BEFORE A DECISION-MAKING COMMITTEE
OF THE ENVIRONMENTAL PROTECTION AUTHORITY

Under	the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012
In the matter of	an application for a marine dumping consent to dump dredged material at a deep-sea site east of Great Barrier Island
By	**Coastal Resources Ltd** Applicant

Held in Room 4.02/4.03 Karstens, Level 4, 205 Queen Street, Auckland, commenced Monday, 3 December 2018 at 9.30 a.m.

Board Committee Members:
Mark Farnsworth (Chair)
Basil Morrison
Gillian Wratt

TRANSCRIPT OF PROCEEDINGS

I N D E X

DAY 4 (3 December 2018)

House Keeping

CHAIR: Morena people. This Decision-Making Committee has been convened by the EPA to hear an application from Coastal Resources Limited to authorise the disposal of 250,000 cubic metres of dredged material per annum in the Northern Disposal Area.

We are reconvening the hearing. This is day 4. Welcome to everyone and we have a short commercial break.

MS IOANE: Good morning, just a few housekeeping matters. The toilets are out to my right, mens are on the left and the women are on the right. In the case of an emergency, the fire exit doors, there's a door by the ladies and a door by the men's, you just go down the stairs down that way. Tea and coffee and biscuits are out there and they're free, so please help yourself. That's it.

CHAIR: Okay. This morning we have the Department of Conservation who are going to work through their opening submissions and comments from the various experts. Department of Conservation, we are in your hands this morning and welcome. There's no need to stand for this, please.

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OPENING STATEMENT ON BEHALF OF THE DEPARTMENT OF CONSERVATION BY MS ARTHUR

MS ARTHUR: First of all, apologies for all that excitement, I just made it on time.

CHAIR: I think we're doing really well.

MS ARTHUR: These are short opening submissions.

(Ms Arthur reads paragraphs 2-32 of Opening Representations on Behalf of the Director-General of Conservation)

Thank you.

CHAIR: Thank you, Ms Arthur. A lot of the matters which you have traversed in there are going to be addressed by your coming witnesses, are they not?

MS ARTHUR: Yes, that's correct. Most of mine is just to try and put a legal basis within the EEZ Act.

CHAIR: I just want to draw your attention, you singled out the aquaculture industry's concern. You know, I sat there last week and was going to ask them the very obvious question. I asked them about distance from their site from this and my question would have been, how would you differentiate the sediments coming from the land coming from a de minimis plume? And I didn't put the question and I think one of my fellow Commissioners even had a more pointed question but I think the answer was obvious and it didn't need to be put.

MS ARTHUR: And all I'm suggesting, is if we can get a monitoring regime at the boundary which shows how

little was going over the boundary in accordance with the model, assuming that's correct, then that should put to rest some of those concerns, if they read the information.

CHAIR: And what we are grappling with is should it be a sediment monitoring or a fauna and flora monitoring, which is the best in terms of the evidence which we've heard?

MS ARTHUR: We would advocate for both.

CHAIR: Okay. Other questions? Sorry, they were more observations, rather than questions.

MS WRATT: No, thank you.

MR MORRISON: No, I'm all right.

CHAIR: Shall we move on?

MS ARTHUR: Thank you.

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CLIFTON DUFFY

EVIDENCE

CHAIR: Good morning. Just a quick introduction, please? You haven't been before us before, have you?

MR DUFFY: No.

CHAIR: I am Mark Farnsworth, I am the Chair of this DMC, I am assisted in this matter by Gillian Wratt and Basil Morrison.

MR DUFFY: Good morning.

CHAIR: A quick introduction from yourself?

MR DUFFY: My name is Clifton Anthony John Duffy, I am employed by the Department of Conservation in the Marine Ecosystems team. My title is Technical Advisor Marine. I have worked for the Department for 29 years in a variety of science and technical advisory roles, marine science and technical advisory roles.

CHAIR: Good.

MR DUFFY: I will read out my summary -

MS ARTHUR: I apologise, we haven't brought 10 copies, we will get them copied.

MR DUFFY: I have reviewed the scientific literature, natural history collection records, fishery information and the information provided by the applicant to determine the biological communities likely to be present in and around the Northern Disposal Area (NDA). I conclude that sea floor habitats occurring in this area are likely to be predominantly flat sandy mud and mud, characterised

by a biological assemblage dominated by brittlestars, small bivalve shellfishes and a variety of polychaete worms. Emergent epifauna and mobile epibenthic invertebrates include sponges, anemones, sea pens, snails and urchins but appear to be sparse. The most abundant demersal fishes occurring in the NDA are likely to be snapper, tarakihi and school shark.

Most of the marine invertebrates and fishes recorded from the area potentially affected by the application are widespread on the New Zealand continental shelf.

I concluded that while the application understates the biological values likely to be present in the area, the NDA is not known and is unlikely to provide critical habitat for any protected marine species and the occurrence of any protected fishes within it is likely to be transitory.

I also conclude the seafloor assemblages occurring within and around the NDA are likely to have been modified by bottom trawling, although to what extent is unknown.

I identified the low level of replication and use of small gravity cores as methodological shortcomings of the monitoring programme.

I agreed with the 2011 NIWA review that the use of a box corer or grab designed to eliminate 'washout' on ascent with appropriate replication is required to improve the representativeness of the monitoring program and adequately sample the benthic macrofauna.

I also recommended monitoring of at least two control sites located at comparable depths to the NDA; standardising the timing of the ecological monitoring to ensure that it is conducted annually and at the same time

of year to ensure comparability of results and minimise variation in the data.

My recommendations include high resolution imaging of sea floor habitats to quantify large epifaunal organisms; the continued use of coring to provide continuity with the monitoring undertaken to date; and monitoring of demersal fishes using baited underwater or short duration beam trawls.

The expert witness conference on ecological monitoring recommended video or still photo transects be added to the sampling methodology at each of the biota sampling sites, with a preference for scaled video transects about 200 metres long. This would allow quantification of the emergent epifauna, mobile epifauna - that's things like crabs and shrimps and small fishes - and invasive species. It would also provide visual information on seabed topography and any vulnerable habitats or species that may be present in the NDA.

I agree that the use of scaled video transects would negate the need to use baited underwater video or beam trawls to monitor demersal fishes.

I still consider the use of a grab or box core with adequate replication is needed to adequately sample the benthic macrofauna.

CLINTON DUFFY - QUESTIONED BY COMMITTEE MEMBERS

CHAIR: Good, thank you for that. Commissioner Wratt?

MS WRATT: Thank you, Mr Duffy. I have a few questions that relate back to the conditions. Have you seen the revised conditions coming out from the joint witness conferencing of the planners?

A. The last version of those I saw on Friday.

MS WRATT: Yes, that's the last version that we have as

well.

A. Yes.

MS WRATT: I think in essence.

A. Yes.

MS WRATT: So, I have a few questions there that relate back to where the joint witness conferencing statement from the planners asks for input from technical experts.

Initially, I go to condition 5(b) in that set of conditions identifies that essentially the monitoring of the NDA boundary condition should be done by looking at statistically significant difference between any of the sampling sites on the NDA boundary and the control sites in sediment size, class, overall abundance of macrafauna, overall abundance in number of taxa or macrofauna or community structure.

So, do you agree that those are a reasonable range of monitoring to monitor any impact on the biota beyond the NDA? So, that's sediment size, class, overall abundance of macrofauna, overall abundance of taxa, community structure?

A. Those are pretty standard metrics to model. At the expert witness conference, we found - we actually found, I think I'm correct in saying, all of those present found the multivariate analysis was more powerful, more informative, than strict significance testing.

MS WRATT: Right, which does come back to in not the conditions but in the statement, joint statement of the planners, there are a number of things that they ask that comment from the technical experts is gained. One was a definition of statistically significant difference. So, you're saying that you think there should be multivariate analysis carried out?

A. Yes.

MS WRATT: Okay. Your comments, I think, need to be - you need to make sure they go back to your expert involved in the planning expert witness conferencing, that's the mechanism by which that should be fed back into the process but I am also keen to hear your comments here at the hearing.

The minimum timeframe for monitoring, I think you have already commented on that, which was, and certainly your legal advisor did, annual monitoring. I think the comment was that the ecology joint witnesses wanted to see each season, the oceanography was every two years, so the suggestion was there should be an annual monitoring; correct?

A. Yes.

MS WRATT: The depth of the NDA core samples, there's some discussion as to whether those should be 5 centimetres or 10 centimetres and there was a suggestion that those should be referred to the marine ecology experts?

A. Core sampling is not really my area of expertise.

MS WRATT: Okay, thank you. And that the annual monitoring should be carried out every spring?

A. I'm not particularly worried about the time of year that it's conducted at. I was mainly concerned about that whatever time of year it is done at, it is consistent. That allows you to compare apples with apples.

MS WRATT: And then there was a grab or box core sampling. If there wasn't grab or box core sampling carried out, what is the risk in terms of impact that would not be detected through the core sampling that has been recommended by the applicant?

A. The risk is not detecting effects on some of the longer

lived and potentially more sensitive fauna that occurs on the sea floor out there because they're not particularly well sampled by the methodologies used to date, the core sampler.

So, there are larger things like the larger bivalve shellfish, starfish, the occasional CPN and things like that out there which are potentially more vulnerable to sedimentation and respond much more slowly because they're longer living animals than the Foraminifera which have been the main type of organisms monitored or captured by the core sampling to date.

MS WRATT: A couple of subsequent questions to that. One is, would that be picked up by the video transect?

A. I think some of the emergent epifauna, like the Sea pens and some particular types of corals which are probably most susceptible to sedimentation, would be detected by the video transects.

MS WRATT: By emergent, you mean things?

A. Protruding through the sea floor or attached to shell debris or something like that on the surface.

MS WRATT: But there are still macrofauna that could be within the substrate that wouldn't be picked up?

A. Yes. You wouldn't know what they were from the video transect but some types of macrafauna leave trace that live below the surface of the sediment, leave traces on the surface. It would be possible to quantify things like burrows and mounds and tubes using the video. You wouldn't necessarily know what those species were. It would be a less powerful test.

MS WRATT: Thank you. There was something else that you just made a comment on that slipped my mind. I'll move on from that.

There was also a comment that the schedules should

be reviewed by the technical experts to ensure they are accurate and implementable. Have you looked at the schedules associated with the draft conditions?

A. I did, yes, I looked at the biological samplings in the schedule.

MS WRATT: Could I ask that you check that and then give any feedback on that to your planning expert?

A. Yeah, I certainly have given feedback to Andrew on that.

MS WRATT: Okay. Now, I've recalled what the other question was. In condition 5(b) it refers to overall abundance of macrofauna and overall abundance in number and tacts of macrofauna. Is that the correct use, should it be macrofauna or benthic biota?

A. I think it should be benthic biota. Macrofauna is a size range category, it's variously defined but it's anything that's trapped by a 0.5 millimetre or 1 millilitre. It is a very, very broad term but it leaves out the smaller stuff.

MS WRATT: And the core sampling will detect those smaller epifauna?

A. Yes.

MS WRATT: Thank you. Let me just check if there's anything else. (Short pause).

Your view on the thickness and rate of sedimentation that is likely to cause adverse effects. We heard earlier in the hearing, and I think there was a comment in the Joint Witness Statement from the marine ecologists, that studies of the estuarine environments 2 centimetres per year is likely to cause adverse effects but the expectation is that the benthic biota in the NDA may be more sensitive because they are less subject in an environment less subject to disturbance. But the concern was that 2 centimetres or anything less than that, in

fact anything less than 5 centimetres, is very difficult to detect with any sedimentation monitoring?

A. Yes, yes, we covered that in the expert witness conference and it was the general agreement that that was difficult to detect.

MS WRATT: In terms of impact, there's not really much point in measuring the sedimentation? You really have to be directly monitoring the biota, benthic biota?

A. Yeah, in my opinion that's the best way to do it.

MS WRATT: Great. Okay, I think that deals with my questions, thank you, Mr Chair.

CHAIR: Thank you. Commissioner Morrison?

MR MORRISON: No, thank you.

CHAIR: I do not have any, thank you. We can move on to the applicant.

CLINTON DUFFY - QUESTIONED BY MR SLYFIELD

MR SLYFIELD: I almost have none but I think there's one line of questioning that Commissioner Wratt was taking up with you about the grab or box core samples and I understand your position on that.

I don't think you've expressed a view as to what dimension you consider would be necessary or what number of replicates would be necessary.

A. No.

MR SLYFIELD: Can you offer a view on those matters?

A. To get the best - to optimise sampling, any sort of sampling, you need to do a power analysis. You actually have to go out there and trial the equipment that you've got and do a power analysis to see whether or not the sampling you are doing is capable of detecting a change.

However, I have routinely been involved in surveys

where we do three replicates per site of the grabs, and the grabs that I've used in the past have sampled an area just over 0.1 metres squared.

MR SLYFIELD: Thank you, that was all that I had, Sir.

CHAIR: Good, thank you, Mr Duffy, that completes your evidence.

Ms Arthur?

MS ARTHUR: Thank you.

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ANDREW RIDDELL

EVIDENCE

CHAIR: Good morning, Mr Riddell.

MR RIDDELL: I want to first of all say I only sent 10 copies because I was cunningly going to email it all out to you and the email system just stopped working on my laptop, so if anyone geeky wants to go and fix it -

CHAIR: We are in your hands, Mr Riddell.

A. Okay. Perhaps if we could start at paragraph 3.

(Witness reads paragraphs 3-17 of supplementary statement of evidence)

A. In this, I am quoting from the version attached to the Joint Witness Statement because I know you've received that. I am not sure which of the more recent copies that are under active negotiation and discussion you have received and I acknowledge that has been updated because of the schedule, there will be wording changes removing the reference from ISQGL values.

MS WRATT: That is schedule 3 of the conditions attached to the Joint Witness Statement is what you are referring to?

MR RIDDELL: Yes. All the numbers I am talking about are the conditions attached to the Joint Witness Statement unless I note otherwise.

CHAIR: And that is subject to change?

MR RIDDELL: Some are.

CHAIR: Okay.

MR RIDDELL: If you look at the Joint Witness Statement, it does identify a number in colours other than

black. Anything other than black is subject to change, for sure. In terms of the planners, that was the areas where the planners didn't agree, anything in blue, green, red. And then ones that were highlighted in yellow were particular things that the planners felt the Decision-Making Committee needs to give particular attention to.

CHAIR: Thank you.

MR RIDDELL: Continuing at paragraph 18.

(Witness reads paragraphs 18-26 of supplementary statement of evidence)

That's section 141 of the EEZ Act, I omitted to write that.

(Witness reads paragraphs 27-34 of supplementary statement of evidence)

In a footnote, I explore a bit more what it means to have monitoring every 6 months. Because you've got 250,000 cubic metre total and you're monitoring every 125,000 cubic metres there's a consent condition in there that says that from the time of the monitoring until the monitoring report is certified by the EPA as being complete, you can dump no more than 80,000 cubic metres and provides for that to be in the worse case scenario 5 months which, if you were doing 250 cubes a year, would mean two months of the year you would be dumping 45,000 cubic metres and then for the other 10 months would be two batches of 80,000. So, potentially the monitoring may be a bit more often than was anticipated, assuming that the annual volume is up to the 250,000 cubes.

(Witness reads paragraphs 35-43 of supplementary statement of evidence)

I note also that I'm yet to see the Joint Witness Statement of the economists.

ANDREW RIDDELL - QUESTIONED BY COMMITTEE MEMBERS

CHAIR: Mr Riddell, this is a moving feast for us. I know we could question you now at some length about what you're planning but there are going to be a few other iterations of the consent conditions; is there not?

A. I understand that's the case, yes. And in some cases I think that some of the iterations we would actually wait for some guidance from the Decision-Making Committee on which way to go.

CHAIR: I just want to draw your attention to, I think you sat for most of the days last week, the difficulty of measuring sediment thicknesses of less, you know, than possibly could be deposited beyond the Northern Disposal Area and what it actually means for conditions because there really is a detection problem. Less than 5 centimetres it's not going to be able to be done?

A. Are you talking about sediment settled on the bottom of the sea floor rather than the column?

CHAIR: Yes.

A. Okay. I heard that and I think you need to explore it with Dr Longdill.

CHAIR: We certainly will.

A. Because, to be quite honest, I'd have to rely on technical advice on that matter anyway.

CHAIR: So, given the fact that there's bottom trawling out there, what does that do to sediment plumes at the bottom?

A. I'd say that there's quite an intense sediment plume and dependent on how much weight you put on your bottom chain

of the net. I have been a commercial fisherman and I have worked on trawlers, sometimes people set the nets up to, sort of, just skim just above the surface, sometimes they dig them in quite heavily. The time I went trawling down at Novis Point we were going for flat fish, so we actually had chains that dug the trawl in and would have created quite a sediment plume, I would guess.

CHAIR: Okay. Can I just now turn to this interesting concept of appropriate training? I immediately have to think about who, what standard etc. So, you know, you've asked for some definition in the conditions, so where would we find those?

A. On the first day of the hearing I think we heard from Dr Childerhouse. He outlined some of the things that need training. He first of all pointed out, I think that the Department of Conservation has a one week or two week marine mammal observer course but he considered that was too involved and too lengthy and then pointed out here are some things you need to learn, and I think it was estimating distance at sea, some tricks or techniques for that because you've got to figure out whether a marine mammal is within 300 metres or not.

In terms of the consent conditions, there was identification of different species, for example whales and the breathing out plumes and how they can indicate different species, and then there was one about standardising of conditions of reporting at sea.

Each of those, I would guess, I would speculate, would probably be, you could assign, if you had a session of one hour, two hours, three hours, on that topic, this topic and this other topic, you've sketched out your course and then you say it's possible from there to then define the degree of experience the teacher has to have.

CHAIR: So, would you be comfortable with in-house

training?

A. I don't think it matters whether it's in-house or out-house. The important thing is external. The important thing is that the person doing the training knows what they're talking about.

CHAIR: Okay. I just want to quickly traverse the method of dredging and our need to perhaps be very clear about the type of method of the material that arrives there. Sorry, the method by which the material arrives there. Any comment?

A. Condition 10 in all of its iterations is actually specifying a particular type of dredging method to, as I understand it, significantly reduce the water content that's loaded on the barge. It's partly to do with it's a waste of money to transport water across water in a barge and partly to do with the modelling making certain assumptions about the water content about what's being dumped for that modelling exercise.

Now, in terms of condition 10, I think there's two ways you can do it. One of them is you can have, I will call it a positive approach. You state this is the type of dredging method you can use, which is a mechanical excavator, or you can take the negative and say you can't use these two methods that are currently identified in condition 10.

My understanding from Dr Longdill is that any person working in a dredging industry understands what is meant by dredging by mechanical excavator, so that there's no - from that point of view I don't think there's any problem with using those words in a consent condition.

I think the other question was about transport. Was it transporting it?

MS WRATT: Sorry, can I just ask you to delve into that a little bit more? Do you see any reason why you

couldn't have both in condition 10?

A. No.

MS WRATT: Saying it shall be by mechanical dredging and, in particular, shall exclude the two methodologies that are in there?

A. Yes, there's no reason. It certainly removes any doubt.

The second one was about the integrity of the material while it's being transported by barge?

CHAIR: Yes.

A. I am not sure that comes within your ambit.

CHAIR: No, I don't think it does, that's the point. That's all you need to go on that.

Noise and noise conditions, that's barge noise and dumping noise etc. From a planning point of view, translating that into conditions?

A. I think it would be very difficult to translate those into - well, I'll start at the beginning. It seems from the Joint Witness Statement or the Joint Statement of the whatever they were called on marine mammals because it wasn't an expert witness technically, that there is a potential adverse effect from machinery noise.

As to what you do about that, I think the first thing, you cannot really set conditions unless somebody goes out and measures what the actual machinery noise is because, otherwise, you're setting consent conditions without knowing whether they are achievable all the time, never achievable or what.

If you were going to go down the way of looking at noise conditions, I think the next step would be to get somebody out there measuring the decibel level of the typical machinery that's being used.

MR MORRISON: Can a just ask a question there, Mr Chairman?

The dredging that's currently being carried out, do you have any knowledge or experience of those noise levels of those vessels that are operating now? I mean, there's got to be some knowledge in regards to noise of vessels and that, that are currently monitoring?

A. Yeah, you might - I think you should be able to find out some sort of knowledge about that, just by the engine size, still boat and then jump over to do they talk about in terms of trawler noise, for example, but that depends on somebody finding it interesting to have studied that noise.

CHAIR: And the fact that the video showed that the engine on the self-propelled barges was high up and not in the hull?

A. Yep.

CHAIR: Can I just move to a couple of other things?

The test for the presence of radio active wastes; explain please?

A. My reading of the Exclusive Economic Zone Environment Act is, it is essentially prohibited to dump radio active waste if there's no test on it. You're just taking it on a statement of face that there's never any radio active waste anywhere that could potentially be there.

CHAIR: Do you have know of any problem for radio active waste?

A. No, I don't know of any problem. I've included that in there because of that prohibition part of the Act and just wanting to be sure that it's addressed.

CHAIR: If there's no problem, why would the DMC consider it?

A. I think the question you asked me was, do I know of any problem which is different to there is no problem.

CHAIR: We won't play games. Pulling nuclear and aerobic carbons, I did study chemistry a long time

ago, I know what they are, so tell me about that part?

A. That's a direct recommendation from Dr Longdill and you'd have to ask him.

CHAIR: Okay, I will ask him, thank you. Can I just move to the final one, from a planning sense, statistically significant?

A. I listened to the previous discussion with Mr Duffy and what exactly should be the statistical test to establish there is a real difference between - I think the point of the exercise is to establish there is a real difference or very likely to be a real difference between what is being sampled at the dumpsite versus at the control site. Whether that's by - so long as there's some sort of statistical method that all the ecologists are happy would give that result, I don't think it matters whether it's statistical. You know, it's up to them to figure out what the statistical significance is and what the statistical tests to apply are.

But just having a statement that just says "measure to a statistical significance", you say, well, which one?

CHAIR: That was my reaction to, of course. I think I've worked through everything. Obviously, with the iterations we're going to come back to this. Commissioner Wratt?

MS WRATT: No, nothing more from me.

MR MORRISON: Nothing from me.

CHAIR: Questions from the Applicant?

MR SLYFIELD: I am not inclined to ask any questions myself, Sir, on the same basis that there are relatively few questions coming from the DMC and that is, as I understand it, there will almost certainly be another iteration of conditions that Mr Riddell has some input into and so, I

acknowledge that there's not going to be another opportunity for me to put questions to Mr Riddell but I am rather putting my faith in the subsequent process to shape things up for you, rather than any questioning I can put to him at this point.

CHAIR: Okay, thank you. Mr Riddell, thank you very much. Excellent.

MS ARTHUR: That's the Department's case except for Dr Longdill which will be this afternoon by way of Skype.

CHAIR: So, people, it's 10.35. We are going to break for morning tea for 15 minutes. There is tea, coffee etc. out here for everyone, I think, isn't there?

MS IOANE: Yes, it's free.

MS ARTHUR: I am not trying to be difficult, the next people -

MS HEWETT: We are trying to ask them to come earlier before the lunch break.

CHAIR: We might be adjourned until after lunch but we will play that by ear. I will get the hearings administrator to keep us informed. We stand adjourned until further notice, thank you. Don't leave the environment.

Hearing adjourned from 10.37 a.m. until 11.12 a.m.

CHAIR: We are reconvened and we have representatives of the Great Barrier Local Board. Would you like to come up and sit up here, please.

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IZZY FORDHAM

EVIDENCE

CHAIR: Ms Fordham, I will quickly introduce the Board. I have already done that, I'm Mark Farnsworth, I am the DMC Chair, Gillian Wratt on this side and Basil Morrison on that side.

MS FORDHAM: Good morning.

CHAIR: We are here to listen to you.

MS FORDHAM: Thank you very much, Mr Chairman. Of course, I was scheduled for this afternoon but here I am in the morning.

CHAIR: Thank you for that.

MS FORDHAM: That's all right. I'll just alter my greetings. Good morning and thank you for the opportunity to address you today. I shall take it that our written statement has been read, and I will comment on some aspects of that submission.

(Ms Fordham reads document headed, "Coastal Resources Limited Marine Dumping Consent: Verbal Presentation on Behalf of the Aotea Great Barrier Local Board representing the Community of Aotea Great Barrier Island Monday 03rd December 2018")

IZZY FORDHAM - QUESTIONED BY COMMITTEE MEMBERS

CHAIR: Thank you for that. The reality is, your key concern is a generic one?

A. Yes.

CHAIR: That ocean dumping is simply not acceptable?

A. Correct.

CHAIR: With an overlay of perhaps two specific concerns; the one of biosecurity and pollution?

A. Yes.

CHAIR: Have you looked at the evidence that we have heard over the last three days?

A. I have looked at it.

CHAIR: So, what specifically in that evidence would cause you concern?

A. Still the potential of pollutants and biosecurity risks.

CHAIR: Let's differentiate them. The pollutants, how do you arrive at a position where you think that the shores of Great Barrier could be threatened?

A. Mr Chair, I believe it's a case of how can't I not believe that the potential is there? As I said earlier, if we're erring on that side of caution, surely that is what we should be doing as responsible people?

MS WRATT: Can I just explore that just a little bit further?

A. Sure.

MS WRATT: You comment in your evidence that you're not going to comment on the science aspect of that application?

A. No.

MS WRATT: But I would comment that since the original application came in, the EPA and the DMC, and in most cases the EPA on our behalf, have actually sought a lot more analysis of the original application and the evidence?

A. Yes.

MS WRATT: Including an independent review from a marine ecology perspective and an oceanography perspective in terms of potential for impact, and the message that we are consistently getting, is that it is very unlikely that there would be any more than a

negligible impact, either from the sediment or from - from sedimentation, from a sediment plume or impact on the benthic biota or the pelagic organisms. Does that make any difference to your view?

A. It is the negligible word in there.

MS WRATT: If you look at the sediment plume, we are being told that it's actually not possible to detect, or it's unlikely that we would ever be able to detect the sediment, the sediment in the sea, in the water, from the background, even within the NDA but certainly at the border. And then when you start looking at impacts on Great Barrier Island coast, for example, which I agree is something that potentially is of concern.

A. Yes.

MS WRATT: But how would you differentiate any impact from the activity happening at this site from, for example, bottom trawling activities that happen in that vicinity as well? I guess, I'm just, you know -

A. Yes.

MS WRATT: We know we have to take a cautioned approach.

A. Yes, I'm sure.

MS WRATT: And we wouldn't be here if we weren't concerned and wanting to look after our marine environment?

A. Yes.

MS WRATT: We do have to make a decision assessing the future risks and possibilities. What we've been doing is trying to get the best evidence we can, the best scientific examination we can of the potential impacts. So, to come back to my question, does that make any difference to your

position?

A. I think the thing which is of major concern is the sheer volume and the increase in the volume of what we're seeing today, and that is the thing that, sort of, sparked everyone at home, is how come and why.

MS WRATT: We are looking at conditions that will measure that and it's not correct to actually say that there is not any ability to review and make changes to the conditions.

A. Okay.

MS WRATT: Because the EEZ Act does actually have clauses within it which enable the EPA to review if there is evidence of impact that wasn't assessed. We have to operate within the law obviously and there is some constraints around what's called adaptive management but there are review conditions. There is a review clause within the Act.

A. That's heartening, yeah. As I said before, it is to do with the volume, the huge increase in volume, and over another 35 years is the big one for us.

MS WRATT: Okay, thank you.

MR MORRISON: Thank you for your submission. I think the Chairman summed it up very concisely, in that there are, I don't want to use the word 'philosophical' concerns but there are some big picture concerns that your community in its primary submission and today sets out a position of a community. But we have to, it's been said, look at the scientific evidence for us to make a decision and not on, can I use that local government term, 'wellness' that you see of your community.

A. Yes.

MR MORRISON: So, that's the difficult task we've got.

The Chairman has already raised and I was going to raise the issue of we have had presented to us evidence of the trawling that takes place in and around Aotea which is substantial, it surprised me. I just wondered how the effects of that are playing out on your community as you see them now?

A. At the moment -

BASIL MORRISON: Other than the fishing part but from the serving of the sea bottom.

A. The damage that's done, exactly. It is of concern to us and we are yet to undergo any marine protection around our shores. We are waiting for the iwi settlement to sort itself out. There been a little bit at odds there amongst themselves. So, as soon as that has been sorted and we can have iwi round the table, then we will be addressing some of those further marine protection things that includes the damage that trawling is doing to our harbours.

MR MORRISON: Do you actually see any physical evidence that that trawling is having? You know, is it washing up muddy water on the beach? How is it -

A. Only through some of the divers and fishermen that see the damage that's done.

MR MORRISON: Okay, thank you.

CHAIR: Just before you go, I just really want to point you to two elements of your primary evidence that fascinated me. And that was the one where you made the statement that dumping activity does not have to take place at a specific location, the choice of location is not predetermined. The NDA is a defined area.

A. Okay.

CHAIR: It is very specific, co-ordinators are set. So, this is not random disposal. The site we're

looking at is clearly defined, so it's one location.

The other one was another interesting one where you said, "The applicant has no social licence to proceed". We are dictated by the EEZ. This DMC work has - it needs to be answered, with respect.

A. Absolutely.

CHAIR: And our role is very clear. We've got the legislation framework to work in. Okay?

A. Yeah, we do see it as a social licence because it is, in the end, polluting our oceans and that's how we see it.

CHAIR: Thank you, and a sincere thanks for coming early, that's really helped us.

A. You're lucky the plane was on time.

CHAIR: Thanks for that.

A. Thank you for your time.

CHAIR: What we're going to do is we are all going to come back here at 1.30. We will not muck around, we'll come back at 1.30 so everyone knows what time it is, rather than just mucking around. Okay? So, we stand adjourned until 1.30. Thank you very much.

Hearing adjourned from 11.30 a.m. until 1.30 p.m.

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NICOLA MACDONALD

MOOK HOHNECK

BRUCE DAVIES

EVIDENCE

CHAIR: Kia ora tatou, people. We are reconvened and welcome to the next submitters, there's three of you. Just by way of introductions, so that you're familiar with who we are, I'm Mark Farnsworth, I am the DMC Chair. I will get my other two Panel members to introduce themselves, please.

MS WRATT: Kia ora koutou, I am Gillian Wratt, I am based in Nelson and I am an EPA Board member on the DMC.

MR MORRISON: Kia ora, I'm Basil Morrison, I'm from Paeroa, Hauraki.

CHAIR: We are in your hands.

(Opening address and waiata in Te Reo Maori)

MS MacDONALD: Kia ora koutou, my name is Nicola MacDonald. I am the kaikorero for Ngati Rehua of Aotea. To my right, I'm presenting with members of my Te Taumata Kaumaatua, Mook Hohneck and my kaumaatua Bruce Davies who has also been a Chairperson of the Ngati Rehua - Ngatiwai ki Aotea Trust, which is the authorised and mandated entity responsible for all matters concerning Ngati Rehua - Ngatiwai ki Aotea, inclusive of Aotea, Great Barrier Island, Hauturu-o-Toi, Rakitu and some 52 rocky outcrops and islands in our water space.

Thank you to the EPA for allowing us to come to present and to talk to you around our submission

and the application for a marine dumping consent to dump dredge materials at a site, a deep sea site east of Great Barrier Island.

First, I'd like to introduce who Ngati Rehua are. Ngati Rehua of Aotea, we are a hapu and iwi. We are the mana whenua, mana moana and tangata whenua. We are a coastal sea going people and we've exclusively occupied Aotea (Great Barrier Island), Hauturu (Little Barrier), the Pokohinu (also known as the Mokohinau) and our outlying islands and rocky outcrops.

We take our name from our ancestor Rehua who came from Kawhia and was born in the Mahurangi north of Auckland around the end of the 17th century.

This application has come as no surprise to Ngati Rehua. We are aware of the current operations that have been held in our water space but what we want to express to the EPA is that this is not about a deep sea site east of Great Barrier Island. It's actually about a significant site, a cultural site to Ngati Rehua people and to our ancestors.

We have expressed that we oppose the application on the basis of the cultural impacts that face Ngati Rehua itself. And I'm going to express what those cultural impacts are and then we will end up - we will also talk about areas that we require more information.

So, first of all, the deep sea site east of Great Barrier Island. For Ngati Rehua, we are a coastal sea going people, that site is not - it can be referred to and there's coordinates that refer to this, for our people, that site is Tai-tuki-mata. It is all around Aotea and the islands that occupy the tides, the channels, our people have names and cultural names and sites for all of that water body. And for this particular site, it has a long, long history and

association to Rehua, our tipuna himself. Tai-tuki-mata meaning the rising waters, the head waters. And those waters refer to our Tipuna, Tiri, who came in on the waka Aotea and came and entered into our water space. Turi is the Tipuna that Ngati Rehua directly descend from and he is the ancestor that named our island Aotea.

And so, the water space that we're talking about has such a significance to us because prior to that, there was no name. And so, this particular application looks at the dumping of dredge materials into that cultural water space and on that, we are concerned around what the level of operations, the risk and the impact that will take into that body of water which is Tai-tuki-mata.

We also wanted to bring to the Panel's attention, that each of the water spaces around the Great Barrier has its own whakapapa. They each connect to one another. For us, for Ngati Rehua, the cultural significance of the operations requires us to consider what else will be at risk.

Ngati Rehua makes its livelihood and looks after its family through the fishing, through the seas, for providing kaimoana to our own whanau at home. We are the only iwi that actually live on that Great Barrier Island. We have two marae on our island. We have urupa, cemeteries on our land, we have waihitapu. All of our people and our children are raised to understand the nature of the sea and have that interconnected relationship.

So, for us, the impacts on an activity that will increase in size will absolutely have some risk, there will absolutely be some negative impacts that we, as the manawhenua, will need to consider and how do we protect and ensure the cultural heritage and significance of Tai-tuki-mata is protected. It is on that, that Ngati

Rehua opposes the application on the cultural side.

We then want to move to - in the lead-up to the hearings, we want to raise this to your attention, there have been many, many scientific and technical reports and, from our perspective, it has been quite overwhelming and we've been inundated with understanding what those science reports actually mean.

Our position is to take a step back and to look at understanding, translating what is the technical report saying to us? Because right now, we are at a loss as to all of those components and we don't think it's fair for us to come outright and say there should be an opposition here when we actually don't quite understand the science and the technical reports.

So, we want to raise that to your attention, that Ngati Rehua are going to investigate and look at ways in which we can bring our own planners in, understanding that we are pre-Treaty settlement. So, understanding that there is going to be a significant cost for Ngati Rehua people to bring in the level of expertise that other companies and organisations have but, on that basis, we cannot fully outright oppose an application if we don't truly understand the science of it and the technical reports.

Ngati Rehua also want to convey to the Panel that we have had a meeting with Simon Male over the weekend, and so I want to confirm that our Trust has met and our taumata and we have discussed the nature of our relationship, the engagement, we have discussed exactly what does the level of operations and how might we, as Ngati Rehua people, how might we move forward in a way that ensures the sustainability of Tai-tuki-mata.

At this stage, our taumata are pleased with the discussions that we have had and we wish to indicate that

we are seeking further discussions around this application.

Lastly, I do want to express to the EPA that Ngati Rehua has its own hapu management plan. All of our hapu management plan describes the sensitive and significant bodies of water, of which this particular area, which we refer to as Tai-tuki-mata, is referred to.

The water body, the ocean space around our island, we know this add Te Moana-nui or Taiao. There will be other iwi that have other names and Katipai Tira, that is their name that they have. But for Ngati Rehua who have occupied our islands and know these water spaces inside out, the body of water is at the Te Moana-nui or Taiao. The deep sea site east of Great Barrier Island is Tai-tuki-mata, which refers to Turi, the ancestor as he brought his waka Aotea into the bay of Rangitawhiri, also known today as Tryphena.

And it relates to the beating of the waters against the waka, it relates to the celebration of a journey long held from the islands into Aotea itself. And from there, Ngati Rehua takes our name.

So, I want to thank the EPA for hearing our submission and confirm the position from Ngati Rehua, is that the impact in our cultural water space, yes, we have a responsibility as kaitiaki to protect that water space. In that regard, we oppose.

In relation to the other components of the application, we remain neutral until we have had an opportunity to understand the science and the technical reports and then we will make a final decision as to where we, as the Ngati Rehua people, sit on this application.

MR HOHNECK: Kia ora tatou. I think it's fair to say Nicola has given the cultural backdrop, I guess, to

the origins of Ngati Rehua, where we sit from that perspective. You are probably aware there are a number of technical reports and probably over the last five or six years there's a whole heap of reports that have been done on Te Moana-nui or Taiao. Although we don't toss them aside and say that they're not relevant or whatever, a lot of it will be relevant but let's make sure that you as Commissioners actually look at that and see how it's relevant to Ngati Rehua and not just the whole collective of iwi from all around the motu that might have some footprint or association with at the Te Moana-nui or Taiao.

As iwi, the whenua in the water is one, so we don't see it as any split. So, Aotea and Te Moana-nui or Taiao are all one, in our view, so there's no demarcation of splitting us up here. So, our cultural korero and our own well-being connects us to the whole lot as one. So, whatever reports end up coming out or that have been done in the past or that you refer to or whatever, all we ask is we will consider those in the same light as yourself and we certainly have our view. Kia ora tatou.

CHAIR: Kia ora.

MR MORRISON: Kia ora.

MS MacDONALD: That concludes our submission, unless you have any questions for us.

NICOLA MacDONALD

MOOK HOHNECK

BRUCE DAVIES

QUESTIONED BY COMMITTEE MEMBERS

CHAIR: I am sure the Panel has one or two questions but

let's just deal with a process question first. In terms of you understanding the science, how long?

MS MacDONALD: We've already begun our investigations with bringing in some marine planners to assist the Trust and we have had some good discussions so far. I don't expect that it will take very long at all, as there are other planners out in this space that have been watching this particular application. They have indicated to us it would only be a couple of weeks as most.

It's really, I need to ensure that Ngati Rehua people have a level of understanding and confidence and know exactly what this application means for us back home.

CHAIR: There will be some interesting logistics if we move down that way. The reality is, this hearing has been convened to hear the matters, the reports have been out there, they've been going on for months now, months, and -

MR HOHNECK: Well -

CHAIR: Just wait. And, you know, we've got to factor in that but we hear, and cultural matters are really important to this DMC. So, you know, don't think it's not because under the Act we've got, as you know, heavy responsibilities and we will do that diligently.

Basil, have you got some questions, please?

MR MORRISON: Yes. Kia ora.

MR HOHNECK: Can I answer to your question first, please?

CHAIR: Mine wasn't a question, it was a statement.

MR HOHNECK: Yeah, I understand that but it sounded like a question to me.

We are quite up to the play actually with the

scientific stuff, some of us. I think the point is the relevance that your conversation was that this is not, Ngati Rehua is not just putting a cultural view out here. We are putting a cultural view and a scientific view. When our fishermen go out and they drop the line over, they want to know what's on the bottom. Science and facts should tell us. All we need to make sure is that whoever is putting the facts to the science is correct. We quite understand that, we are literate.

MR MORRISON: Kia ora, thanks Mook. Yes, absolutely understand that and that's why we're here, to look at the science. I understand, of course, or pretty much of the cultural issues from where I've come from but it's the science parts of it and the technical stuff that is of particular interest to us.

Now, can you help me, you had a hui with CRL on the weekend?

MS MacDONALD: That's correct.

MR MORRISON: Can you tell me how that went in regards to the information that you required?

MS MacDONALD: Well, the meeting went very well. Simon is not a stranger to Ngati Rehua. We have known Simon and his family for several generations actually, so, you know, we're not meeting with somebody that we don't know.

And there's always been, you know, my kaumatua Bruce Davies was the former Chair when the first consent application was granted during his time as our Chairman, so Ngati Rehua people have always had a level of relationship with Simon and his family. So, on that aspect, the meeting was generally quite positive.

We are looking at what does this actually mean for Ngati Rehua who live at home, who fish the waters regularly, who know Tai-tuki-mata?

And CRL conveyed to us, we believe, a sincere willingness to work with us and to strengthen our relationship going forward and we're very keen to do that.

As I say, because we've known Simon and his family for several generations, the issue that both Simon, CRL and ourselves face is the size of this consent application and then what are the social, cultural and environmental impacts that will directly affect the most affected which is going to be Ngati Rehua people because Tai-tuki-mata is right within our eyeshot and we know exactly which marine animals go up and down that space.

MR MORRISON: Okay, thank you. Just a follow on from that, so in your discussions with them, the provision of science and technical information and that sort of stuff that they have, they will make available to you to help you in your deliberations?

MS MacDONALD: Yes, that is correct.

MR MORRISON: Outside of this forum as such?

MS MacDONALD: Yes, that is correct.

MS WRATT: Thank you. Thank you for your presentation. I guess, in terms of process from here, as you will be aware, we as the DMC have to go away from this hearing and look at all the evidence that's been put in front of us and the information that's come back to us and the scientific reviews that have been done of the material that's been presented by the applicant, by CRL.

Certainly, the science is indicating that the physical impact from the sedimentation, from the sediment plume or the sedimentation, is very

unlikely to spread beyond the immediate area of the NDA, even with the increased amount of material that's being dumped.

So, I guess, from the DMC perspective, it would be useful to get any feedback from you, and any comment from you, in terms of if you have any concerns around the information that's coming back to us, the scientific information and views that are coming back to us, where you would have a different view so that we can take that into consideration.

MR HOHNECK: I think the best way to answer that is no, you're quite right and the only view that we have is to make sure that we qualify that view. So, that's what we're doing.

MS WRATT: Yep. And my request, I suppose, would be that the sooner we can hear that the better because we are, as I'm sure you are aware, operating under time constraints and transparency of process as well.

MR HOHNECK: Absolutely. Kia ora.

MS MacDONALD: I think the main thing we want to convey to you as our Commissioners, is that Ngati Rehua view Aotea as it has its own life force, it has it's own mauri but Aotea is not just the whenua. It's not just the land itself. Aotea also spreads and encompasses all of the waters that surround it.

You know, so, we've had a look at the sedimentation issue but notwithstanding that, the mauri, the life force of the water will be impacted and affected.

And so, this is why we reiterate there are cultural impacts for Ngati Rehua ourselves. We are keen to follow-up and seek better understanding around the science and, as my kaumatua have said,

we will convey at the earliest opportunity our feedback to you.

MR MORRISON: Kia ora.

MS WRATT: Thank you.

CHAIR: That's all we can ask. Ms Arthur, any questions, Sir?

MS ARTHUR: No.

CHAIR: Applicant?

MR SLYFIELD: I have no questions.

CHAIR: I am just going to have a quick talk with these people just very quickly. What we're going to do, what we have to decide, you've asked for more time to look at it, I need to - I'm only the Chair, I've got to actually discuss with these two what we do to that request. I presume you're formally asking the DMC for time to make a further submission? That's what you're doing?

MS MacDONALD: That's what we're asking, and I just want to convey to yourselves as Commissioners, we're pre-Treaty settlement. We are very, you know, we have very limited resource and means but if I was to take the three of you out on a boat, I could get my kaumatua here and those sitting at the back, and they could take you to Tai-tuki-mata blindfolded. We know this sea. We know our connections to it.

What we don't know is the science and is the impact of this actual operation, you know. If I was to say to you and say to my whanau, "Where is the best place to get the Red Eye Hapuka?" They could tell you exactly where to go. If I was to say to you, "Where does the Tuhora migrate when it comes up?" It comes up Tai-tuki-mata, it comes up through that channel.

So, Ngati Rehua can provide a depth and a history of

information and knowledge that exceeds well beyond this application but what we are struggling with is the body of information that is about the science and we must, as kaitiaki, ensure that we are thoughtful and that we are clear in our decisions as to whether this is a full opposition to this application or not. Right now, we oppose the cultural impacts but we are yet to make a final decision as to everything else.

MR MORRISON: Thank you for that. I think I got from you that CRL are prepared to work with you?

MS MacDONALD: Yes.

MR MORRISON: Can I expand that a little bit further because of the legislative timeframes we've got, and you are well aware of that, so that it could well be over the next couple of weeks that CRL will provide you with the necessary comfort?

MS MacDONALD: Yes.

MR MORRISON: Of the science, my emphasis, to bring you to a view?

MS MacDONALD: Yes, that is correct.

MR MORRISON: That you could express to us?

MS MacDONALD: Yes.

CHAIR: Everyone suffers from time limits. Okay.

MS WRATT: Can I just ask one more question, please?

CHAIR: Yes.

MS WRATT: You commented on the knowledge that your people have of the resources of the marine environment. We haven't heard anything that specifically says that there is anything, whilst appreciating the cultural value and the importance of the marine environment, and I guess I can comment that's not only a factor for Maori. I mean, others of us in New Zealand also have cultural values that we associate with our marine

environment. But if there is anything special about this area, one of the things that we have to take into account is impacts on fishing, impacts on rare and endangered species, and we are not hearing anything from anybody as yet, and in fact we have had quite the opposite. What we have heard is there are no special features of this area, of the NDA, of the small area of the NDA, that mean it is more unique than any other part of this marine environment.

MR HOHNECK: We believe all of the Moana is special. We don't believe, we don't cut it out at a section one acre where we're going to dump some disposal paru, if you like. We believe all of the ocean is special and that's why we actually don't separate it.

I'd be really keen, what you're saying is you haven't had any information whatsoever scientifically that says there's anything specific there. I'd be really keen to have a talk to you on where, so we can be specific within that area, whether it's a hectare, whatever it is.

MS WRATT: That information is all out there.

MR HOHNECK: No, the information that is out there is quite generic. It doesn't actually say within this space this is what's there. It says it's not known to us that the whales don't go up and down here. That's what that says. If you can sit there as a Commissioner and tell me that within that specific site that we know this is our scientific information, I'll applaud you.

MS WRATT: All I can say is on the basis of the information that we have in front of us, which is the same as the information that you have.

MR HOHNECK: Same information we've got, that's what we're saying, it's quite generic. That's what makes a good fishermen, he actually knows where the fish are so he can go and catch it and he knows it specifically by hectare or by acre on that site, on that fishing ground, that's what we're saying. Kia ora.

MS WRATT: Thank you.

CHAIR: I do have to traverse an area, it's called existing users. And we need probative evidence on that. You've made it very clear to us the cultural significance of the area, really clear, so don't get me wrong. Is there any other activities that you can draw our attention to you which underscores that in a physical sense?

MS MacDONALD: Well, there is. Every year Ngati Rehua people, one of the few people in the whole of Tai Tokerau, that's Northland, including Tamaki Auckland, that have a customary permit and exercise that. We've exercised that for generations and generations around the customary harvesting of manu oi, which is the Muttonbird which is found on the Mokohino. And we would be one of the very few iwi groups that have continued that customary practice. Pre-Treaty of Waitangi, it's part of our cultural upbringing, it's part of the way and the customs in which we, as Ngati Rehua, engage ourselves.

Now, the underscoring of that is every year Ngati Rehua has a permit to do so. We know when the manu oi are ready because the Red Eye Hapuka signals the harvesting time by coming up through Tai-tuki-mata, that body of water. Our people go out. When they harvest the Red Eye Hapuka and they extract the oils, they know it's time to go out to harvest in the Mokohino. Everything is

interconnected.

As well as that - and that is something that we have expressed in our Maka, we have made a Maka claim, a Maka submission. We express our connection to the species that are known by Ngati Rehua people, all of which can be found, you know, through our Maka application and provide further information for you. And it is quite specific information, in terms of how Ngati Rehua fishes, what impact that will be. And those are the things that if there was a change in our fishery in Tai-tuki-mata, then there will be a change in the way in which we harvest the manu oi. And if there is a change in the manu oi, then we are the last iwi in Tai Tokerau that harvests in this way.

CHAIR: Okay, thank you. We will just briefly adjourn because we take on board the submission that they want extra time to make it. Do you want to make a submission on that before us? You're fine, you're comfortable?

MR SLYFIELD: Yes.

CHAIR: Okay. We will quickly withdraw for a minute, thank you.

Hearing adjourned from 2.02 p.m. until 2.09 p.m.

CHAIR: We had an interesting discussion. What we're going to do, subject to legal advice on our behalf, is we are going to give you until Friday week to respond.

MS MacDONALD: Thank you.

CHAIR: And then that will be put on the website for all parties to look at and people then have five days to give their feedback. This will not preclude the applicant from presenting closings to us now

because a large part of this stuff has been traversed but your information will be factored into our decision.

Any comment or submissions from anyone?

MS ARTHUR: No.

CHAIR: Ms Arthur, you will be in a position to give your closing comments tomorrow or whenever we do?

MS ARTHUR: Yes.

CHAIR: Mr Slyfield?

MR SLYFIELD: Yes.

CHAIR: Questions from you?

MS MacDONALD: No questions from us but I would like to thank the Commissioners and thank EPA for providing Ngati Rehua with this grace of time and I will guarantee to you on behalf of our taumata and our people that we will come back accordingly in the timeframes that you have specified and we thank you once again for your kind understanding.

CHAIR: You need to take on board that we value tangata whenua's viewpoint, it is important to us.

MS MacDONALD: Thank you, thank you very much.

CHAIR: Kia ora. Ms Ngamane?

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LEANNE NGAMANE

EVIDENCE

CHAIR: Welcome, Ms Ngamane. You heard the introductions before, so there's no need for the Panel to introduce themselves. We are in your hands, thank you.

MS NGAMANE: (Introduction in Te Reo Maori). Kia ora to everyone. I'm going to try and be brief. I've just got a few scribbled talking points. You've got my submission as it is and I am here on behalf of the Ngati Tamatera Treaty Settlement Trust. We oppose this application and we oppose it on cultural grounds.

I just wanted to do a little bit of context. Our relationship with this particular area comes from the fact that our people live and resided both in the southern portion of Aotea, Great Barrier, at Rangitawhiri, particular hapu Te Matewaru hapu of Ngati Tamatera resided there and of course at the top of the Coromandel Peninsula at Moiho.

Cuvier, another motu that's close to the application area, is another very significant island for Ngati Tamatera, Te Arawa and Marutuahu generally. That's why we felt it was important to present a view here in relation to this application.

As Ngati Tamatera, we've been involved in a whole lot of things relating to the Hauraki Gulf generally as the Hauraki Gulf Marine Act relates.

There was a lot of actions that Hauraki iwi did in

the past in previous matters concerning dredging in the Inner Hauraki Gulf. Tiri Tiri Matangi with another company, we were at the forefront of opposing that in terms of the 12 iwi of Hauraki because of the significance of Te Kapa Moana and particularly with the application area, as is referred by some iwi in Hauraki and Te Tai Tamahine and by Ngati Tamatera and other iwi within Hauraki as Te Tai Tamawhaine.

So, we've had a long history in protecting that body of water, including the area that the application is at, whether or not it's outside or inside a jurisdictional boundary.

I was closely involved in the establishment of the Hauraki Gulf Marine Park Act on behalf of my iwi and one of the important matters that we did when we were working with the government around that Act was to ensure that the preamble was put in place. The preamble of the Hauraki Gulf Marine Park Act in some way, shape or form denotes the context of our relationship that kind of took the boundaries away that this was a relationship whether it was the Hauraki Gulf kind of cut off here and moved into the - well, those things didn't matter to us.

At the time, that preamble was in some respects a compromise to kind of denote a relationship that was more holistic than that in relation to the Gulf.

I've also recently been involved with other hats in the Hauraki Gulf Marine Spatial Plan and that, I only make a point with that, in that there is a greater expectation about how we treat with our Moana now that perhaps years ago may have been acceptable. There's higher expectations now and there's some really, particularly as a community around the Hauraki Gulf, wanting some transformative change over matters, whether that be commercial fishing being closed off, whether that

be a need for better structures to recognise Maori's relationship with the Moana etc. I just make that point because of that.

So, at a really first based principle, we don't like the idea of dredgings and materials coming from one part of the Inner Gulf where lots of people live, of course, and being dumped on our backyard over there. We don't like that. That's almost like a marine NIMBY, like in our view.

So, there's a principle there that we just don't think is right, just because you can't see everything that is being dumped there, doesn't mean it's not having an impact. And I accept I'm not a scientist, I am not here to talk to the science, it is not what I'm here for.

From a cultural point of view, it's abhorrent to be putting that paru into our Moana. We fish around that area. We have our livelihood around that area.

I was in Harataunga, Kennedy Bay, only this weekend talking to six or seven fishermen that have been born and bred around that area and who are just concerned overall with the state of the fishery and the ecosystems and the kaimoana that's being lost. And I am not saying because of this application. It is an incremental thing but, you know, our people notice that over time. So, we don't want to be Auckland's rubbish dump essentially.

And one other matter I do want to raise that is particularly, I think, relevant. It is a migration pathway for whales. It is. Okay? Repanga, Cuvier Island, that is an island owned by the Crown, administered by the Department as a nature reserve. Recently, we signed in August - we are moving through our ratification process for the Hauraki settlements. We have both the collective settlement in terms of the 12 iwi and then we have our individual iwi settlements. So,

for Ngati Tamatera and a number of other Hauraki iwi who have associations with Repanga, there is an overlay classification that is going over Cuvier Island, over Repanga, it is a Treaty settlement instrument.

Aligned to that is a statement of values that each of the iwi with interests on Repanga have produced or are producing. I'm happy to provide you with Ngati Tamatera's statement of values because it does relate to the application area too.

And so, there's an overlay classification, a statement of values and a set of protection principles that both the Department and the iwi with interests on Repanga, their relationship will be guided going forward in respect to that and that will include a much more effective role in the development of management plans for the island and our interaction with the island that's been lost over time in this part of our Treaty settlement.

The application area was the pathway of the Tainui and Te Arawa waka. The Tainui and Te Arawa waka, there's some stories around that, follow the pathway of the whales. We have a story connected to Repanga, where before they settled, before they moved proper into Aotea, they stopped at Cuvier Island, they stopped at Repanga, and they conducted iru whenua rights.

There's also a story connected to Tainui, and Te Arawa and I can talk to that because Ngati Tamatera descend from both, that they left the two sacred birds that travelled from Waiki on Repanga, Takariko and Te Mumuhau. And with a series of invocations, they were there to keep a lasting vigil on the island and on the surrounding marine area.

What I'm saying is, I don't know what the science says about marine mammals but we know it is a migration

pathway for the whales because it is the same migration pathway our waka came to New Zealand in from Hawaiki.

So, I don't know, if I thought about an important track on land that was our tipuna's track or where our ancestors walked, you wouldn't be allowing a whole lot of paru being put in the middle of it. You'd set it aside in order to recognise our relationship.

So, for me, there's no distinction between the land or the sea, you know, put paru in that important pathway.

I think that's really all I have to say.

LIANE NGAMANE - QUESTIONED BY COMMITTEE MEMBERS

CHAIR: Okay, good one, thank you. You may have heard the question I asked the last submitters, and that's about helping us define existing use rights or existing users under the EEZ legislation. Are there any Treaty settlements currently in place which give some indication about the use of the area or the potential use of the area?

A. Not that I am aware of but only inasmuch as because our harbour and marine space negotiations are still outstanding, they're to come.

CHAIR: Is the iwi involved in any commercial operations that utilise this area?

A. I don't personally know whether Ngati Tamatera is. Like, I am aware as Hauraki iwi, there is a fisheries and aquaculture settlement that the Pare Hauraki Fishing Trust have interest in, in relation to commercial fishing. I don't personally know whether commercial fishing occurs in that area.

CHAIR: I won't traverse that area then.

A. I have no idea.

CHAIR: Thank you.

MR MORRISON: Kia ora, Liane. Liane, we've heard evidence in regards to what may well be an offer of CRL in regards to a technical group, it may well be that they will suggest that, also of an iwi liaison forum of some structure and that would be something the company would do.

If they did, would you see Tamatera being involved in that?

A. Well, I mean, ideally the application doesn't go ahead.

MR MORRISON: Sorry, either the technical one or the -

A. I mean, we're kaitiaki of that area. So, whether we want to or not, we have to.

MR MORRISON: Okay.

A. And, you know, we would certainly be wanting to, from what we know, at least what we know of the cultural significance of the area and its interaction with the Tuhora, yeah, we certainly would want to be part of any monitoring because I'm not quite sure much goes on at the moment.

MR MORRISON: Okay, thank you.

CHAIR: Department of Conservation?

MS ARTHUR: No, Sir.

CHAIR: The applicant?

MR SLYFIELD: No questions, thank you.

CHAIR: Thank you very much.

MR MORRISON: And apologies for the delays.

CHAIR: Now we have Nature By Nature.

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LUCY TUKUA

EVIDENCE

CHAIR: Welcome. Just a quick introduction, I think you've heard who we are, so if you could introduce yourself, please. Kia ora.

MS TUKUA: Yeah, kia ora. Tena koutou katoa. (Opening address in Te Reo Maori).

Tikapa is my ancestor. I grew up on her shores. The home of our eponymous ancestor, Marutuahu. Tainui is my ancestral canoe that navigated through the waters of Tikapa. Ngati Paoa and Ngati Whanaunga are both my iwi. I am a kaitiaki for Tikapa Moana and Tamaki Makaurau. It is my indebted duty to be present. I breathe, I am alive.

I just want to acknowledge Tamaki Makaurau, tamaki of 100 lovers and now it's over 1 million and whatever. I also acknowledge this place, the fact that we are sitting on the Riparian Margins of the Waihauru that traversed down Queen Street.

So, I'm not familiar to processes like this. I was involved with the Marine Spatial Plan on the Stakeholder Working Group and as part of the footage for that particular kaupapa, my comment was that we need to be a voice for the voiceless.

So, when I first learnt about the application for a Marine Dumping Consent to annually dump dredge material east of Great Barrier Island, I physically became overwhelmed with grief. I knew that there was an existing dumpsite, only because I had seen it in proposed - in a tender document 3 years earlier and I knew then

that this was going to come back to haunt me. My intuition was right.

I fear for the whales, the arawairua, the pathways, that in particular Ngati Tamatera and Ngati Rehua have talked about. I acknowledge the fact that you are all privileged to have heard that korero, that deep korero that only they can tell. That intellectual cultural property.

I possess no formal qualifications, I am no scientist, I am no lawyer and neither am I here as a mandated representative for my iwi. I am a descendant of my ancestors now long passed who left their korero in the rivers, the mountains, the flora and the fauna and in the harbours of Tamaki Makaurau me nga poito o Taramainuku, the islands of the Gulf, the floats on the nets of Taramainuku. My people possess an unsevered association to these lands and seas and our mana motuhaketanga will endure forever.

In more than recent times my tipuna signed Te Tiriti o Waitangi on 4 March 1840 at Orohe, just over here in Karaka Bay. My passion may be strong but my whakapapa, my genealogical ties to Tikapa is stronger. Ka whawhai tonu matou mo Tikapa me nga uri o Tangaroa, we will fight on for Tikapa and the descendents of Tangaroa. Tikapa, she sustains us and we are obliged to tiaki, to manaaki her for the benefit of current and future generations. A pataka to be self-regenerating as a kai cupboard of this nature can be. To be harvested and replenished. Tauutuutu a value of reciprocity.

My initial submission focused on the Sea Change Tai Timu Tai Pari Marine Spatial Plan which clearly sought to restore the health and well-being of the Hauraki Gulf with recommendations for improving its Maori, its life force and potential. I wondered whether this application

was going to do that.

As one of the four mana whenua representatives on the Stakeholder Working Group mandated on behalf of 25 iwi that have an association with the whole of the Gulf and also the co-Chair of the Matauranga Maori Reference Group, it was never going to be an easy journey. Although a high level aspirational plan, the time and investment to develop this plan should not be disregarded, with Fisheries Minister Stewart Nash recently saying that, "The Sea Change Plan has been the focus of significant effort by many affected groups for several years". There was a confluence of many, many contributors.

The engagement over four years is indicative of the substantial ground swell that was generated and called for a wide range of engagement with Treaty partners and stakeholders, such as recreational and commercial fishing, farming, aquaculture, infrastructure and environmentalists to develop a first of its kind Marine Spatial Plan in New Zealand. We had to look outside of New Zealand to see whether there were any examples of quite strong indigenous engagement in similar plans. We only found one.

The clear intent of the plan is to improve the health of the Gulf for future generations, with proposals covering a range of issues, including marine protection, fisheries, habitat restoration, and opportunities for regional economic development for which this application goes a little way to support.

On the 22nd of November, Conservation Minister Sage and Fisheries Minister Nash announced that a Ministerial Advisory Committee will be established to play a key role in implementing the plan and expects its findings to become available at the end of 2019. Sedimentation is a

priority issue on the sea change agenda. The efforts that have been or are being undertaken, such as ocean acidification monitoring for which I have been actively supporting the efforts of the Auckland University, is and will continue to have dire effects and such marine dumping activity has, in my novice opinion, the potential for increasing nitrogen loads and therefore perpetuates declining habitats and therefore biodiversity.

The smothering consequential death of many marine species will deplete stocks and habitats. The work of reef and sea floor restoration that introduces mussels from one location to a specified area to assist with filtering and ameliorating habitats heavily impacted by sedimentation is being constrained due to the MPI policy section 52(c) of the Biosecurity Act relative to the incidental movement of unwanted organisms.

This has brought about increased financial cost relative to excess and preparation of mussel stocks, redeployment, a relatively simple exercise to enhance the mauri of the Gulf. If this activity triggers section 52(c), then why wouldn't it apply in the case of marine dumping?

I am currently working alongside an internationally recognised organisation, The Nature Conservancy, who's also supporting restoration efforts in the Gulf, in particular through reef restoration, and the potential establishment of a co-ordination entity to align efforts and funding across the entire marine park. This has also been funded by Foundation North through their G.I.F.T. Fund and the Tindall Foundation. Any activities not aligned and that negatively impact on these efforts will not be supported. It is hard to imagine how dumping will align to these values and aspirations.

Science alone cannot save us. What is required is a

heart centered commitment and approach to decision-making that puts nature first and people second. Tau utuutu the act of reciprocity requires us to be in relationship with our taonga, our places of significance. Matauranga Maori provides us with an intrinsic belief system that all things are connected. The demise of our environment will be the demise of all people regardless of age, gender or bank balance. If the kai cupboard is empty, then that is it. I was brought up on horse mussels, I shudder to think that my mokopuna will never have that experience or the taste that his Dad acquired when he was able to harvest pupu. Is this what we really want for our children and their children?

I considered whether this form of mass dumping could be considered as reclamation which then insights a raft of other legislation that could be called upon in opposition of this consent but, like I said, I'm no lawyer.

I therefore fully oppose this consent being granted as an impingement on the self-regenerating and sustainable nature of the mauri, the life force and vitality of Tikapa Moana in the first instance. Tikapa is our tipuna and her desecration is desecration upon us all. Whenua needs to stay as whenua.

This dumping activity over a period of 35 years will undermine the mana and integrity of not only Tikapa but also the ability for mana whenua to continue their practices and manaakitanga to provide hospitality and the ability to nourish their manuhiri and the probability of a declining natural environment and pataka.

This application affects and has huge and immense impacts on my whakapapa. I would like to see a moratorium put in place that will allow the Sea Change Ministerial Advisory Committee, as proposed by Ministers

Sage and Nash, to provide a necessary and additional rigour to what has been applied for, that is nested within a comprehensive package that will enable a more holistic and ecosystems based management approach for a regenerative Hauraki Gulf Marine Park mo te katoa for all and not just humanKIND. And KIND is in capital letters.

(Closing addresses in Maori)

Seaweed drifting, drifting,
floating on the ocean.
Drifting in the whirlpool,
out there.

When I look beyond
it is so calm
while within me
the storm brews.

Who will symbolise strength
for me as a kaitiaki for
my mountains, my lands
and my sea.

The mist has arrived
settling on my shoulders.
My body is in a slumber
as is my spirit.

(Waiata)

CHAIR: Kia ora.

MR MORRISON: Kia ora.

CHAIR: Right. Mr Morrison, questions?

LUCY TUKUA - QUESTIONED BY COMMITTEE MEMBERS

MR MORRISON: Kei te pai, thank you for your submission. I, sort of, distilled from that the cultural impact is the issue.

MS TUKUA: Yep.

MR MORRISON: The science is the science?

MS TUKUA: Yes.

MR MORRISON: Kei te pai, thank you.

CHAIR: Applicant questions?

MS ARTHUR: No.

MR SLYFIELD: No.

CHAIR: I think Commissioner Morrison summed it up. Thank you, we will take that on board, thank you very much for your submission.

MS TUKUA: Awesome, thank you. By the way, this is water from Tikapa that just witnessed my korero, so I'm happy about that.

CHAIR: Thank you. Moving on.

MS HEWETT: We will have a quick break while we Skype Peter Longdill. It's 2.30 in the morning in Qatar.

CHAIR: Okay, 5 minutes. We'll just wait here.

Hearing adjourned from 2.38 p.m. until 2.45 p.m.

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PETER LONGDILL - QUESTIONED BY COMMITTEE MEMBERS

CHAIR: We're reconvened. Welcome, Dr Longdill. Sorry, it must be very early in the morning there?

A. It's early but you don't need to apologise, it's fine.

CHAIR: You're looking surprisingly spry for such an early time.

A. Oh, we normally get up and start early over here, so it's fine for me.

CHAIR: What's that, a good photo of Raglan, is it?

A. Yes, you're correct, yes, that's right. Good spotting.

CHAIR: Okay. I am Mark Farnsworth and I am Chairing the DMC. I am supported by Gillian Wratt on my right and Basil Morrison on the left.

MR MORRISON: Good morning, Dr.

CHAIR: Dr, are you up to speed with the latest information which the DMC has had to come to deal with in terms of your particular area?

A. I've been following the supplementary evidence and I've scrolled through the transcript of the first day of the hearing. I haven't scrolled through the second day.

CHAIR: Okay. Do you have for us any additional comments before we move on to questioning?

A. No, look, I think we're better just to go to questions. I haven't got any extra sort of submission or summaries or anything to give you.

CHAIR: Okay. You haven't read the second day but in light of the matters that you have read, are you still recommending a requirement in the conditions for monitoring the sediment plume?

A. Yes.

CHAIR: Okay. Let's put the sediment plume to one side. Gill, do you have any comments on that?

MS WRATT: Yes, I do. The question in my mind is, how do you effectively monitor the sediment plume? The information that we are receiving is that the total suspended sediments in the water column by the time any "plume" gets to the boarder of the NDA, it would be very hard to detect it and also, where you monitor would be very dependent on the current flows etc. when the material is released.

So, it would be helpful to get comment from you if you think that monitoring should happen, how you do it in a way that is robust?

A. Sure. Well, I guess I would, you know, I would go for a similar approach to what was attempted in 2011 when they went out to monitor the plume. Let's say the general approach would be the same. Yes, I guess what the model has indicated or predicted is that it's going to be rather low when you get - the sediment plume will be in rather low concentrations when you get to the boundary of the disposal area but one of the reasons that I'm certainly advocating for a sediment plume monitoring scheme is to, let's say, validate or confirm that prediction because it is only a prediction at the moment.

You know, in the monitoring you don't have to only monitor at the boundary. You're free to monitor wherever you like and there will be a plume certainly closer to - the model predicts a plume closer to the point of disposal that would be very much measurable and monitorable. And certainly, if the monitoring shows that it is indistinguishable at the boundary of the Northern Disposal Area, then for me that is a good finding as well. It certainly validates the model and it would give

some assurance in that respect for the plume.

So, how you would do it? I could see a scheme where you go out, you have a vessel mounted current metre so you can determine the direction of the water currents in the, say, one hour or few hours before the disposal. Based on that, you can determine where the plume is likely to move and the various layers of the water column. You would then, you know, the disposal would happen and the vessel with this ADCP current metre downward looking to detect the plume would pass transects up and down, down current of where the disposal happened and carry on until, let's say, that plume at least reached the edge of the disposal area or became indistinguishable.

It would need to be supplemented by water samples and some fixed instrumentation as well, in the same way that the 2011 work was.

I see that the actual plan when you came to do it would learn a lot from that 2011 attempt. There was a lot of recommendations at the end of that work of what they thought could be done better. So, that's sort of the general process of how I see that happening.

MS WRATT: Thank you, that's really, really useful. So, what you're saying is, you're not proposing that you just monitor at the edge of the NDA but it would actually, it's a proactive monitoring process when there is a release of sediment from the barge?

A. Correct, correct.

MS WRATT: We will have to give thought to how that might be considered in terms of adaptive management, whether or not that is an adaptive management process. Thank you, I found that helpful. Thank you.

A. I guess I'll just add to what I said. That's how I see

the monitoring. Now, of course, I'm suggesting, you will see from my evidence, I'm suggesting both monitoring and a compliance level for the plume. Now, that compliance level, of course, it could be set wherever you like. I would see the appropriate location for that to be at the boundary. So, although the compliance is there, the monitoring could be there and at other locations. So, I'll just make that distinction, shall we say.

CHAIR: Okay.

MS WRATT: Thank you.

CHAIR: If the model is validated, it could be discontinued, the monitoring of the plume?

A. Yeah, I guess in a way you would have some certainty about it, yes.

CHAIR: So, if we setup, if a regime was set up to validate the model, if it was found to be validated, then that could be discontinued?

A. You would have certainty about the result of the model. You would have a lot more, let's say, trust or confidence in its result. I would suggest it might still be useful to keep doing the monitoring at very, let's say, you know, infrequent intervals. I think I suggested around once every 5 years. You know, environmental conditions change, the model, you know, it does simulate, you know, a variety of what it can predict, in terms of the physical conditions, the physical forcing of the environment, but, you know, measurements and data for me is always more robust than a prediction.

CHAIR: Okay.

MS WRATT: I have one more question on the monitoring. Just one other question from me, Dr Longdill, on the monitoring.

A. Yep.

MS WRATT: There is in some of the expert evidence

questions around the ADCP as the methodology and a comment, for example, and I think it's in the EPA issues report, that ADCP methodology is in general plume monitoring the ADCP represents an appropriate method to qualitatively assess passive plume dispersion. And there's also a comment around the particle size that the ADCP accurately measures. "Particle size distribution best represented by back scatter intensity data of approximately 15" - I would have to go back to my school science to remind myself what that is.

A. Micrograms.

MS WRATT: Micrograms, thank you. "... to 1.5 millimetre, ADCP methodology is less robust when applied to particles outside this range". And the Flaim information lists grain sized distribution of dredged material from Pine Harbour, for example, proportion represented by fine silt and clay range from about 56-83% which is below the optimum range. Any comment on that?

A. Well, you know, it depends also on not just the particle size but the concentration of those particles in the water. You know, if you have high concentrations of very fine particles, the ADCP is still going to resolve or give you some information on that. The reason, I think, that - well, at least this is my opinion, the reason that ADCP is an appropriate technology is because it can be mounted on the boat and the boat can drive around and you can get information on the sediment plume. In a quantitative sense, that information is not as good as a fixed sample or, say, a direct water sample or measurement. But taking such measurements is very difficult when you're trying to move around and be a little bit flexible about where your point of sampling is

because you can't just continually drive around a boat and start collecting water samples at depth.

So, that's why I say it's best to supplement the methodology with those fixed samples and fixed moorings of whether it's the OBS, which is like an optical back scatter or turbidity sensor attached to buoys or floats in order to, let's say, cross-check and calibrate where possible those ADCP measurements.

MS WRATT: Okay, thank you.

CHAIR: Just a quick one. In terms of the consent, you know, addressing the method of dumping and how the material is put there. In other words -

A. Mm-Mmm. Look, I think, you know, I've looked at this, I did touch on it in my evidence. Yes, in my experience, I think it should be controlled. I've given examples there in my evidence about the effect of mechanical excavation and hydraulic excavation techniques and the effect that that can have on the sediment grain size. So, that's, let's say, at the source, at the dredging site. Mechanical excavation would represent the best way to reduce the plume effect at the discharge site.

In terms of the actual disposal method, the bottom dump barge is certainly an effective way at reducing plume effects. It means you have one, let's say, jet or one large discharge where you can create - the mass stays as one whole as much as possible. If it's discharged very gradually through an alternative method, whether it be a bulldozer gradually pushing it over the side of the barge or a much smaller opening in a barge, that material discharge is going to occur over a much longer period of time, so more of it will be stripped out into the passive plume.

You know, so, in that way, let's say the bottom dump barge is an effective operational mitigation measure, in

some projects where they are very, very concerned about the plume, they will go for a subsurface discharge. So, this is where you could have a pipe hanging from - it's not really applicable in the case of a barge but in the case of a dredge, it can be. A pipe which extends close to the surface, let's say a few metres above the surface of the seabed, and the material is actually discharged down through that pipe and released just above the seabed. The reason I say that's not entirely applicable in this case, is because the material has to be in a fluid-like state for that to occur. And once it's been removed mechanically and put on a barge, that's a very difficult process to do.

CHAIR: Commissioner Wratt, any further questions?

MS WRATT: No, thanks.

CHAIR: Commissioner Morrison, any further questions?

MR MORRISON: No, I found that very interesting, thank you.

CHAIR: Applicant, before I move to the Department of conveying this time, do you have any questions?

MR SLYFIELD: Yes, I have a couple.

DR PETER LONGDILL - QUESTIONED BY MR SLYFIELD

MR SLYFIELD: Dr Longdill, my name is Morgan Slyfield, I am the lawyer for CRL, the applicant in this matter.

I wonder if first I could ask you, there are some sets of conditions that are floating around and they are a bit of a work in progress but, if I've understood rightly, you are effectively the author of a couple of those. And the first of them is at 5(d) in the conditions set. So, do you have a set of the draft conditions with you?

A. I can't promise that they are the most - that they're the same set in front of you.

MR SLYFIELD: Perhaps can I read you the wording in front of me and you can tell us if this has come from you or offer us some confirmation or comment on it.

A. Yes, sure.

MR SLYFIELD: It is sitting within condition 5 which is what could colloquially be called the bottom line conditions, the environmental threshold conditions.

A. Mm-Mmm.

MR SLYFIELD: So, it says:

"The activities authorised by this consent shall not result in at the NDA" and then it goes to (d) which says:

"The suspended sediment concentrations at any depth in the water column from the surface to the seabed at the NDA boundary increasing by more than 0.2mg/L relative to background reference concentrations".

A. Yes, yes.

MR SLYFIELD: Is that from you?

A. I think that would have come from my evidence, yes, you'll see that in my evidence.

MR SLYFIELD: Can you just help us first of all perhaps with your understanding of background reference concentrations?

A. Yeah, well, I guess, that's - background reference concentrations, you know, in general, let's say for this area where there's a bit of a lack of quantification of the background reference concentrations, and this is what's led me to struggle quite a lot with the modelling and the work here. The only data that we have for background reference concentrations of suspended

sediments at the disposal area is from that work in 2010 that was done with these trial disposals. That's the only information we have about the background reference and about the suspended sediments in the plume.

So, I have quite a few concerns with that, with that study, and that work and that's sort of described in my evidence as well. So that's, I guess, the first challenge.

The second is the - well, I think I'll leave it there. You asked about the background reference, so that's where we are. We expect it to be low but we don't really know what the numbers are because the only data we have has some serious flaws in it.

MR SLYFIELD: Thank you. And then the second question I've got in relation to that same wording is, that phrase "from the surface to the seabed", is that indicative of, in your mind, some kind of layered standard that would cross-refer? This is obviously linking to the other condition that I'm going to go to next, which is the monitoring condition.

I guess, what I'd like from you is some sense of how nuanced that is because I assume that you would perhaps break that down into tranches, for want of a more technical term, between the surface and the seabed?

A. Okay. Well, my intention there was to indicate that the plume exists in three dimensions. Not only horizontally but vertically as well. And monitoring it only, it will exist for longer periods of time at deeper depths than it does at the surface because it will gradually, you know let's say the particles, they gradually fall out and travel downwards. My intention there is to be clear that the plume should be monitored or, let's say, should meet these levels, not only at the surface but at the mid

water depth and near to the seabed as well.

The reason I explain this is it exists in three dimensions. You know, part of my concern with this is to do with both the original work from 2010, in that Flaim study where they stopped monitoring the plume when it was no longer visually apparent from the surface. That, to me, is a big, well I don't want to call it a problem but it's a big question mark about some of those results. I would say they stopped prematurely because just when you can't see it on the surface, it's still existing further down. It's got a lot longer to travel down through the water column.

And the original, I think, set of conditions that were proposed by the applicant in the AEE, they actually had, let's say, a suggestion that there might be some monitoring of the plume. I think there was a condition there that said if the consent holder becomes aware of the sediment plume, and it says visually observed or determined through monitoring equipment drifts beyond the boundary of the disposal area, then the consent holder has to notify the EPA.

That was a condition that was put forward in the impact assessment but I have a few concerns with the way that that was structured, in that it didn't define what the plume is. In other words, in a quantitative sense. It was just a subject of sort of description. And although it referred to determined through monitoring equipment, there was no associated monitoring. So, that's why I had - that condition that you read out, Mr Slyfield, was let's say my initial attempt to quantify that in a way of (a) defining the plume and also the monitoring for it.

MR SLYFIELD: Thank you, that's I think very clear. A related question to what you just said about the

way that the initial condition hadn't defined what the plume is, can you just help us to understand the 0.2mg/L above background that's referred to in that draft wording of the condition presently proposed, is that an indication of a threshold that signifies that there is plume, compared with there is no plume? Is that what 0.2mg/L indicates?

A. Well, 0.2 was taken from the model. You know, I struggled with this as well because I didn't like to put in a reference to, let's say what I would consider is a bit of a ambiguous statement which is indistinguishable from the background. I was uncomfortable with such a terminology, so I thought, okay, I'll have a look at the modelling result and what does that tell me?

So, in that modelling result that was, and you will appreciate this was a bit of a moving feast, if you will, because the modelling result only came in a day or two before that evidence was due.

MR SLYFIELD: Yes.

A. But the modelling result, I am just going back to my evidence there, figures 4.13 and 4.24 of Appendix C of the statement of evidence of Connon Andrews is where that level basically came from because that was what the model was suggesting was going to be a concentration that the plume would reach at the boundary of the disposal area.

Now, I think I actually - it might have been around 0.1 and I added that, I increased that by around 100% to give a little bit more leeway.

Since then, of course, I have found out that those model results are actually monthly averages. So, as a plume say passes that, if it's a periodic plume that will come past the boundary of the disposal area and then move on, a plume might persist there for, say, a few hours and then it moves on to somewhere else, that model result was

averaged over a period of one month, so all of the hours within that one month.

So, depending on how the monitoring is done, that compliance level would change.

MR SLYFIELD: Thank you. I assume you've seen Mr Andrews' supplementary statement that has some further information as well?

A. Correct, yes, yes.

MR SLYFIELD: Okay. Perhaps, can we move on to the other end of the conditions, which is the monitoring condition, and maybe it's easiest if I read this one to you as well and just get you to confirm whether this is a condition that you've had input to. This is 8B in the set in front of me and it reads:

"The consent holder shall undertake at the NDA, within a year of the consent being given effect to and then every 5 years, suspended sediment plume monitoring in the water column (i.e. multiple layers from the surface to the seabed). This monitoring shall be undertaken at up current and multiple down current sampling sites immediately after at least [blank] cubic metres of dredged material has been dumped at the NDA. This monitoring shall be undertaken with scheduled [blank]". Are you familiar with that wording?

A. In principle or let's say in general, yes. I couldn't say I'm familiar with each and every word of it but the general context of what's implied there, yes, I think you could possibly source that back to my evidence.

MR SLYFIELD: Thank you. And maybe if I can just go to the bit I read out that was in brackets that talked about monitoring for suspended sediment in multiple layers from the surface to the seabed. I think you gave us a very clear description of what in your

mind all of the monitoring would involve and, if I've understood you rightly, there is ADCP equipment on a boat doing transects back and forth within the NDA, and that's not what we're talking about. Here we're talking about actually obtaining physical samples of water quality at the NDA boundary at different depths in the water column. Am I understanding you rightly?

A. Look, I would think that at least what I'm referring would relate to both of those. I think you have to - that monitoring approach has to aim to take water samples at some locations in order to calibrate and supplement the ADCP measurements. But the ADCP measurements in themselves, they are taking - they are collecting data at multiple depth layers through the water column. That's the way an ADCP works.

MR SLYFIELD: Yes. Perhaps I didn't express myself very clearly there because I understood that and I think you were very clear about that. But if I've understood rightly, you don't derive from the ADCP - you have effectively something that's qualitative in nature rather than quantitative? You don't have for a fixed point a specific suspended sediment measurement?

A. Well, the ADCP will give you - it gives you quantitative data but in units that you need to apply a conversion factor to and do some regression and so on in order to attempt to convert it to a meaningful turbidity or suspended sediment unit.

Now, if you don't do that, yes, it just gives you some qualitative data.

If you are able to collect the water samples and some other supplementary information from, be it water samples or some other fixed senses, then in that case, in

some cases you can convert the data to let's say meaningful quantitative information.

MR SLYFIELD: Is that what you're recommending?

A. Yes.

MR SLYFIELD: Okay. And so, when, in this wording, it talks about multiple layers from the surface to the seabed, and that's in reference to suspended sediment plume monitoring in the water column, I am just trying to get a very clear picture, if we can, for the Committee about how many points would there need to be, in terms of the depth of the water column that you were sampling at the NDA boundary to satisfy this condition?

A. Okay. I mean, in my evidence, I've suggested, and this is relating to the ADCP, I have said for example 10 metre depth bins. But when I talk about that in relation to the ADCP, that's a setup, let's say in - when you set that ADCP up in your computer, you can select the height of those depth bins that it returns you the information. You could set to 2 metres and it's just going to give you more data. It's not going to give you a more challenging monitoring exercise.

The ADCP will just return that because it's let's say a remote based instrument which sends out pulses of very high frequency sound waves and measures the reflection of those sound waves back to the instrument. So, that's no extra effort.

In terms of the physical sampling and the physical water measurements, yes, I do think that needs to be done at multiple layers because, you know, the plume is likely to only exist on the surface for a relatively short period of time. That's the approach that was taken in the initial Flaim work. They had turbidity senses, non-ADCP turbidity senses at multiple layers in the water

column.

Yes, you need to be practical, in that sense, about how many you put in. Every 10 metres would be excessive. You know, I could imagine, you know, three characteristic locations, three characteristic depth locations. The number of, you know, physical sites where you would want to deploy those, you know, I'll call them strings because you'd put something that would have a weight on it, it would have a float on the top and you'd have your instrument set at different elevations or heights. You know, you might have, you know, a number of those, probably less than 10 but they would be spread out geographically.

MR SLYFIELD: And, if I've understood you rightly, you would choose where you spread those ten strings based on the data you get from your current metre at the time that you're undertaking the monitoring?

A. Well, or in those few hours beforehand of course, yes, yep.

MR SLYFIELD: Thank you, those are the only questions I have. Thank you, Dr Longdill.

CHAIR: Ms Arthur?

MS ARTHUR: No, Sir.

CHAIR: Any other questions from the Panel? (No further questions). Dr Longdill, that brings us to the conclusion of the questioning from everyone here, so a sincere thanks for making yourself available. It was very interesting for us, thank you very much.

A. Thank you.

CHAIR: And good morning.

A. Yes, I'll finish my coffee now.

CHAIR: Okay. See you later.

A. Thank you, good-bye.

HOUSE KEEPING

CHAIR: That brings us, we need to do a little bit of housekeeping for tomorrow on how we handle tomorrow to get the best out of it.

I think we need to direct the economic people to windup and tell us clearly their points of agreement and any points of disagreement because they could wander for a long time, so I think we need to give them a time. And I think that needs to be by 4.30 today, quite honestly.

And that agreed statement needs to be circulated around to everyone. And tomorrow we need to get all the planners together and address the conditions, if we can.

And then, finally, we'd like to hear the two closings, please, if that's possible.

If you feel more comfortable, both of you, to give us a brief closing outline and provide us with a written one later on, in other words just give us the key points of your closing and some time to think about a written version, because obviously a written version to us is *extremely* helpful from both of you. I emphasise the "extremely". So, you might want to do a verbal one, followed by a written one.

And we also have the economic people to talk to us as well tomorrow.

Comment? Questions?

MR SLYFIELD: We'll endeavour to be extremely helpful and, accordingly, we would be quite happy to provide a brief verbal closing and then something that's perhaps a little bit more thorough in writing. I am particularly thinking there that

there could be things coming out of the economics evidence and the planning evidence that you hear tomorrow that require careful thought, in terms of how those are delivered as a sort of final statement of the applicant's position, at any rate.

CHAIR: And I was also thinking about the work that was going to come to us from another quarter.

MR SLYFIELD: Indeed, yes.

CHAIR: Ms Arthur?

MS ARTHUR: I am hoping, maybe optimistically, that if we get the planners and the economists to get themselves organised, that the closing submissions will be very short but otherwise, yes, I can provide written comments later if it's necessary.

CHAIR: Okay, thank you. We will again play it by ear tomorrow morning.

So, what time are we going to reconvene tomorrow? We have the economists coming, what time, to give them a chance, 10 o'clock?

MS HEWETT: Once we receive the Joint Witness Statement, then we will be able to proceed with more certainty. So, the schedule is originally we were going to not have a hearing day tomorrow but if we start at 10.00 tomorrow instead of 9.30?

CHAIR: Does that suit everyone, 10.00?

MR SLYFIELD: We're happy with either, Sir.

CHAIR: Why don't we make it 10 o'clock, that makes sure we have everything in hand. So, what we will do now is we will adjourn for the day and we will assemble back here to restart at 10 o'clock tomorrow morning. Thank you all again for the day.

Hearing adjourned at 3.23 p.m.