

**BEFORE THE EPA  
BEACH ENERGY RESOURCES NZ (HOLDINGS) LIMITED APPLICATION FOR  
MARINE DISCHARGE CONSENT TO DISCHARGE OFFSHORE PROCESSING  
DRAINAGE (HARMFUL SUBSTANCES FROM DECK DRAINS)**

**EEZ100019**

**IN THE MATTER** of the Exclusive Economic Zone and Continental Shelf  
(Environmental Effects) Act 2012

**AND**

**IN THE MATTER** of a Decision-making Committee appointed to consider a  
marine discharge consent application made by Beach  
Energy Resources NZ (Holdings) Limited for the  
discharge of trace amounts of harmful substances from  
deck drains in the Canterbury Basin

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**MEMORANDUM OF COUNSEL FOR BEACH ENERGY RESOURCES NZ  
(HOLDINGS) LIMITED PROVIDING FURTHER SOUGHT DURING HEARING**

15 September 2020

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## MAY IT PLEASE THE COMMITTEE

1. In a minute dated 10 September 2020, the Decision-Making Committee (**DMC**) for this matter issued Minute 4 seeking further information from Beach Energy Resources NZ (Holdings) Ltd (**Beach**) and Environmental Protection Authority (**EPA**) staff.
2. This memorandum provides the information sought from Beach as set out in paragraphs 5 – 10 of the DMC's minute.

### The fate of sodium hypochlorite

3. This matter is referred to in paragraphs 5 and 6 of the DMC's minute. The DMC has queried:

Is it possible that the breakdown of sodium hypochlorite in the presence of organic material can, in addition to the production of salt and water, result in the formation of organic chlorinated compounds that can persist in the marine environment? If so, what are those compounds and what might be their adverse effect?

4. Organic matter present in the rain/wash water that enters into or is already present within the deck drainage tank/system, could react with sodium hypochlorite to form what are commonly referred to as disinfection by-products (**DBPs**). The most commonly occurring DBP substances when sodium hypochlorite breaks down in the presence of organic matter are trihalomethanes, haloacetic acids, haloacetonitriles, chloral hydrate, chloropicrin, of which trihalomethanes (**THMs**) tend to be the largest proportion.
5. In the treatment of potable water supplies, the most abundant THM species produced when sodium hypochlorite reacts with organic matter is chloroform. Some DBPs, and the THMs within them, have been listed as possible carcinogens and mutagens, although the definitive evidence for direct effects in humans is still disputed and, as such, cautionary guideline limits are recommended by some regulators.
6. Human exposure to DBPs from treated drinking water predominantly comes from oral, dermal and inhalational contact between humans and the water containing the reacted disinfectants (such as sodium hypochlorite), although in the scenario of the discharge from offshore deck drainage these

exposures for humans would be extremely unlikely to occur due to the distance offshore, exclusion zones around the MODU, and the position of the discharge point. The USEPA has a recommended annual average guideline level of 100 µg/L for THMs in drinking water.

7. Concentrations of THMs formed in treated drinking water supplies have been shown to be reduced through several methods including filtration (including through activated carbon), distillation, and aeration. The amount of THMs produced can also be reduced by lowering the amount of organic matter present within the water with which the free chlorine liberated from the likes of sodium hypochlorite could react. The reduction of THMs via aeration is likely to mean that, in the event that THMs were produced in the deck drainage discharge and entered the marine environment, the high energy environment around the MODU in the offshore Canterbury Basin (in particular for the surface waters where a discharge plume would likely be present) would result in high proportions of any THMs produced being aerated out of the water.
8. It is important however for the above information to be kept in context: sodium hypochlorite has been used in the application as a worst-case (very ecotoxic) 'example substance' scenario. It may be that this substance, or any other harmful substance onboard the MODU, is never spilled onto the decks and therefore never reaches the deck drainage system.
9. Sodium hypochlorite, specifically, would not be used or stored in areas that could drain into the hazardous/non-hazardous deck drains, as it would be stored in covered areas inside the MODU where spills (if they occurred) cannot reach the deck drains.
10. In the event that this particular substance spilled in an area that could reach deck drainage system, then the volume of this substance that could get into the system is extremely small – conservatively estimated at a maximum of 250 mL. It is likely that the rain/wash water entering the deck drainage tank would contain little organic matter with the small amount present possibly being derived from organic matter present in the seawater pumped up to use in wash-down, or organic matter such as seabird excrement present on the decks (where rainwater could wash it down to the deck drains), with which the sodium hypochlorite could react.

11. The amount of organic matter in rainwater washing off the deck is, however, likely to be minimal as it is very unlikely that there will be any seabirds on deck of the MODU.
12. The small amount of sodium hypochlorite present, and its low concentration in the deck drainage tank, would mean that the amounts of DBPs produced (including THMs) would be extremely small and, upon discharge into the large open ocean receiving environment, their concentrations would be exceedingly low, most probably undetectable.

### **Presence of testing facilities onboard a MODU**

13. This matter is referred to in paragraph 7 of the DMC's minute. The question is:

Clarification is also sought as to the existence of testing facilities on a MODU for the range of harmful substances that might potentially spill into and be discharged from the hazardous deck drainage system

14. Testing for trace amounts of the suite of harmful substances is not possible with the standard laboratory equipment onboard MODUs. It is not industry practice nor a requirement of marine regulations that MODUs engaged in exploration activities be equipped to enable laboratory testing of harmful substances. The facility onboard a MODU for possible testing of concentrations of harmful substances would be limited, and it is unlikely that it would be able to measure the quantity or concentration of each harmful substance.
15. Beach understands that laboratories potentially would not have a methodology for testing some substances and for the others, a mass spectrometry lab would be required. This would require samples to be sent to shore-based facilities for testing and analysis, which would therefore make a sampling and testing requirement impractical for the purpose and normal operation of this consent.
16. Given that both the risk and effect of the discharges of any harmful substances from the deck drainage system has been assessed as negligible, and in light of the response to the preceding query, the utility of

an onboard testing requirement is considered to be very low (quite apart from the significant cost and logistical difficulties involved).

### **Clarification of assessment of cultural matters**

17. This response relates to the question at paragraph 8 of the DMC minute, as follows:

With particular respect to the NKTT advice reports, the DMC noted that the evidence with respect to the sodium hypochlorite discharge example and its chemical fate tended to focus on kaitiakitanga (and then more on Mauri rather than Māna and Tapu) rather than rangatiratanga and whakapapa / whanaungatanga. The DMC requests that the applicant clarify why those other interests / elements were not addressed?

18. The information provided by Beach in its response to the EPA's request for further information (dated 29 April 2020) was not specifically in respect of the sodium hypochlorite discharge example. Rather, the information was more generally in respect of the discharge of harmful substances from MODU deck drains that could occur during the EAD programme. Sodium hypochlorite was only used in the Impact Assessment as a worst-case example harmful substance.
19. The context in which the information was sought, as well as the detail of what was sought, is important. The EPA's request for further information covered two matters. The first being whether there were any additional persons with existing interests to be identified in light of the Court of Appeal decision in *Trans Tasman Resources* and, if so, for Beach to provide information outlining its understanding of the nature and extent of the effects of the proposed activities on the existing interests of iwi. The EPA's request was prompted by the Court of Appeal decision on *Trans Tasman Resources* which had been released after the applicant's Impact Assessment was lodged and which suggested that customary rights, including kaitiakitanga, may be relevant existing interests.
20. In order to provide a considered response to the EPA's information request, Beach provided a summary of the Court of Appeal decision. That decision covered many matters but, in respect to existing interests, its focus was heavily on kaitiakitanga (as alluded to in the EPA's request). Because kaitiakitanga was the foundation for the request, and because the purpose was to identify additional groups with existing interest who had not

previously been considered, Beach focused its response on kaitiakitanga. It also had a focus on effects on mauri, as it too was the subject of much discussion in the Court of Appeal decision.

- 21.** As highlighted by the DMC, Beach’s response noted that there are three key spiritual elements (taha wairua) of kaitiakitanga which define health and well-being for Māori, namely mauri, māna, and tapu. Whilst not explicitly stated in Beach’s response, māna was covered by way of the quotes from Ms Bartlett’s evidence (presented on page 7 of Beach’s response), namely:

“The responsibility of kaitiakitanga is twofold: first, there is the ultimate aim of protecting mauri and, second, there is the duty to pass the environment to future generations in a state which is as good as, or better than, the current state”.

- 22.** It is Beach’s understanding that the second responsibility relates to māna, as Mr Olsen also described during hearing, and not being able to fulfil this responsibility can demean the māna of those who are kaitiaki.

- 23.** In respect of rangatiratanga, Beach’s response identifies that the key effects associated with the application on Ngāi Tahu Whānui’s existing kaitiakitanga interests are associated with the denial of rangatiratanga – that is, the ability of Ngāi Tahu Whānui to exercise customary authority.

- 24.** Beach’s response did not specifically address effects on tapu or whakapapa/whanaungatanga, primarily because the EPA did not ask for an assessment of this either in its request for further information or following receipt of it. The EPA specifically asked for Beach’s understanding of the nature and extent of the effects of the proposed activities on the existing interests of iwi (primarily for the purposes of identifying any existing interests that had been omitted) and that is what was provided.

- 25.** Given that the EPA did not request any further information on the matter it was assumed that the response was appropriate and sufficient, given the scale and magnitude of the potential effects of the discharge for which marine discharge consents are being sought. Furthermore, as noted in opening legal submissions, the only “gap” identified in the EPA’s legal advice on the NKTT reports were the matters that Mr Forrest addressed in his evidence. Finally, it was always open to iwi interests to submit on the application and identify errors or gaps with Beach’s assessment.

## Intent and wording of proposed conditions 9 and 11

26. This matter is referred to in paragraph 9 of the DMC's minute and, we understand, is based on the reference in proposed conditions 7 and 9 to "non-hazard area deck drains". In addition, the DMC has queried the intent of proposed condition 11 relating to a spill into the sea of any harmful substances.

### *Condition 9*

27. Dealing first with proposed condition 9 (and to a lesser extent 7), it is understood that the query is why it is necessary or relevant for a reference to non-hazard area deck drains to be included, given that no discharges of harmful substances from the non-hazardous deck areas and drains are proposed. The answer to this question lies in the anomalous wording of the Exclusive Economic Zone and Continental Shelf (Environmental Effects—Discharge and Dumping) Regulations 2015 (**Discharge and Dumping Regulations**) and the reason why a notified consent is required at all for petroleum exploration activities (as explained in opening legal submissions).
28. The consent application relates specifically to discharges of "offshore processing drainage" as defined in the Discharge and Dumping Regulations, due to reg 16(1) which is the trigger for consent. That definition includes water from non-hazardous deck drains, which is why those discharges are included in the scope of the discharge consent (despite there being no harmful substances in those discharges). This is why the wording in the proposed conditions needs to mirror the language used in the Regulations. The definition is set out below for the DMC's ease of reference:

offshore processing drainage—

- (a) means water from hazardous and non-hazardous deck drains; but
- (b) does not include oil mixed with water from machinery spaces

29. As a matter of practice, it is accepted that there may be little benefit to the requirement in condition 7 to include in a plan of non-hazard areas and Beach is content for that aspect of the condition to be removed. For

completeness however, Beach remains willing to provide full deck plans to the EPA in accordance with the condition as proposed.

30. The reference in proposed condition 9 to non-hazard area deck drains should remain as it is appropriately conservative and reflects the information and evidence provided by Beach regarding storage of harmful substances.

#### *Condition 11*

31. It is apprehended that the query about the requirement to notify the EPA of a direct spill of harmful substances to the sea may be beyond the scope of the consent, in that the consent neither seeks nor could authorise such a spill (ie. one that bypassed the deck drainage system).
32. Beach acknowledges the basis for that query. It also acknowledges however that the risk of such a spill has been a more prominent concern expressed by various stakeholders and submitters, whether or not it is within the scope of the application. In the interests of transparency, and because the need for a response would be elevated in such circumstances, Beach is content with the condition as proposed (and proposed condition 12, which would operate together with condition 11).

#### **Additional information volunteered by Beach**

33. This information is outlined in paragraph 10 of the DMC's minute, being:
  - a) additional information about the meaning of "material harm" from pollution, for the purposes of section 10(1)(b) of the EEZ Act;
  - b) the possible inclusion of an advice note regarding a proposed Community Advisory Group for the broader EAD programme; and
  - c) comment further on Waitaha Taiwhenua's proposed condition seeking a shutdown for 7 days in the event of an authorised discharge of harmful substances.
34. These matters are dealt with in turn below.

### *Material harm from pollution*

35. A question was asked by DMC member Dr Ryder regarding whether there was a definition of “material harm” in terms of section 10(1)(b) of the EEZ Act<sup>1</sup>. The answer given at the time was that it was primarily a matter of evidence and assessment as to whether the level of pollution or harm was material, and hence consistent with that limb of the EEZ Act’s purpose.
36. It is noteworthy that the language of “material” harm or pollution has arisen from the Court of Appeal’s decision in *Trans Tasman Resources*<sup>2</sup> and is not part of the statutory language of section 10(1)(b).
37. There have been two decisions issued by the EPA since the Court of Appeal’s decision which provide guidance on what scale of effect may constitute material harm, or not. The two decisions are the EPA’s decision in its first marine dumping consent application, involving the Dong Won 701<sup>3</sup> in an application to dump a damaged fishing vessel 25 nautical miles offshore from Otago Harbour, and the EPA’s decision on OMV Taranaki’s application for marine consent and marine discharge consent within the Māui Field<sup>4</sup>. Both decisions considered the Court of Appeal’s reasoning regarding section 10(1)(b) of the EEZ Act.
38. In the context of the Dong Won 701 decision, it appears that the EPA concluded that “no material harm” essentially means “no significant” (or more than minor) effect. In terms of benthic effects, which were the most relevant effects in that matter, this included taking scale into account.
39. Relevant excerpts from the decision indicate that the assessment of material harm involves a consideration informed by both evidence and context (emphasis ours):

209. As such I find that no significant effect on species and biodiversity, nor material harm, to the environment will arise and it is highly unlikely there will be loss to benthic communities at a population level. I find the effects on the benthic communities of the vessel landing on the seabed to be less than minor.

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<sup>1</sup> See Beach opening legal submissions paras 15 - 21

<sup>2</sup> Ibid, quoting from paras [86] and [89] of the Court of Appeal decision

<sup>3</sup> *DW New Zealand Ltd* Marine Dumping Consent EEZ400012, 30 April 2020

<sup>4</sup> *OMV Taranaki Ltd* Marine Consent EEZ200011-1 and Marine Discharge Consent EEZ200011-2, 8 May 2020

212. Taken in over the whole of the ADS<sup>5</sup>, I find there is no material harm from the vessel landing on the seabed.

217. The scale of that effect is highly localised and only occurs from the vessel breaking up. There is potential harm, but not material harm, outside the direct footprint of the vessel and its components from the sediment plume. It is an almost instantaneous effect with limited short-term smothering effects at the time.

228. I have imposed conditions that require the vessel is cleaned to such a state that it, as a “clean” vessel, will not have significant nor long term adverse effects on the environment from waste and substances escaping the vessel when it is on the seabed. The dumping is a short-term limited effect activity which only leaves the legacy of a vessel on the seabed. I find possible cumulative effects, should such arise, is almost beyond any measure, and not of a scale, nature or duration that could possibly impact on future use of the ADS or adjoining areas.

248. Despite the possible presence of some protected and sensitive benthic environments, and as indicated in the assessment of benthic effects as described above in paragraph 205 -217, I conclude that it is most unlikely that there will be material harm to rare and vulnerable ecosystems that may be present in the ADS. This is based on the scale and duration of the activity, the small footprint of the vessel, the small amount of anticipated benthic disturbance, and the known presence of such ecosystems outside the ADS that means the effect on potential rare and vulnerable benthic ecosystems will be measurable but localised in the ADS.

264. I am most mindful that the Court of Appeal in its TTR Decision stated that it is not consistent with section 10(1)(b) of the EEZ Act to permit marine dumping that will cause material harm to the environment, on the basis that the harm will subsequently be remedied or mitigated by consent conditions. If material harm is likely to arise from the dumping activity, then the application fails to meet the purpose of section 10(1)(b) and must be refused. Only if I determine that harm will be avoided through regulation can the consent be granted and conditions be imposed under section 63.

290. The Disposal Brief used to guide cleaning and preparation of the vessel for scuttling was not, in my view, sufficiently detailed and specific about the removal of certain substances and materials. I wanted to be assured that all materials and substances which are potentially ecotoxic or could result in bioaccumulation are removed from the vessel. If that was not practicable, I wanted to assure myself that the volumes and quantities of such material remaining do not create significant risk or material harm to the marine environment and through that create risk to human health.

- 40.** In the OMV Taranaki decision, the EPA concluded that negligible or less than minor adverse effects on the environment did not amount to “material harm” to the environment. Relevant excerpts from the decision are presented below (emphasis ours):

#### Executive Summary

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<sup>5</sup> ADS refers to the Authorised Dump Site

xiv. We find that while the discharge activity causes adverse effects to the environment, these effects are less than minor and do not amount to material harm to the environment. The conditions we have imposed that regulate which harmful substances are authorised to be discharged ensures this.

510. The starting point for determining whether granting the marine discharge consent achieves section 10(1)(b) is whether the environment is protected from pollution caused by the discharge.

511. The discharges applied for include a range of harmful substances which have the potential to create adverse effects. However, the discharges we have authorised have only negligible or less than minor effects on the environment, and we do not consider that this amounts to material harm to the environment. We have imposed conditions which avoid any potential harm to the environment from the discharge by regulating which harmful substances, and the amount of those harmful substances, that are authorised to be discharged.

512. Overall, we find that the assessment of the activity against sections 10 and 59 matters was adequately set out in OTL's IA. In summary, we find:

(a) The proposed discharges will have only negligible or less than minor effects on the environment, and we do not consider these will result in material harm to the environment. We have imposed conditions to avoid, remedy or mitigate any actual and/or potential adverse effects on the environment from the activities by regulating the type and quantities of harmful substances that can be discharged.

41. It was submitted in opening that there is no credible evidence before the DMC that the adverse effects of any such discharge, if indeed any occur, will be other than negligible (even if worst-case assumptions are adopted). The expert evidence for Beach identifies that the proposal would not lead to any material pollution or harm as contemplated by the Court of Appeal in *Trans Tasman*, and the proposed conditions would ensure the marine environment is protected. That remains Beach's position.

*Possible advice note on Community Advisory Group*

42. The Chair of the DMC asked a question about the possibility of an advice note recording Beach's intention to proffer a condition in the subsequent consent applications about a Community Advisory Group.
43. Beach has reflected on this issue since the adjournment of the hearing, and remains of the view that such an advice note to record Beach's intention is not necessary, particularly in light of the fact that this DMC has been appointed to consider the subsequent consent application and is now aware of the intended approach.

*Waitaha Taiwhenua o Waitaki Trust*

44. Waitaha Taiwhenua o Waitaki Trust Board (**Waitaha**) filed evidence by Mr Anthony Olsen that suggests the inclusion of three conditions. The second of those conditions sought:

In the event of a discharge, depending on its severity, a shutdown of any activities that may result in further discharge for a period of at least 7 days and appropriate cultural mitigation is undertaken.

45. After listening to Mr Olsen's presentation to the DMC, Beach continues to rely on its submission that Waitaha's proposed condition 2 is disproportionate to the scale of the possible discharges that are the subject of the consent application and could have the effect of negating the grant of consent. If a discharge was both authorised by and compliant with the consent, it would be illogical and contrary to the grant of approval, for a lawful activity to have to cease and for unknown mitigation to be undertaken. That would raise issues as to the validity of the condition.
46. On conservative worst case assumptions, the potential effects of the proposed discharge (if they occur) would involve very small quantities and negligible effects. Drilling campaigns are relatively short and there are long time periods between campaigns (if there is more than one).
47. Mr McCallum explained that the types of activities that are could lead to spill to deck, such as moving and handling of chemicals, cannot be stopped because they are carried out on a daily basis. He also noted that any spill to deck would be a discrete event that would not lead to an ongoing discharge.
48. For context, we note in passing that similar small scale discharges associated with the campaign are permitted under the Discharge and Dumping Regulations, for example the discharge of oil mixed with water from a machinery space (Regulation 17).
49. Finally, it is noted that proposed conditions 11 and 12, which are accepted by Beach, would require Beach to notify the EPA within 24 hours of a spill into the sea of harmful substances and, amongst other things, seek advice as to monitoring and notification of stakeholders. As noted earlier, such a

spill would not be authorised by the consent. It is submitted that this condition is an appropriate response to the concerns raised by Waitaha Taiwhenua o Waitaki Trust Board and no further conditions are required.

### **Other matters**

50. Beach reserves its position on the proposed condition which seeks to incorporate the ESRP, pending its consideration of the EPA's response directed in paragraphs 2 – 4 of the DMC's minute. It has some minor suggested edits to the advice note that was submitted as part of opening legal submissions, and also intends to provide further background information to the DMC about the genesis of the ESRP condition and its imposition on the OMV GSB Deck Drainage consent (should the EPA's advice mean that a further response by Beach will be necessary). It would address both matters in its closing submissions/right of reply.

**Dated** 15 September 2020



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