced by wave action, and comprises sediments that are very stable. In turn I understand that this stability leads to “deep sea” bottom dwelling organisms that are long lived with low “turnover”. Based on my reading of Dr McClary’s evidence this “deep sea” situation contrasts with TTR’s proposed mining area which is in a high energy environment in relatively shallow waters, and involves a seabed which is regularly affected by the action of waves. Our experts have confirmed that organisms in TTR’s project area have evolved to live in this environment and are generally characterised as being short lived, very fertile and with a high reproductive rate.

45. Some submissions have called for a moratorium on seabed mining and cited moratoria such as those in Namibia and Northern Territories Australia. TTR’s Project is completely different from the situations where those moratoria have been applied as explained below.

46. The Namibian moratorium is on the issue of Environmental Impact Assessment (EIA) clearance certificates on bulk seabed mining for deep-sea phosphate in Namibian waters and will be in place for a minimum of three years. The Namibian Cabinet decided that an independent scoping study and a comprehensive Environmental Impact Assessment should be carried out by consultants during the moratorium period. That will presumably determine what deep sea phosphate mining may then be consented.

47. In the Northern Territories, on 6 March 2012, the Northern Territory Government placed a moratorium on seabed mining for a period of three years. NT coastal waters do not extend the full 12 nm of the territorial waters but only extend out to 3 nm from the coast. The moratorium precludes, within those NT coastal waters, the granting of titles permitting exploration for minerals or mining and the issuing of
authorisations permitting mining activities. The moratorium will be in place until 2015 while a comprehensive assessment of the potential impacts of such activities is undertaken.

48. The key point and difference is that each of those two moratoria were put into place because time was needed to gain further information upon which decisions as to whether to mine or not would be made. In TTR’s case, NZ has a regulatory regime in place to allow such assessments to be made. TTR has obtained the required information and this has been and is being presented to the EPA as part of TTR’s application.

49. As I noted above, TTR’s proposed mining system is based very closely on the diamond mining operation used by De Beers for more than 20 years, originally off the coast of Namibia and now also off the coast of South (is this correct) Africa. Some submissions have suggested that the Namibian Government has “recognised how risky seabed mining is and how little is known about it”. However, these submitters seem to be under the mistaken impression that the moratorium in Namibia applied to all seabed mining, not just phosphate mining. In fact, with the benefit of experiencing more than 20 years of operation, the Namibian Government has not imposed any moratorium on the seabed diamond mining operation upon which TTR’s proposal is based.

50. I am proud to be associated with TTR, which has developed so much in a short period of time. Since 2007 TTR’s staff and consultants have located a significant iron sand resource, developed technologies to relatively cheaply but effectively assess that resource and developed to a mature stage the technologies to process the resource. TTR has evaluated the existing environment around and within its proposed project area and it has developed credible models to use to predict the
environmental effects. The results of all this work is in front of you now. We believe that this is the best available information and ask that you look favourably on the applications.

Tim Crossley
17 February 2014
Appendix A

Environment and Community Policy

Purpose

Trans-Tasman Resources Limited aims to take care of and use natural resources in a manner that minimises harm to the environment and provides benefits to New Zealanders

TTR’s environment and community beliefs are:

environmental responsibility, support the communities in which we work and place health and safety as a top priority
embrace openness and keep things simple
do what is right and do what we say, we are consistently reliable
our relationships are based on respect and are mutually beneficial
stretch our capabilities and achieve superior business results
define and accept responsibility and deliver on our commitments.

Our beliefs will be accomplished by:

visible leadership in supporting the communities we operate in and in minimising the impacts of our operations on the environment
being involved with and conducting open and honest dialogue in our dealings with the community
supporting communities local to our operations in practical means and leaving a positive legacy to mark its temporary occupation
training our staff and contractors in the efficient and safe use of all plant and equipment
complying with all legislation, marine consents and commitments made
striving for sustainable and efficient use of natural resources
monitoring the effects of our operations on the environment and using the results to assist in reducing the environmental effects of our operations
when operational, undertaking annual environmental compliance audits and publishing an annual environmental report.
Appendix B

Health and Safety Policy

Purpose

Trans-Tasman Resources Limited aims to promote a healthy workforce, maintain a safe system of work and to proactively support the wellbeing of our people.

TTR’s safety beliefs are:

Working safely is a condition of employment and a core value.

Employee involvement is essential.

Management is accountable for safety performance and ensuring staff are properly trained to safely carry out their work.

All operating exposures can be safeguarded and all incidents can be prevented.

Our beliefs will be accomplished by:

Visible safety leadership,

Provide a safe and healthy work environment,

Actively monitor and continuously improve health and safety performance at all levels by undertaking reviews to measure progress and compliance with this policy,

Establishing a strong safety culture throughout our business by charging our leaders with responsibility for safety monitoring,

Preventing work related injuries or illness through proper training, the promotion of safe behaviours and the integration of safe work practices into all work methods,

Complying with or exceeding all applicable legislation, standards and codes of practice for health and safety,

Systematically identify, assess and control work-place hazards,

Record, report, investigate and learn from all incidents and near misses,
Ensure all employees and contractors understand health and safety responsibilities relevant to their roles and take responsibility for their own safety and the safety of those around them,

Actively support early and safe return to work of all injured and ill employees,

Empowering employees to ‘make it safe’ or suspend activities until it can be made safe.