TRANSCRIPT OF PROCEEDINGS

ENVIRONMENTAL PROTECTION AUTHORITY HEARING

APP202804 – EDN (Ethanedinitrile)
Hazardous Substances, Notified, Category C Application

VIRTUAL HEARING
on 25 November 2021

DECISION-MAKING COMMITTEE:
Dr John Taylor (Chair)
Dr Kerry Laing
Dr Ngaire Phillips

Hearing Proceedings

Day 01 Thursday 25 November 2021

Time	Name	Representing	Topic	Documents Submitted / Presented	Transcript Ref. Page no's
9.30 am	Julian Jackson, EPA representative		Mihi Whakatau (Māori welcome)		6
9.35 am	Chair		Introduction		6
9.20 am	Applicant presentation				9
9.20 am	Kade McConville	Draslovka Services	Representations		9
9.59 am	DMC		Questions		23
10.58 am			Adjournment		39
11.15 am	WorkSafe presentation				39
11.15 am	Paul Moenboyd and Dr Susan Collier	WorkSafe	Representations		39
11.51 am	DMC		Questions		49
12.13 pm	Bay of Plenty Regional Council		Questions		55
12.16 pm	Ministry for Primary Industries		Questions		57
12.23 pm	EPA Presentation				58
12.23 pm	Michael Berardozzi	EPA	Representations		58
1.01 pm	DMC		Questions		69

1.17 pm	Bay of Plenty Regional Council		Questions		74
1.23 pm	Draslovka Services		Comments		76
1.27 pm			Luncheon Adjournment		77
2.01 pm	Bay of Plenty Regional Council Presentation				77
2.01 pm	Sam Weiss	Bay of Plenty Regional Council	Representations		77
2.14 pm	Jenny Barclay	Bay of Plenty Regional Council	Representations		81
2.35 pm	DMC		Questions		87
2.43 pm	Draslovka Services		Questions		90
2.46 pm	New Zealand Forest Owners Association Presentation				91
2.46 pm	Glen Mackie	New Zealand Forest Owners Association	Representations		91
2.54 pm	DMC		Questions		93
2.58 pm	TPT Forests Limited		Questions		94
2.59 pm	Rayonier Matariki Forests Presentation				95
2.59 pm	Chris Rayes	Rayonier Matariki Forests	Representations		95
3.09 pm	Port Blakely Limited				97

	presentation				
3.09 pm	Philip Taylor	Port Blakely Limited	Representations		97
3.17 pm			Adjournment		100
3.40 pm	Stakeholders in Methyl Bromide Reduction (STIMBR) Inc. presentation				100
3.40 pm	Morgan Slyfield	STIMBR	Representations		100
4.00 pm	Don Hammond	STIMBR	Representations		106
4.02 pm	DMC		Questions		107
4.10 pm	TPT Forests Limited presentation				109
4.10 pm	Mark Procter	TPT Forests Limited	Representations		109
4.26 pm	DMC		Questions		114
4.28 pm	Ministry for Primary Industries Presentation				115
4.28 pm	Shane Olsen	MPI	Representations		115
4.36 pm	Ken Glassey	MPI	Representations		117
4.48 pm	DMC		Questions		120
4.57 pm	Applicant's response to matters raised				122
4.57 pm	Kade McConville	Draslovka Services	Response		122

5.05 pm	Chair		Closing comments		125
5.08 pm	Julian Jackson, EPA representative		Closing Karakia		126
5.09 pm			Hearing adjourned		126

[9.08 am]

CHAIR: Kia ora koutou katoa. Welcome everybody, mōrena to those who are joining in New Zealand, good afternoon or good evening to anybody joining from another time zone.

We are here for the reconvened hearing for application APP202804 - The use of ethanedinitrile as a log fumigant.

My name is John Taylor, I am the Chair of the Decision-making Committee. I will introduce my fellow DMC members in a moment, but for now I invite Mr Julian Jackson to deliver the opening mihi.

[9.10 am]

MIHI WHAKATU

MR JACKSON: (Māori content – will be inserted when script finalised)

I just make a big welcome to the parties here today, in particular the Decision-making Committee, the applicants, submitters and also the parties from Te Mana Rauhī Taiao, EPA, and I recited a karakia, which essentially talks about getting enlightenment from whatever source you can obtain it, so that's quite relevant to our hearing situation. No reira kia ora koutou katoa.

INTRODUCTION

CHAIR: Kia ora, Julian. I'd like now to introduce the two fellow members of the DMC, if they can unmute themselves and introduce them. First of all, Ngaire.

DR PHILLIPS: Ata mārie, my name's Ngaire Phillips and I've been on the HSNO Committee for about six years, and looking forward to this day, I know it's been a long time coming, but it's great that we're here. Looking forward to some interesting presentations, thank you.

CHAIR: Thank you, Ngaire.

DR LAING: Thanks, John, it's Kerry Laing here. I have been a member of the HSNO Committee for nine years and been through a few hearings and there are some people here that I am reasonably familiar with from the past. Looked forward for a long time to the reconvening of this hearing and making some progress, and look forward to hearing from you all today and I have a number of questions that I will seek answers to.

CHAIR: Thank you, Kerry and Ngaire. As all parties are probably aware, the three members of the Decision-making Committee are the three

members that were appointed in 2018 and that convened over the opening hearings that we had in Wellington and Rotorua to consider the application at that time.

As we get underway, I'll say a little bit more about the process that has occurred since those hearings were adjourned in 2018, but at the moment I would invite all the parties, beginning with the applicants and then proceeding through WorkSafe, the EPA staff and the submitters, to introduce themselves to the hearing so that we know who everybody is. Would the applicants please go first?

MR MCCONVILLE: Good morning everyone, we are the applicant, Draslovka, myself, Kaden McConville, as head of commercialisation and group director.

DR SWAMINATHAN: Dr Swaminathan, I am head of research and regulatory affairs involving legal and registration in New Zealand and also many global countries.

MR MOENBOYD: Kia ora tātou, I am Paul Moenboyd, I am a senior advisor in WorkSafe's regulatory frameworks team.

DR COLLIER: I am Dr Susan Collier, I'm a technical specialist in hazardous substances at WorkSafe.

MR BERARDOZZI: Kia ora, I am Michael Berardozzi, I am principal advisor at the Environmental Protection Authority.

CHAIR: Thank you, could we hear from the submitters who are going to address the hearing today, please?

MR PROCTER: Mōrena, Mark Procter from TPT Forests here.

[9.15 am]

MR MACKIE: Good morning, Glen Mackie from New Zealand Forest Owners Association.

MR WEISS: Mōrena, Sam Weiss, Bay of Plenty Regional Council.

MR SLYFIELD: Mōrena, my name is Morgan Slyfield, I am legal counsel for STIMBR, and with me is Ian Gear, the executive officer of STIMBR, and we will be joined during the day by the Chair of the STIMBR Board, Don Hammond.

MR HAMMOND: Good morning.

MR GLASSEY: Kia ora koutou, it's Ken Glassey here from the Ministry for Primary Industries, and I'll be joined by Shane Olsen, the exports manager

during the presentation.

CHAIR: Okay, I think if there are no further submitters who need to be introduced, I would just like to point out that some parties may have people located either in New Zealand or overseas on standby should they be required to submit any information or answer any questions, the DMC have agreed to their participation and should they be required and when they're required, it's appropriate that they can address the hearing directly rather than having to relay the information through any of the parties who have introduced themselves.

So before we get underway and I invite the applicant to present their information, it is appropriate to touch on a few matters regarding the scope of today's proceedings and indeed the length of time in which this hearing has been in adjournment. We want to keep the scope of today's proceedings very much focused on information that has been introduced into the process since the hearing, and there has been some substantial pieces of information introduced since that time.

We do not require or expect that parties will reiterate their entire position as they did in 2018, nevertheless, I think it's appropriate that some sufficient contextual framing of any new information is provided to allow the DMC to recognise the relevance of the revised information so it can make its decision.

It is also not my intention at this point, nor is it my intention to engage in any debate or discussion about the incidences that have led to the lengthy period of time in which the hearing has been in adjournment. I think we're all well aware that this has been a very long process, a longer process than perhaps anyone would have wished at the outset. The events that have occurred along the way have been documented in a series of minutes and direction from the DMC, and these outline the procedural twists and turns that the process has taken in the three years plus since we last met of the hearings.

I should point out that, and it will be obvious I hope to everybody at this point, that in the consideration of this application under the HSNO Act there has been a need to interact with a parallel legislative process, that is the Health and Safety at Work Act and the requirement to develop an SWI or a draft SWI on the use of EDN in the workplace. I think it's fair to say that a significant component of the delay and the length of adjournment that has occurred in this hearing has been due to the need to untangle these two legislative processes or these two statutory processes and allow each of them to proceed in their own independent but, nevertheless, relevant and interlinked context.

Having said that, and with the provision of a draft SWI before this hearing today, the scope of today's proceedings is not to focus on the

information of the process behind the derivation of the draft SWI. I am grateful to members of WorkSafe for their presence here today to explain the process and the significance of the work that they have done on this substance, it is certainly of relevance to our consideration of EDN use under HSNO.

[9.20 am]

So with that said, I think we can begin proceedings, and I invite the applicant to present to the hearing.

MR MCCONVILLE: Thank you, Dr Taylor. I am just going to share my screen. Please let me know that you can see the presentation in front of you?

CHAIR: Yes, that is clear.

APPLICANT PRESENTATION

KADE MCCONVILLE PRESENTING

MR MCCONVILLE: Thank you. Good morning everyone. Firstly, let me extend a thank you to all those involved in the EDN review process in New Zealand since 2015, and I'd like to extend this thank you to the New Zealand EPA staff, the Māori Reference Group, the Decision-making Committee and WorkSafe New Zealand. I'd also like to thank the submitters who have taken the time and effort to file a review and understand the data presented. It has been a long road to get here, but I believe what you now have in front of you is the most robust scientifically derived and up to date data package of EDN globally.

Having reached this point, we consider the work done by the EPA and WorkSafe has been thorough and while the proposed controls are conservative, they are pragmatic. Given the amount of information that has been provided and the extensive opportunities there have already been for submitters, we had not expected the hearing would be reconvened, however, we understand the DMC wishes to use this hearing to obtain some finality, and we respect and endorse that.

We, Draslovka, the applicant, have been given this time slot to provide an overview of the information presented in our application and subsequent documents. So since we submitted the application in July 2017 we have provided numerous documents in response to DMC requests, 23 in total, collectively totalling hundreds of pages. For all involved there has been a lot of information to consider and a wide range of factors to accommodate. I cannot, in the time allowed, meaningfully cover and discuss all the information supplied since August 2018.

Instead, as you've had a chance to review, we have prepared a short presentation which summarises the information supplied since then and outlines why we consider EDN can be safely used with the controls that have currently been proposed. We hope we can deliver this presentation and still provide the DMC with plenty of time to ask specific questions about areas where they would like additional clarification, if either myself or Dr Swami cannot answer in more detail, then we have arranged for technical experts to be available. We are confident that they will be able to provide you with well-informed and accurate answers.

Throughout this application process, Draslovka has always used the best experts we can find and we have commissioned world leading experts, recognised on an international basis as such to provide their views. As a team we have work tirelessly to provide the data that has been requested and we are extremely proud of the data package which is in front of you today.

Today, as per the latest direction of minutes, we have been very careful not to introduce any data that may be considered new in this presentation. In fact, from March 2020 we have made it clear in all our communication that we do not have, nor need to provide, any additional data or can provide any additional data. The data you now have in front of you is effectively all that there is and we are keen to get a decision from the EPA on our application to register EDN.

So what we will be presenting today, as a starting point there are five major items that we will be covering: Who will be presenting, this includes Swami and I, obviously, Dr Swami as introduced before, as well as the experts we have seen who were available for consultation and who can answer any specific questions. These experts have been previously either involved in providing documentation into the EDN process and/or were present at the 2018 hearing.

What Draslovka is requesting and the updated details of Draslovka's request for registration; some history on what the perceived information data gaps were at the end of the 2018 public hearings; a summary overview of the information Draslovka has supplied since 2018; and then how this data shows that EDN can be applied safely and how it is being used in a selection of current real world situations, not just focusing on the theoretical nature of modelling.

So who will be presenting today? This is quite a busy slide, but again you have had the opportunity to review this, but basically we, Draslovka, the applicant, remain a family-owned company with values in integrity, transparency and a world-leading pioneering view on the safe and effective use of environmentally sustainable chemicals. As most people will remember from the 2018 hearings, the two key people

from Draslovka who were submitters for the registration and commercialisation of EDN globally are Swami and myself. Swami, Head of Regulatory Affairs based in Sydney, and myself, Kade McConville, Group Director and Head of Commercialisation based in Melbourne. Albeit, we are both a little bit greyer than 2018.

[9.25 am]

Between the two of us, we have been working collaboratively on the registration of EDN for over 12 years. We both previously worked for BOC Australia and were aware of BOC's initial work to register EDN, but were also cognisant of their shortcomings regarding regulatory affairs management. On moving to Draslovka we have managed a team of specialists which worked systemically to produce the comprehensive set of data that now supports the use of EDN. We have also been actively involved in the development of tools that support EDNs safe use. This has resulted in us working in multiple countries globally and being responsible for commercialising the use of EDN in countries where it is now registered and used.

Soon after details of the hearing were announced we asked the EPA whether it would be appropriate to have present an expert support team. As mentioned in the introduction, we want to be able to provide the best possible answers to any question the DMC may have today. These experts can either provide information to Dr Swami and myself so that we can provide confident answers or preferably, as Dr Taylor has previously mentioned, that they could answer the DMC's questions directly.

Our expert support team consists of four key experts: Dr Mark Pemberton, based in the UK, is a regulatory toxicologist specialising in sand based chemistry. Dr Pemberton is available to answer any specific questions relating to toxicology, including tolerable exposure limits. Dr Jack Armstrong, based in New Zealand, has, over his 52-year career, worked extensively in the field of research and development of quarantine treatments for export commodities. He is available to answer any questions relating to the extensive field trials undertaken in New Zealand with EDN.

Mr David Sullivan, based in the US, has been an instrumental part of the atmospheric emission modelling for EDN and other fumigants in New Zealand. A member of his staff, Dennis Hlinka, sat on the EDN Expert Panel which considered EDN dispersion modelling, and Dave was a member of the expert panel that considered methyl bromide emission modelling. David has over 46 years of professional experience in air quality and meteorological analysis. He has worked closely with the US EPA developing tools for use in air dispersion modelling.

Finally, Mr Mark Holdsworth, based in the US, is a senior environmental engineer and has been the lead project manager on the air emission modelling undertaken with EDN, working alongside David Sullivan. Both David and Mark are working closely with US EPA in developing scenarios to support EDN registration for timber logs in the US. They can answer any questions relating to modelling which has been submitted as part of the EDN review process. In addition, they have both worked extensively with data associated with methyl bromide applications undertaken at the Port of Tauranga in recent years and, therefore, will be able to answer all questions on those activities and datasets.

In addition to these experts, as was introduced before, Mark Procter, another submitter from TPT and a timber exporter based in Tauranga, has volunteered to answer any operational questions about port activity.

So what is Draslovka asking for? To repeat the narrative from my introduction, Draslovka endorses the EPA staff report and the WorkSafe safe work instrument and requests that the DMC register in line with the controls recommended in the EPA staff report. In addition, it is imperative that we raise two additional requests. Firstly, Draslovka requests EDN be approved as a fumigant for timber and logs for use in shipping containers, under sheets and in ship holds. Thus, we would like to request a conditional approval for ship hold treatment contingent on the development of a safe work instrument by WorkSafe. Secondly, Draslovka requests an EDN application dose rate of no more than 120 grams per cubic metre for up to 24 hours. Here was ask that we add the words "up to" in order to allow future flexibility based on importing country requirements.

In view of our first request, we also request that EDN use is not restricted to export of product, but implements imported product as well as this is imperative for domestic biosecurity needs and is supported by industry and MPI.

So just to give you some brief history of EDN, EDN or ethanedinitrile as you know is not only chemical. Extensive research and development into the comprehensive data package, which is in front of you today, which supports EDN as an environmentally sustainable fumigant has been ongoing since 1996. After Draslovka took over the pattern of EDN in 2014 we commissioned a significant amount of work to generate a vast array of data and subsequently deep-dived into EDN's toxicology, ecotoxicology breakdown and environmental fate.

[9.30 am]

Since 2014 the substance has been extensively reviewed by Plant Food

Research in New Zealand, the United States Department of Agriculture, the United States Environmental Protection Agency, the Republic of Korea Animal and Plant Quarantine Agency, and the Australian Pesticides and Veterinary Medicines Authority. This is in addition to the work undertaken regarding the New Zealand application by New Zealand EPA and WorkSafe New Zealand.

More recently EDN has been the main topic of discussion in The Plant Health Quadrilaterals Group, which is a strategic coalition composed of the National Plant Protection Organisations of Australia, Canada, New Zealand and the US. It should also be noted in 2020 EDN was recognised as an environmentally sustainable and efficient solution and granted the Solar Impulse Award by the Solar Impulse Foundation. A foundation with was established and tasked with finding environmentally safe and efficient solutions to fight climate change.

So what did the DMC identify that it needed in order to facilitate a decision? At the end of the hearing in August 2018 you indicated that you had insufficient information about expected levels of atmospheric EDN to be able to assess the risks associated with the use of EDN. In February 2019 you asked for more data about the levels of atmospheric EDN associated with the fumigation of log stacks. You indicated you would like to see data from several overseas trials that have been reported on at the MBAO conference in the US.

You requested that atmospheric levels of EDN be collected in association with tests conducted in New Zealand by Plant and Food Research to demonstrate EDN efficacy against those insects commonly found in association with Pinus radiata logs. You also requested that WorkSafe develop a safe work instrument so you can be aware of how any risks arising from workplace use will be managed, as this will be essential and integral to your consideration of this application.

Subsequently, over the last two years, in consultation with WorkSafe and external expert consultants, we have provided all of this data, plus more, to further your understanding of EDN and to inform the EPAs independent assessment of EDN. We are aware that as part of this hearing there are submitters who will talk through their concerns about modelling commissioned by WorkSafe and questions its validity. Modelling, at best, is a tool which can be used to estimate what happens in real life. Modelling can be used to provide a reassurance that EDN levels can be kept at reasonable levels if the right controls are placed on its use.

We kindly ask the DMC recognises that not only have WorkSafe commissioned modelling, but Draslovka also commissioned their own modelling at that time through different independent parties. David Sullivan's modelling accommodated many of the regional council's

concerns, especially those associated with Dr Bruce Graham's comments and the expert modelling. In addition, our modelling has been complemented with real world data from trials conducted in New Zealand. We note that WorkSafe used all this information, plus the modelling it commissioned itself from Todoroski Air Sciences, to inform their development of their safe work instruction.

In fact, WorkSafe lists in its presentation the seven sources of information used to form this development of the safe work instrument, of these seven sources one was the data from field trials and two of the sources were the different air dispersion models. We are confident that the decision taken by WorkSafe in the safe work instrument will ensure EDN can be used with minimal risks to workers and the public when correctly adhered to in line with the ongoing users mandated obligations under their controlled substance licencing and certified handler requirements.

Thus, while some may consider that additional modelling is needed, we know that ultimately modelling must be validated by actual data collection. Modelling is not an exact science, whereas real world data is undeniable. Considering this, we would like to provide you with an overview of the trial data that has been submitted as part of this process.

So in regards to the log trials in New Zealand, following the initial field tests conducted in 2016, a further series of nine commercial scale log stacks were fumigated with EDN at Tokoroa between February and May 2019. The 2019 tests measured EDN levels inside and outside of the commercial scale log stacks during fumigation and ventilation at the maximum dose rate of 120 grams per cubed metre and with commercial loading factors.

[9.35 am]

These tests confirm the following points: Efficacy against the target pests in a commercial setting, supporting the request for efficacy data from the Ministry of Primary Industries. The concentration of EDN under the tarpaulin inside the treated volume decreases in line with laboratory studies, which show the concentration of EDN consistently, and predictably, falls to less than 1 per cent of the initial concentration within 16 to 24 hours of application. These results support the feasibility of achieving end point concentrations of between 500 and 700 parts per mission after 16 to 24 hours. This real world data was collected in response to the DMC request and is in line with the outcomes of the air emission modelling undertaken by Alex Todoroski and David Sullivan. Themes identified across a number of international trials also align with this data.

What did these field trials consistently show? The specific results of

in field testing of EDN measuring trials in Korea, Czech Republic and Russia were provided to the EPA after they requested it in early 2019. These papers have not been previously supplied into the registration process because these international trials were undertaken in accordance with local methodologies specifically required to support registration in those countries. Despite differences in methodologies, it was felt that EDN behaved consistently. These consistencies were detailed in the report compiled by Dr Jack Armstrong, which summarised the key findings of each paper and listed common themes. This report was submitted along with the individual papers requested by the DMC.

The themes identified include: EDN is efficacious against all forest pests most commonly associated with timber and logs. The concentration of EDN in the treated volume declines to low levels rapidly over the course of the fumigation. When venting occurs very little EDN is released into the atmosphere. EDN released during venting diffuses rapidly over short distances, resulting in a rapid decrease in EDN concentration in the environment. All of the studies found that EDN does not pool or longer in the fumigation area during the venting process as it disperses rapidly over a short period of time.

So in December 2019 Draslovka asked if the following new information could be provided, in March 2020 based on the field trial data, both domestically and internationally, and updated air emission modelling. Draslovka requested permission to provide further data in supporting registration EDN in New Zealand. This included an official request to reduce the application rate from 150 to 120 grams per cubed metre - efficacy testing had confirmed this as the upper rate needed to control the target pests. Atmospheric modelling at the new application rate and end-point concentration - this was prepared for containers; log stacks and ship holds.

Information on seabird colonies was submitted. A US report on the trial undertaken to assess worker safety prepared for the US EPA and undertaken according to their requirements. Confirmed buffer zones approved in Korea for the use of EDN, and buffer zones for the Republic of Korea are set at 15 metres at the same dose rates being proposed in New Zealand.

Other information supplied to the EPA and to WorkSafe at that time to inform the development of the safe work instrument included: A rationale explaining why the scrubbing, destruction or recapture is not required prior to venting or EDN. Updated information on EDN's registration status globally. Information on the movement of air at sea ports. Analysis of the Tokoroa trial data to show when flammability would be a concern in the presence of an ignition source. Information about new EDN monitors developed for use during fumigation and

venting and details about Draslovka's EDN Product Stewardship Programme, which is closely aligned with the best practice guide developed by WorkSafe New Zealand.

So, how and why can EDN be used safely? As mentioned earlier in the presentation, there is a huge amount of information that has been submitted into this process, which needs to be considered. But to set the scene for today's considerations, I would like to outline some key facts about EDN and then look at how and why EDN can be used safely.

[9.40 am]

Regarding its chemical characteristics, ethanedinitrile belongs to the nitrile group of chemicals and in essence is an honest chemical, which is made up of carbon and nitrogen only. Because of this fact, it does not accumulate in the living organisms, nor in the environment, meaning it does not bioaccumulate. EDN is not an ozone-depleting substance, nor is it a greenhouse gas.

Regarding flammability, is EDN flammable? Yes. Does that mean catastrophic explosive events when the substance is used in adherence with the proposed controls? No. There are many misinterpretations and misunderstandings surrounding flammability, not only of EDN, but of many other substances as well. Yet, when used responsibly, the risk of fire or an explosion when using EDN is negligible.

I will try to put this into context. To have a flammable scenario there are three key components, which must exist in a precise balance: fuel; oxygen; and an ignition source. So while we cannot remove the fuel; while we cannot remove EDN being the fuel, the likelihood of ignition occurring from the use of EDN is negligible and extremely unlikely, under tarpaulins, in shipping containers, or in ship holds, because of the environment in which EDN is released.

To start with, there are no naked flames or ignition sources near the point of discharge or within the fumigation volume itself. There is little to no opportunity for a flame or ignition source to be present in these treated volumes. The proposed safe work instrument requires that the fumigator ensures that ignition sources are eliminated or isolated in line with the hierarchy of controls and requires clear signage to prevent accidental introduction.

A submitter has identified the possibility that possibly a spark could be caused by electrical equipment in a shipping container or ship hold. That is true. But shipping containers used to fumigate and transport logs do not contain electrical equipment as they do not need to be refrigerated. Regarding ship holds, international standards and

international processes require that a fumigator must isolate the electrical power in a ship hold prior to fumigation with any fumigant, including phosphine and methyl bromide.

Regarding the environment into which EDN is introduced, scientifically-derived data shows, in an enclosed space, logs cause a decreasing oxygen concentration and increasing carbon dioxide concentration in the free air space immediately upon covering. Data collected by Plant and Food Research as part of their early work on fumigations showed that the export logs range between 140 and 170 per cent water capacity. Given the enclosed environment and the continued respiration of timber, the relative humidity, meaning the air moisture content, is at or near saturation.

Extensive trial data shows an exponential decrease in the EDN concentration in the log stacks following introduction of EDN is only at a concentration where EDN is flammable within the first 1 - 2 hours due to rapid absorption into the timber. As outlined by the EPA:

"EDN is proposed to be classified as flammable gas category 1A and therefore prescribed controls will apply.It is considered that these controls and requirements under other legislation will manage the risks associated with the flammability of EDN to a negligible level."

The EPA also notes that fumigation may only occur under a sheet or in a shipping container as described in the draft safe work instrument developed by WorkSafe. The draft safe work instrument includes elimination or isolation of ignition sources in or near the treated volume.Given this, the EPA considers that the risk of fire during log fumigation under a sheet or in a shipping container is negligible. If prescribed and additional controls and requirements of the draft safe work instrument, once given legal effect, are followed.

In addition, the New Zealand National Hazardous Substances Advisor concluded saying:

"We request that the Decision-making Committee retain the default notification provisions and do not add any requirements for additional information to be sent to Fire and Emergency New Zealand."

Regarding toxicology and ecotoxicology, all living organisms have evolved in the presence of these substances and have developed breakdown pathways to detoxify and remove the substances from their bodies if they are exposed to low concentrations. This allows organisms to tolerate low levels of the substance even over extended periods of time. It has been shown that the only pathway of entry of EDN is through inhalation, which can be actively managed by engineering, administrative, and personal protective controls.

We know that high levels of EDN can affect vertebrates and invertebrates. However, WorkSafe stipulates that an endpoint concentration of 700 parts per million will manage the risk to seabirds in particular and there are unlikely to be large numbers of beneficial invertebrates presence on the port. Of particular relevance to port application, despite its aquatic hazardous rating, EDN breaks down so rapidly at the air/water barrier that it will not affect aquatic organisms.

[9.45 am]

So, again, what can we do and how can we manage this? Efficient and robust detectors and monitors are essential to satisfy the requirements of the safe work instrument. To ensure EDN can be used safely, since 2018 we have continued to work with the suppliers of gas detection equipment to provide best-in-class detection and monitoring equipment to end users. These gas detection technology companies have provided a significant investment to make this a reality and have provided us with purpose-built monitors that span the range of concentration required for the safe use.

The first monitor is a light durable monitor with an EDN-specific sensor developed by Draeger in Germany. It measures between 1 - 50 parts per million. This new system supersedes the MSA Ultimate XA that was used in 2018 and importantly can data log, be in-field calibrated, can be easily worn on the body for ease of use, and to ensure safety it has a visual and audible alarm like any other safety detector.

As you will remember from 2018, this was the MSA Ultimate XA, which we had during the presentation. Again, we still work with MSA, however since that time we have also been working with Draeger. This is the new Draeger detector in comparison to the MSA detector. The MSA detector is a good detector. MSA continues to develop, Draeger continues to develop, and we are working with other manufacturers as well. The idea is that we continuously improve the technology and be able to supply that to end users.

Weighing only 250 grams, this detector can be strapped on to all those involved in the fumigation to keep them safe and inform the setting of the affected zone around the fumigation enclosure. The same proprietary sensor can be installed in stationary monitoring systems. The proprietary EDN sensor developed by Draeger is also CE marked, meaning that Draeger affirms the good conformity with European Health, Safety and Environmental Protection Standards.

The second type of monitor is a FumiAce TF300 and is very similar to the RIKEN FI-8000 presented in 2018. You are not going to be able to see very much, but this is the new detector, the new monitor, which

will replace the FI-8000 and you can see obviously in the picture there for relative size and weight.

This monitor measures EDN at levels between 185 - 139,000 parts per million and will be used to measure concentrations within the treated volume. Its advantage lies in the fact that it can simultaneously monitor three sampling points and has other software features to enable robust tracking and data collection, including temperature and GPS location.

Going forward, Draslovka will continue to work closely with manufacturers to continuously develop technology in this space. We will work to ensure any appropriate new technologies are adopted as they become available. Both of these monitors are stipulated in the Best Practice Guide developed by WorkSafe.

It is part of our commitment to ensure that the best available technology will always be available to the users of EDN. The current detectors and monitoring systems are now being used in the USA, Korea, EU, and Australia. Field data collected in the Tokoroa trials shows that these monitors will provide appropriate measurement, ranges to set up and manage an affected zone, enabling the safe use of EDN in a commercial situation.

In regards to our product stewardship programme, Draslovka recognises that any chemical used incorrectly can cause harm and it does not want to see any of the chemicals it produces being used incorrectly. To ensure this risk is mitigated as far as is reasonably practicable, Draslovka has developed a product stewardship programme and certification scheme in collaboration with Chemsafety based in Christchurch, which is an independent provider of occupational hygiene, hazardous substance management, analytical and environmental services to the industry.

Draslovka will require that any user of Draslovka's EDN must have all staff participate and pass Draslovka's EDN stewardship programme. The training has been broken into a series of progressive modules so that fumigators are required to complete more extensive training as their responsibilities working with EDN increase.

[9.50 am]

The programme has both theoretical and practical components and is well-aligned with the Best Practice Guide developed by WorkSafe. Being vertically integrated and proprietary means that Draslovka can audit all users of the substance. This is unlike any other fumigant currently used in New Zealand. Continued sales to a user will be dependent on a successful annual audit of records and fumigation practices. Audit frequency will be higher for new users of EDN and

will become less-frequent where audits show the fumigant is being used responsibly.

The Best Practice Guide, a comprehensive 68-page Best Practice Guide has been developed in conjunction with WorkSafe. The Best Practice Guide will be finalised soon after EDN is registered as it requires approved controls before being published.

As mentioned before, on-site boundary monitoring at Draslovka's manufacturing facility in the Czech Republic, which is located in the city of Kolín with a population of approximately 32,000, it has permanent boundary monitoring equipment in place that measures the chemicals the factory produces. The system is set up to electronically provide real-time feedback to the community and local council.

Monitoring equipment, incorporating the aforementioned sensors developed by Draeger, is available that would allow a similar system to be set up on ports.

So, how do these factors work together for the use of EDN? Based on the data from the modelling and the field trials we have presented to you, we know that fumigators will be able to safely apply and ventilate EDN within the conservative buffer zone of 50 metres from the public. We are also confident that it is realistic for fumigators to establish and actively manage the affected zone, supported by the available detection and monitoring technology, during the application and ventilation periods.

Since we submitted our application in 2017, EDN has developed quite the commercial-use track record. EDN has been registered for use in Australia for both timber and logs since 2013 and as a pre-plant soil treatment since 2018. The key markets in which EDN is used commercially include cut flowers, strawberries, strawberry runners, melons and, more recently, specialised golf courses and bowling greens. In saying that, I would like to provide you with a brief overview of a couple of case studies which show how EDN has been used safely on a larger scale.

First up, Central Coast Stadium in Gosford, New South Wales, was undergoing reconstruction and needed an effective nematode and weed-control option. The stadium is situated in a busy commercial zone in Gosford. The application was undertaken in February 2021 by the Draslovka Services Australia Team. The application dose rate was 100 grams per square metre, in line with our APVMA permits, similar to that of dose rate used for timber in New Zealand, albeit at a different use profile and with a buffer zone of 5 metres. A total of 1,100 kilograms of EDN was applied to the stadium surface under a TIF film. Atmospheric monitoring was undertaken throughout the process and

no EDN was detected was outside the prescribed buffer zone of 5 metres.

The second case study is the ship-hold treatment on the AAL Newcastle, where a ship-hold treatment of timber destined for Malaysia was undertaken using EDN. The fumigation was conducted in Portland, Victoria, using a permitted approval from federal regulators. The application was undertaken in December 2020 by the Draslovka Services Australia team. Data about EDN levels in the hold, on the vessel and around the vessel were collected. The data collected from the ship-hold fumigation will be used to inform future work to systematically collect ship-hold data from a series of fumigations so that it can be used to register EDN, the usage of the fumigant and to support the safe work instrument in New Zealand.

The application dose rate at Portland was 100 grams per cubic metre, in line with the import requirements in Malaysia, which is also similar to that of the dose rate in New Zealand. A total of 900 kilograms of EDN was applied to the ship hold and the timber treated was Eucalyptus Nitens.

Since 2018 our regulatory affairs team, headed up by Dr Swami has done an incredible amount of work on the registrations of EDN in multiple countries globally. This work has subsequently resulted in the registration of EDN in three additional countries since 2018, these being Korea, Malaysia and Russia. As you can see from the table, the threshold limit value for EDN varies by country, as does the buffer zone for unprotected public, being between zero to 50 metres. You will see Korea and Russia as an example of 15 metres. In Australia for soil fumigation it is 5 metres and for timber and logs is also 50 metres. Let me repeat that: they are for public.

[9.55 am]

Where do we believe EDN will be registered next? Apart from New Zealand, we anticipate registrations of EDN during 2022 in USA, Uruguay and Turkey and the adoption of new controls in Australia for the treatment of timber and logs, including a reduction buffer zone, removal of the requirement for recapture and an increased treatment time and dose rate in line with importing-country requirements.

DCM, to summarise all of this, that is it and that is all we can do. Draslovka endorses the EPA staff reports and WorkSafe safe work instrument and requests that the DMC register EDN in line with the conservative controls recommended in the EPA staff report. In the end, we are not here to re-evaluate what WorkSafe has undertaken. It has run its course in line with the request by the DMC. The controls must complement those, including WorkSafe safe work instrument in order

for EDN to be commercially viable while still remaining conservative in nature. In saying that, to summarise our requested adjustments, Draslovka requests that an EDN application rate of no more than 120 grams per cubic metre is approved. Draslovka requests EDN to be approved as a fumigant for timber and logs for use in shipping containers, under sheets and with a conditional approval for in ship holds.

In approving these controls, we ask that the DMC consider a conditional approval for use in ship holds, contingent on WorkSafe developing a safe work instrument to avoid the need for reassessment, which would be time consuming for all involved. This would require that EDN could not be used in ship holds until such time as WorkSafe develops a safe work instrument for ship-hold use. WorkSafe has shown that it is thorough and detailed in its approach and it has already indicated to Draslovka that it would be prepared to develop and SWI for ship holds once Draslovka can provide data from ship-hold applications.

Draslovka requests approval to use EDN in New Zealand on exported and imported forest products. This request is also supported by STIMBR and MPI. This would make EDN more useful to the forest industry, for biosecurity use and better protect New Zealand for a wider range of pests.

Draslovka requests a dose rate of no more than 120 grams and requests the removal of a stipulated treatment time of 24 hours. As mentioned, the Tokoroa trials have shown that EDN can be efficacious in as little as 16 hours. It is possible that MPI will be able to negotiate a shorter treatment time with some of New Zealand's markets. In terms of any risk attaining the endpoint concentration of 700 parts per million, which we know will be a point of contention, it is about managing risk not the length of the fumigation and ensuring that the 700 parts per million is still reached before ventilation.

In 2010 the EPA set a high bar for using methyl bromide and STIMBR to fund and undertake research to find alternatives to methyl bromide. We have delivered and exceeded on that aspiration, delivering an environmentally sustainable and safe alternative to methyl bromide. The future of that molecule and its use in New Zealand is now in your hands. In line with this, we are confident we have provided you with a robust and scientifically derived data package which we trust provides you with the confidence to make a pragmatic and workable decision.

In concluding, let me again thank all those involved in the EDN review process in New Zealand, in particular the DMC, who must now decide the controls that will be placed on EDN permitting its use in New Zealand. To inform that decision-making process, we are keen to

answer any outstanding questions you may have about EDN and how it can be used. Thank you.

QUESTIONS

CHAIR: Thank you very much, Mr McConville, for your presentation. I will now ask my fellow DMC members if they wish to answer any questions. Kerry, I will begin with you.

DR LAING: Thanks, John. Thanks very much, Kade, for that presentation. I've got a few questions and it's difficult to know where to start with them. I'm glad to hear that there is some agreement between Draslovka and WorkSafe for looking at a safe work instrument. I did have a query related to whether there was any discussion before about the potential requirements and the impracticability between WorkSafe and Draslovka. Can you clarify for me?

[10.00 am]

MR MCCONVILLE: We took the advice of the discussions that were mentioned regarding, in particular, ship-hold treatments and the potential concerns for the potential lack of data in regard to ship holds. We advised that we would be more than happy to provide additional data into that process if necessary. WorkSafe advised that they would look at that data if we had it available.

DR LAING: Okay, thanks. I'm sure we'll hear about ship holds as the day goes by. Just looking at your new monitoring instruments, the FumiAce which you indicated would be used for monitoring concentrations within the stack and you said it could do three points simultaneously. I'm just trying to tie up with what WorkSafe have said requiring three sample tubes in the stack. Is this that there would be three sample tubes and you would draw it into one FumiAce, which is an instrument that's outside, it's not inside the stack?

MR MCCONVILLE: Correct. All of the equipment is outside of the fumigation volume itself. In this case there are three sampling tubes. The three sampling tubes can be either run through different locations. So in accordance with -- mainly through biosecurity or phytosanitary approvals, generally you need to take sampling from three independent points in a log stack or treated volume. They are all drawn into the one unit and they are circulated back into the log stack itself.

DR LAING: Yes, okay. I will come back to sampling notifications later. I'd love to talk about the field trials and the information that's been provided. I know we indicated at the earlier hearing that we had a preference, provided we could get reliable and robust information on ambient monitoring data rather than air-dispersion modelling, and I appreciate

the information that has been provided. You just have to say that it's a relatively mixed bag there, obviously done under different regulatory requirements, different dose rates, different times and goodness knows what amount of differing monitoring equipment that was used. So I would really like to just focus on the New Zealand trials, both lots and the US trial, which were undertaken after we had returned the hearing.

Now, one of the problems I have with the New Zealand trials is a bit of consistency in terms of volumes that have been treated and the sampling that has been done. I'll try and do it off the top of my head -- no, perhaps I should read it. In the first field trials in 2016 it was recorded that 400 tonnes of logs resulted in stacks of 750 cubic metres. In the later trials in 2018 400 tonnes of log gave us 675 cubic metres. The diagrams provided for the 2019 trials, if you calculate - they may only be schematic but they seem to have some detailed numbers in there - give a volume of 735. I am just wondering about the difference. In one instance you can get 715 and this is 675. What was the actual volume treated in both sets of trials?

MR MCCONVILLE: If I can defer to Dr Jack Armstrong as he's available to answer the questions specifically on the trials, if that's appropriate.

DR LAING: Yes.

MR MCCONVILLE: Jack, are you available? I can't see him. He's there.

MS GEAR: You're muted.

MR MCCONVILLE: No, you're still muted.

[10.05 am]

EPA HOST: Jack, if you click on your microphone settings down the bottom left of the screen you should be able to select your laptop microphone.

DR ARMSTRONG: Can you hear me now?

MR MCCONVILLE: Yes.

DR ARMSTRONG: Okay. To the question referring to log stack size, log stack sizes are always going to vary from fumigation to fumigation. Our log stack sizes shown there - and I agree with you, they are schematically shown - were of different volumes. We tried to keep them as consistent as possible and they were fumigated in the same fashion. Fumigations are not replications, fumigations are individual fumigations and so therefore the amount of fumigant that you put into a volume of material is going to be consistent with that volume, not with all other volumes. Does that answer your question?

DR LAING: Not really. I understand that stacks will vary a little, that just seemed to be a fairly large discrepancy of 75 cubic metres for nominally the same weight of logs of the same dimensions.

DR ARMSTRONG: Okay.

DR LAING: I know that you have written in the report that that stack volume arises from multiplying the weight by the magic factor of 1.7, which we have heard about before in port operations, and I will come back to it again when we talk about port operations. I just have a problem with uncertainty associated with the actual stacks that were treated and the results that may have arisen from it.

I have more questions about the trials and initially on the 2016 trial, which I really will put to the side because it was at a low dose rate and for a shorter time period. But in that set of trials a number of samples were collected and taken back to the laboratory before they were analysed over a six-week period. Can you clarify for me which ones were taken back to the lab and which ones were done in the field?

DR ARMSTRONG: I would have to go back and check on that, but from memory - my memory is not all that good these days - we took samples and they were analysed by gas chromatographic analysis onsite from underneath the tarpaulin, and also during the period after which the tarpaulin was removed for air quality sampling. There were also additional samples that were taken that were brought back to the laboratory, and these were brought back in Tedlar bags and then rechecked at the laboratory. It was, I believe, a duplication to ensure that we had precise data.

DR LAING: That doesn't come across very clearly in the reports. But anyway, the only other comment I would make about the initial trial: it's apparent in the information that's been provided that the time average samples, the locations were actually upwind rather than downwind of the stacks so it wasn't too surprising that you didn't find anything there.

Moving on to the 2019 trials, you make reference to the fact that the tarpaulin was removed one quarter at a time so that it was spaced out over about a 30-minute period and it was said that this is routine practice for fumigation on the port. It's my understanding that removal of the tarpaulin might halt at some times when high methyl bromide readings are found but it is not normal practice to do it quarter by quarter and over that period.

[10.10 am]

In that sense, it says to me that the results that arose from those trials were artificially lower than might have been the case if the tarpaulin

had been removed in the same manner as it is on the port. I think we heard at the initial hearing that Steffan Browning said they had records there of a tarpaulin being removed in less than 2 minutes. Sam Weiss gave us information from the overall records that suggests that removal was six to eight minutes, and in fact they had one record there of nine tarpaulins being removed an hour. I just think that the trial work has some constraints on it. Any comment?

DR ARMSTRONG: No. We followed what we were told was port procedure.

MS GEAR: Mr Chair, do you mind if I add to Jack's comments here? It's Helen Gear speaking.

CHAIR: That's all right, Helen, you are listed on the applicant's team so please go ahead.

MS GEAR: Thank you very much. I was involved in putting together the request or applying for the experimental permit to be able to undertake this work and I can confirm that in 2016, the tarpaulin was removed slowly. During the 2019 trials the longest time that was taken to remove the tarpaulin was ten minutes, and often considerably less than that. As Jack said, we did try very, very hard to ensure that all the work that was undertaken was in line with what would happen on a port. I think that's quite an important point to be made. That's all I need to say.

DR LAING: That seems to be contrary to what is written in the reports, Helen, but there's no point in us getting into an argument here.

MS GEAR: True.

DR LAING: Another comment I would make about the trial in 2019 was I was disappointed that so little use was made of instruments in terms of monitoring the air compared to the sucking of samples and putting it through the GC. It seemed to me that that was an ideal opportunity to prove how good the instruments were and some sort of correlation between what each of the measurement devices might turn up. Apart from some work that was done on the last two runs using Gasmet when it was there, there really was no correlation established between the two methods.

DR ARMSTRONG: Are you asking me for comment on that?

DR LAING: No, no, I just --

DR ARMSTRONG: Well, I would like to comment on it because during these operations we had consultant occupational health specialist Derek Miller doing sampling as well as using the very precise atmospheric testing

equipment of Draslovka, and so we do have that data and we have quite a bit of it. It is listed primarily in Miller's report.

DR LAING: Yes, I'm aware of what's in Derek Miller's report and I was referring to the tables that he provided at the back end, where he did a Gasmet correlation with samples that had been taken. The bit that I didn't really understand there was in those latter trials you got around to taking samples, somehow, with a 1 millimetre syringe that he was comparing with the Gasmet data. It just did not seem to be a very robust means of taking a sample and I don't know how he got it from the syringe to the GC to be measured. It just seemed to me that there was an opportunity there to get some really good information and it was not taken.

[10.15 am]

DR ARMSTRONG: I beg to differ. Actually, the syringe samples were taken, the syringe was closed with a Luer lock, the Luer lock was then inserted in the gas chromatograph and the data was taken. If you're looking at these tables, there was a lot of data taken over time at many different points. I believe that the data was quite robust and I believe that Derek Miller's report is quite robust.

DR LAING: It was information that wasn't provided and it may be robust in that sense. The only other comment would be that over the time period they were taken values seemed to fluctuate up and down, there was no pattern to it of any decay, of any end decreasing.

Anyway, what I'd like to do is move onto the US trials and, I guess, David Sullivan may be able to comment. I look forward to that ever since Ian and Clyde indicated that there was going to be US trials and, unfortunately, towards the end of the initial hearing he indicated that the size of the trials would only be about a tenth of what they were in New Zealand, ie about 100 cubic metres rather than 1,000 cubic metres. If you look at the information that's in there, there seems to be a real discrepancy between the dimensions of the stacks that are given and the volume that was treated, but the eventual stack size turned out to be probably about 25 cubic metres, and looking at all the data that's out there or ambient air monitoring, I feel that a lot of it is with stacks that are far too small compared with New Zealand stacks to be of much relevance in our consideration and although there are many instances out there where the end concentration was higher than it is in New Zealand, the mass being emitted from those small stacks when they're ventilated is so small compared to what we would have in New Zealand that they're not meaningful.

I would like now to address stack sizes that were actually dealt with on the port and I don't know whether Mark Procter is the right person to be answering the questions there. Genera has provided information on

stack sizes which was related to the original change in David Sullivan's monitoring from 750 cubic to 1,000, so we've got a fair amount of information there about what the actual stack sizes are on the ports, that's at Tauranga, Napier and Northport, and the average is around about 1,000 cube, but the variation is quite significant, and I guess the factor that concerns me most is that if you look at the maximum stack size there that is recorded, it's actually 2,700 cube, but that's an average of seven stacks. So it's conceivable that stack size could be up to 3,000 cubic metres and that's twice what was modelled and substantially away from any of the field trials that have been undertaken and, therefore, when we come to look at the safe work instrument and buffer zones, I just wonder how relevant they are to a stack of that much greater dimension.

Now, I'll come back to the 1.7 factor. We were advised at the earlier hearing that this basically stemmed from loading and ship holds, where a certain JAS volume is put into a hold and compared with the total hold volume that indicates a loading rate of about 58 per cent, which if you take the inverse of that to get to a stack size is 1.7, but I was not clear whether the JAS volume that was entered into or plays its role there was something provided by log suppliers or whether that is based on a weight of logs that was going in, similar to what was described at the 2019 trial. Can you clarify that for me, Mark?

[10.20 am]

MR PROCTER: Yes, thanks, Kerry. Look, this is a response clearly not from a technical fumigation perspective but one of rational clarification. So the first point was the relevance of the trial size compared to what's actually occurring on the port. From an operational perspective, and I'm talking about a health and safety perspective here as well as just operations, I don't believe that the stack size itself has any relevance that you're alluding to because the buffer zone and the operational work that is occurring around the stacks are relevant to stack size. So I'm not sure that it's a major issue, Kerry. Whether you are doing a trial for 500 cube under a stack or under a tarp or whether you're doing 1,000 cube, the operational issues are relevant to the stack size itself.

DR LAING: Yes, and I guess that's my concern, and I'll come back to it perhaps when we're talking about WorkSafe and the safe work instrument, but it is just really a matter of, I know there is something in the MPI submission that perhaps the buffer zone should be tailored to the size of what's being treated because it seems to be you'd have a 50 metre zone under the safe work instrument, even if you were fumigating a very small, say, just a container, and it's really a matter of whether the buffer zone should be proportionate to the size of the stack that's being treated because the mass or the volume of gas that will come out at the end is obviously proportional to the size of what you're treating.

MR PROCTER: Yes, I understand and I just refer back to the controls that WorkSafe and the fumigator would have in place.

Just going back to your hold question, Kerry, I'm not exactly sure of what you're getting at, but the volume per hold is supplied by the marshalling and stevedoring companies that are loading the vessel, and so the volume of logs, that data doesn't come from the exporter as such, but from the marshalling and stevedoring companies, and it will vary depending on grade specifically and length that is loaded in that hold because each grade, and particularly grade and even species, will have a different weight factor and/or conversion to tonne, so there is variability for sure.

MR MCCONVILLE: If we can just make further comment on that, Swami?

DR SWAMINATHAN: I would like to make a few comments regarding the field trial conducted in New Zealand. The DMC made comment regarding the volume, but if you look into that report, we also make sure that the EDN concentration immediately after application inside that tarp. There you can see there are some targets going straight up to the maximum of 120 grams per metre cubed we apply and we also measure the concentration inside the logs, and some of those things based on the loading factor, the dose rate was always higher than that and apply those rates. So here you can see although there is some variable figures, when you are doing a commercial trial, like a field trial, the logs vary, so you cannot expect the perfect volume there. In the lab study you can do it, but when you come to the field trial, that is different. But in that, how you can check is by checking the concentration inside the peak at volume, so whatever you apply, the maximum dose rate 120 grams, you can see that on the data but the dose rate is measured when we take the volume are higher than that metre cubed volume. That clearly says that they applied those figures within that metre cubed volume.

[10.25 am]

That's one thing, and the second one thing is regarding the endpoint concentration, that is about set control. That is the tarp you are like clearing that one, regulating that one. Now what's set control under EPA control clearly says that it is the 700 parts per million you cannot do until it is 700 parts per million, so that's the control there and you need to measure the concentration, and it depends upon the tarp when you're moving, so you have to make sure that it's reached 700 parts per million or less than that one before doing that translation. That's to protect the workers and other port workers and bystanders that's surrounding that port now during the treatment time. So these are all the components already at play and that's what happened, which makes

that we can monitor and safely apply the port. That's the additional comment I want to make on the DMC question.

DR LAING: Yes, thanks, Swami.

DR ARMSTRONG: May I say one more thing going back to your issue with the 1.7 calculation factor, you said that it was for ship holds, well, it doesn't matter whether we're talking about a ship hold or under a tarpaulin or in a 40-foot container, they're all fumigation spaces, and so you would have to apply the same factor uniformly as it is used commercially. Does that clarify that for you?

DR LAING: No, because there's another factor there that hasn't come in, and there may be something I'm missing and I hope somebody would be able to explain it to me. If in the port, the information they gave us for converting JAS volumes, which I presume they got from tonnes, was that you multiply the JAS volume by 1.7 to get a stack size. In the trials you said they took 400 tonnes and multiplied it by 1.7 to get a stack size, so that implies to me that an assumption is being made that a cubic metre of wood weights 1,000 kilograms, and that does not fit with my understanding of radiata wood density.

I mean, I understand what you're saying, Jack, about 1.7 is the factor you use. That's the factor they do use, but I'm just querying the basis of 1.7 when it implies a log density that does not fit with my understanding. But there may be somebody when STIMBR gets on or somebody else that can clarify the missing link for me.

MR MCCONVILLE: I suggest perhaps David Sullivan. David, have you got any information on that at all?

MR SULLIVAN: I don't have information to answer that direct question but I know the issue that came up earlier -- let me put my video on. The question that came up earlier was the US trials and why were they the size that they were. The US trials were conducted to compute flux. They weren't designed to necessarily show worker exposure in that context. So it was a scaled study to identify flux rates. Once flux rates are known, then that can be scaled up, much like they routinely do in agricultural flux work versus modelling. So that's why it was a smaller size. It was also limited to the availability of wood. That particular study had three concurrent plots, two involving containers, one involving a surface-based log stack. Yes, it was quite a bit smaller than the typical log stacks that you would have in New Zealand.

DR LAING: Okay, thanks, David. I did want to talk about ship holds. No, one last point, and I don't know whether you can answer it, Mark, or not. It's really related to fumigation and it wasn't clear at the time we visited the port. If you look at the field trials that were undertaken, the 2016 trial

with an approximately 60-metre-long stack had 6 injection points in it. The 2019 trial with about a 30-metre-long stack had 3 injection points. Does that reflect what is done on the port, that in fact the number of injection points is relevant and related to the size of stacks?

[10.30 am]

MR MCCONVILLE: Sorry, can I step in on that one first, Dr Laing? From a methyl bromide perspective it is necessary to have multiple injection points. That comes down to the ability for methyl bromide to move within the volume. In order to reach equilibrium faster, the more injection points the better. The more you can manage the better. Whereas with EDN, EDN moves much faster, so there is the discrepancy between what is required for EDN and what is required for methyl bromide in regards to the number of injection points, if that answers the question.

DR LAING: That does answer the question, Kade. There was a concern that it would be in the industry's interest to ensure that EDN, if it's approved, does distribute very well through the stack. I think there was something earlier in the year, or it might have been late last year, where there was infestation found in logs in China and the initial response was to can imported logs from New Zealand. It would obviously be in the industry's interest to know that they were meeting the right concentration targets right at the end of the stacks or as far away from injection points as possible. I understand that EDN will move far more readily.

MR MCCONVILLE: It comes down to a couple of factors there. The first one is that is one of the reasons why we have the three sampling points as well, so that we can be monitoring and be making sure there is equilibrium throughout the stack. The second point is that we've shown -- again it just comes down to speed of application. We can apply much faster through multiple application points but again just depending on the size of the stack, the length of the stack, space between the stacks. We just decide on the day on what will be the most effective method. In general, in Korea, as an example, they use one single injection point for up to 2,000 square cubic metres, as an example.

DR LAING: Okay, thank you.

MR PROCTER: Kerry, it's Mark Proctor here again. Can I just reflect back again on this 1.7 that you're trying to clarify?

DR LAING: Yes.

MR PROCTER: I might be off the mark, but again I'm not coming from a particularly technical perspective. But generally speaking a tonne of logs is going to reflect a JAS of logs as well. Now, there is variation between grade,

like I was referring to before. I'm assuming what is occurring here is that the 1.7 that you're referring to is the fumigator is taking the JAS volume of log under a tarpaulin, multiplying it by 1.7, to give the total cubic metres including the log volume and the headspace under the tarpaulin to drive the volume of fumigant required. Does that help or make sense?

DR LAING: That's my understanding, Mark. That's where it comes from, yes.

MR PROCTER: Yes, that's exactly where it comes from. So the industry itself looks at a tonne of logs that basically, across the range, is about a JAS of logs.

DR LAING: Yes. I don't know whether to deal with ship holds and my concerns or not. I know the industry has a concern.

If you look at the information that was in appendix 3 of the application back in 2018, it describes fumigation activities at the ports of Napier, Northport and Tauranga and it indicates that:

"Some are unloaded for fumigation or the rest are left in holds for fumigation with Phosphine."

So it implied at that stage - or perhaps it was misleadingly written - that logs were unloaded and fumigated. If we look at the more recent information that's been provided for 2019, about 30 per cent of the logs are fumigated with methyl bromide in holds and not unloaded on to the port. Can you clarify that, Mark? Was the original statement wrong or have practices changed?

MR PROCTER: There are no logs unloaded off a vessel and fumigated with methyl bromide. I'm not quite sure how that interpretation has occurred.

[10.35 am]

DR LAING: It may be just the way it was written. I'm trying to understand enough about the problem as to whether there are other ways of getting around the bar on ships' holds, particularly it seems to me that that would put a real bar on export of logs from the South Island if they cannot be loaded on to ships and transferred somewhere else and fumigated. But if there is the possibility of an SWI being developed, perhaps that problem will go away.

That's probably enough from me for now. I do have some queries about the air-dispersion modelling but my voice is running out and I should give somebody else a turn.

CHAIR: Thank you, Kerry. We'll continue with questions of the applicant. Ngaire, do you have any questions you'd like to ask at this time?

DR PHILLIPS: Yes, kia ora. I just have a couple of questions. The first one's a simple one, I hope. You're now asking that if EDN is approved for use that it also includes imported timber and processed timber. I was just wondering why that wasn't considered. Given how much methyl bromide and the diversity of current uses for methyl bromide that there are, why wasn't this considered as part of your initial application? I guess that's for Kade.

MR MCCONVILLE: The request came from STIMBR and MPI after the time. To be honest, I'm not sure why it's come up at the later stage. Would you mind if I deferred to either STIMBR or to MPI for an answer?

DR PHILLIPS: No. MPI is actually giving a presentation later. I'm asking you as the applicant rather than them as industry partners, as it were. Because you put the application in rather than them.

MR MCCONVILLE: Of course. Helen, as a part of the applicant team, would you be able to provide some further context on that?

MS GEAR: Certainly. I think it's probably an oversight on our part. Obviously the application was put in because of the huge concern about log exports and that's what drove the application in the first place. I know at the time that there are some things you cannot use EDN on. You can't use it on produce. Pavel, the owner, is quite emphatic that you can't use it on entire cars because of the chance of EDN getting stuck in enclosed spaces and then being released at a later time.

But I think, as MPI has pointed out, there are a range of other uses it can identify it would be useful for. Obviously now that methyl bromide's tenure is effectively only a few years, if MPI can see the opportunity for using it in other areas and we can trial it and make sure it can be used safely, then it would be very sensible to register it for that range.

DR PHILLIPS: I guess it's just unfortunate that this has only come up now, when we're this far down the track, because the Decision-making Committee needs to rely on the evidence for the uses that it has been provided with, unfortunately. I agree. I think it was a considerable oversight.

MS GEAR: It obviously was, and our apologies in that respect. I know from conversations with the Draslovka team and with industry and STIMBR as well, at the end of the day, registration for logs and timber, even if it's only for export, will be a huge advantage. Please question other people but I think you will find that is a message that comes through.

I think you will also find that most people want that registration to go forward as quickly as possible, even if it means we need to look at those other uses later on and come back for a reassessment.

[10.40 am]

DR PHILLIPS: Yes, sure. I mean my understanding is that something like 90 per cent of methyl bromide use is on logs for export, and so, yes, obviously if EDN was approved it would actually have a significant effect on the volume of methyl bromide that is used. So I appreciate that.

My second question was not actually covered by your presentation, but it was actually in your submissions or your documentation. I am not sure again if this is for Kade or perhaps Helen maybe even. Firstly I will just check, in some of your documentation you talked about having an adaptive management clause related to having a clause to allow revision of the buffer zone once monitoring data has been available for a year. First of all, is that something that you are still wanting?

MR MCCONVILLE: That would be preferable. Is it preferable? It is a consideration that we would like considered.

DR PHILLIPS: Okay. So given that this approval process is at a national level, and I am sure you are aware of the hierarchy of approval processes that happen - perhaps not the right phrase - you are aware that in addition to the HSNO Act we also have the Resource Management Act, which operates more at a regional local level in terms of environmental management. So I am wondering how you would imagine that an adaptive management clause, which is approved or included at a national scale, could in practice work on a port-by-port basis, for example. Who would actually be responsible for making the decision about whether a buffer zone could change?

MS GEAR: Kade, could I perhaps provide some sort of answer here? I think we put that adaptive management control into that documentation to show that we are willing to work with the community. I think probably a year pragmatically, if you take into account time for discussions with ports that may be prepared to allow this to be used, would perhaps be a little bit short. By putting this in that space we are really saying we would like to opportunity to work with perhaps one, perhaps two ports, and in doing so allow industry to actually be able to use this facility. Because the removal of ship holds is going to be very, very difficult for industry going forward.

I think you would find we would be very, very conservative, exceptionally conservative. We do have the range of monitors. Kade already has some experience from Portland about the sorts of levels that he can expect. You can talk to them about the measurements they

have taken with that one ship hold that they have already tried. In ship holds you have a lot more control actually than you do under a sheet because you can lower your hold cover as you are ventilating. It is the ventilation time that is the most crucial really.

DR PHILLIPS: Sorry, Helen, I don't mean to interrupt, but I'm not aware that that adaptive management clause was related specifically to ship holds. I thought that was related to across the board, to all buffer zones.

MS GEAR: It was put in there and put forward. We obviously identified that this was one way that we could provide confidence going forward. But, yes, I am sure we would be prepared to do that. Again, as you say, it would come down to the actual ports and the regional councils that we were working with. It would be an ongoing conversation and the data logging would allow us to sit down with a nominated person and review individual treatments.

DR PHILLIPS: So then it sounds to me therefore that it is actually better suited to something that would go into a resource consent rather than at a national level piece of legislation, which this is.

[10.45 am]

MS GEAR: You're probably right in that respect. But I think the lead would probably need to come from the EPA or that direction would need to be made by the DMC so that it was obvious to the regional authorities.

DR PHILLIPS: I guess then the question is if that's consistent with the safe work instrument and the requirements of that?

MS GEAR: The safe work instrument has an affected zone, so it is up to the fumigator to set that affected zone. If the fumigator is working under the regional council, the regional council or the port authority's input. I cannot speak from a legal basis but --

DR PHILLIPS: No, yes, I'm just trying to figure out, and adaptive management clauses are very common, becoming more and more common under the RMA and even under the EEZ. But I am just trying to figure out how this would actually work in practice and how, if it did, because there is already this effectively kind of an adaptability about the buffer zone in the SWI. That is probably not the right word but it is a responsive clause rather than saying, "This is the number you have to stick to." So in some ways to me you already have that in place.

I guess there is also this danger that, if even a year's worth of data, speaking as an ecologist, if I had only a year's worth of data to characterise the variability in the natural system, I would not be relying on that dataset. One could argue that a year's worth of data of

monitoring at one port may not be representative of the previous year or even the previous five years. So this is discussion, sorry, and you did answer my question and I do appreciate it.

MS GEAR: This needs to be put in context too that, when we put forward the adaptive management, we had no idea what would be in the safe work instrument. This was an indication that we are very interested in registering, we are very interested in making sure it is used safely, and this was one way we could offer a potential for going forward.

DR PHILLIPS: Yes, sure. Thank you, Chair. I have no more questions.

CHAIR: Thanks, Ngaire. I have just got a couple of questions or a question and then maybe a bit of discussion. Kade, you mentioned and you pointed out the example of ship hold fumigation that takes place in Australia, or that has recently taken place in Australia. At the previous hearing, in 2018, my understanding was that your regulatory approval to use EDN in Australia had a condition of recapture of the fumigant.

MR MCCONVILLE: Correct.

CHAIR: Is that control applied to the ship hold fuming that you referred to earlier?

MR MCCONVILLE: No, it does not. So due to our want and the full consideration of the APVMA, we put forward a case in order to gather data. In order to gather data, we were provided with a permit to enable us to apply to ship holds without the need for recapture and without the need for scrubbing, in order to collect data. It's a chicken versus egg scenario. We needed to collect the data to be able to provide the information for the regulatory authority.

DR SWAMINATHAN: And we used in New Zealand information to support the case in Australia to get this permit and they allowed us to provide this permit to collect the data. And based on that APVMA permit we did the ship hold.

CHAIR: Okay, thank you, I understand. The second this I want to say is that largely the introduction of the draft SWI has clarified things somewhat from the DMC's perspective in the focus that it needs to apply through the HZNO process. Largely that process now focuses on the risks to the public and to the environment where the SWI applies less so.

One of the concerns that members of the public have about the introduction of a new fumigant is the accuracy of information on the toxicity of the substance because that information directly relates to the relevance of restriction areas, boundary zones, etc.

[10.50 am]

So I wonder if you or perhaps Dr Pemberton might be prepared to make some comments on the robustness of the measurements upon which the TEL has been calculated. In the earlier hearing, a study from 1984 was submitted as the main evidential basis for drawing a TEL value for EDN. Could you clarify whether or not any subsequent work has been done since that hearing or could you comment on other toxicological studies that you have inferred the toxicity of EDN from?

MR MCCONVILLE: That is definitely a Mark Pemberton question and so I will defer to Dr Pemberton if possible.

DR PEMBERTON: Thanks very much. Good morning, everybody. Firstly, I will just mention that my picture on the introduction was quite old and I have actually been working in the industry for 46 years, so fortunately my video isn't showing, otherwise you'd see I've aged considerably over the last few weeks.

But generally in terms of the toxicology data on EDN, the data is sufficient to derive the TEL values. No further data has been generated recently and in fact to my knowledge since the 20 - 30 years. In terms of the derivations themselves, I totally support them, they are in line with international accepted guidance and the points of departure are very robust. In terms of the 24-hour TEL, I believe that was actually a six-month inhalation study in rodents, it is old but it's actually quite consistent with OECD guideline studies of today, the data would not have changed significantly if it were to be repeated in a modern guideline study.

In the case of the 1-hour value, this was based upon neurological effects which are actually sensory irritation. If I just explain a little bit about that, irritation of the eyes and the upper respiratory system, effectively they form two types of irritation: the first one is objective changes, and these are redness and swelling, oedema; and subjective changes or sensations, itching and pain.

In the case of EDN, we have a study from the 1960s, which is very old but, fortunately, was actually in human volunteers. Such a study could not be done today when we've moved on considerably since exposing individuals to industrial chemicals like this, but, by having that data, we actually have hard data in human volunteers and, therefore, any modern studies which would be in animals are of much lower reliability and uncertainty compared with that data in humans.

The data from the 1960s study of McNerney and Schrenk basically showed that, at 8 parts per million, seven subjects didn't perceive any

sensory irritation, so this is a sensation of itching and pain. At 16 parts per million, five out of seven subjects immediately perceived sensory irritation at or just before experiencing sensory nasal irritation. At no time did any subject experience any physical irritation, any redness or swelling, which would be associated with a tissue damaging effect. What that tells us is that EDN can be sensed by individuals, a bit like odour detection, at somewhere between about 8 and 16 parts per million but, as soon as you remove that exposure, the sensation disappears and there is no lasting effects whatsoever.

Now, in terms of setting the 1-hour TEL value, the sensation that's experienced by these individuals is the most sensitive and relevant template, we call it a point of departure, and, because it's in humans and because it's a threshold effect and it's very consistent between individuals, then the margin of safety that needs to be applied to that is much smaller than, for example, in the 24-hour TEL value which was an extrapolation from studies in rodents of a six-month duration, extrapolated through to humans, taking into account differences between rats and humans, in the respiratory rate and the exposure time, but also variability and uncertainty in that extrapolation, and variations between humans for these systemic effects.

[10.55 am]

So, in terms of the two values we have, the TEL 1-hour and 24-hour, they are of what I call robust high confidence and, as a toxicologist, I don't believe there is any evidence that we would need to generate through repeat studies. So, reiterating, I fully support those derivations, they're in line with international best practice and I don't think there's any alternative. Any questions?

CHAIR: No, thank you for that comment. I would just say, and I think this is a sentiment that's also been communicated through some of the submissions, and I'm not a toxicologist but I am a biologist, and I think relying on a single study conducted 40 years ago seems to be a weakness in the case for an accurate estimation of the toxicology of this compound, and I wonder if Draslovka had considered, or would consider, funding further studies into the toxicology, if for no other reason than to provide an n greater than 1 on the studies that are used to measure the toxicology of the compound?

DR PEMBERTON: If I may just add one comment to that, and that is that the findings from that 1960s study, McNerney and Schrenk, actually are very similar to the findings they found in animals in the other inhalation studies, so, in fact, we have supportive evidence that the threshold for central irritation is very similar in rodents as well, which is not surprising as this is a behavioural-type response, it's a concentration-dependent effect. So, if we were to do further studies in animals, it's very likely

just to repeat exactly what we have already in the other animal studies and I suspect, probably in the derivation of the 1-hour value, they probably took that into account as well. Certainly my comments.

CHAIR: All right, thank you, Mark. I think that concludes from the DMC of the applicant; I thank the applicants again very much for a very lucid presentation. At this point we should be moving on to the next presentation, which is from WorkSafe, but, as all of you will have realised, we're now behind the schedule of today's events and we're at the time where a short break has been introduced, I'm going to take that break now and we'll resume at 11.15 for the presentation from WorkSafe.

ADJOURNED [10.58 am]

RESUMED [11.15 am]

CHAIR: As you may have seen, in the interim I've sent a note to everybody indicating that I was in fact a little bit too eager to bring WorkSafe into the proceedings and there is now an opportunity for any of the other parties to ask questions of the applicants on the presentation that they gave earlier. Do any of the other parties wish to do so?

MR BERARDOZZI: No.

CHAIR: Okay. One last chance. Any other party, any submitter wish to ask a question of the applicant? All right. Therefore, we will move on and I'll now invite Susan and Paul from WorkSafe to give their presentation.

WORKSAFE PRESENTATION

PAUL MOENBOYD and DR SUSAN COLLIER PRESENTING

MR MOENBOYD: Kia ora tātou, thanks for this opportunity to walk through the EDN safe work instruments, how we develop them and the next steps after this hearing.

My name's Paul Moenboyd, I'm a senior advisor in WorkSafe's Regulatory Frameworks Team and our team works to make sure the regulatory framework for health and safety at work, including hazardous substances, is fit for purpose. This can include providing advice on agencies' proposals that impact on health and safety but also developing amendments to that framework or adding to it and modifying it. One way we do that is through safe work instruments like the ones that we've developed for EDN. Susan?

MS COLLIER: Hi, I'm Susan, Dr Susan Collier, and I'm a hazardous substance technical specialist at WorkSafe. My part in this process, I've been working with EPA on any applications and input that's needed from WorkSafe, and obviously once we enter into a process like a safe work instrument we provide technical support to the Regulatory Frameworks Team which Paul works in. Thank you.

MR MOENBOYD: I'm just going to share my screen. So, first we're going to talk a bit further about that role in hazardous substance applications to the EPA and then a little bit more about what a safe work instrument is. Then we'll briefly discuss the information that we use to come up with the safe work instruments; following that, the requirements themselves; and finally a bit of a discussion about what may or may not happen if the DMC approves EDN.

MS COLLIER: With the shift of workplace health and safety requirements to the Health and Safety at Work Act in December 2017, WorkSafe became responsible for setting workplace controls for hazardous substances. To do this we work with the EPA during the application process, which may involve us being part of the application team. We review the application and any supporting documents, and that will be things like the EPA risk assessment, to determine if the risks associated with the hazardous substance can be managed adequately by the existing regulations. That includes the Health and Safety at Work (Hazardous Substances) Regulations and the General Risk and Workplace Management Regulations. We would also consider the upstream duties in section 39 to 42 of the Act.

In reviewing the available information, if we consider that the existing requirements don't adequately manage the risks and appropriate safe work instrument provisions are available in the regulations, then we may set additional or modified requirements to protect the health and safety of workers and others in safe work instruments. These safe work instruments must be consistent with the purpose of the Act.

MR MOENBOYD: To say a little bit more about safe work instruments, they give us a very limited ability to add to and adjust requirements in the regulations and, as Susan was saying, we can only do this if the regulations contain a provision that allows us to do so. It's not an unlimited ability and it's subject to consultation and the approval of the Minister.

The Hazardous Substances Regulations contain provisions in areas where it's likely that there will be changes over time, such as in equipment, technology, risk management, or in substances that the regulations apply to, such as new substances that the EPA may approve. Any additions or modifications that we make to the framework using an SWI must remain within the scope of the provision

that we use and must be consistent with the regulations, their definitions and the framework they establish.

[11.20 am]

If we do decide to begin work on a safe work instrument, we develop the proposals, our legal staff draft that into a legislative instrument, which a safe work instrument is, and then we consult on it. After this consultation we consider whether any adjustments are needed to the safe work instrument and present it to the Minister for his approval or, as in this case, his approval in principle, pending the DMC's decision. Following this, we gazette the safe work instrument and then we have to observe the 28-day rule, which is 28 days between when the safe work instrument is gazetted and when it comes into effect.

We're just going to give a bit more background on the information that we used to develop this safe work instrument, from the beginning of the application to the EPA and our initial advice through the first hearing and additional information received after that.

MS COLLIER: Before our first hearing we considered the requirements that were in the Hazardous Substance Regulations and the General Risk and Workplace Management Regulations and considered whether they would manage the risks of EDN. In doing that, we reviewed EPA's Staff Report and Science Memo, and other information from the applicant and submitters.

At the first hearing, we advised that the Hazardous Substance Regulations did not adequately address all the risks associated with use of EDN. We said that additional and modified requirements were necessary to protect workers and others from exposure to EDN. Obviously we need to provide a practical framework for doing that. There was further information identified that we needed to develop appropriate requirements.

Just having a look quickly at what information we had before the hearing, this list is the information what was available to us for providing our advice before the hearing: the application form and appendices, the EPA Staff Report and Science Memo, the Sullivan air dispersion modelling from 2018, Bruce Graham's review of that modelling, and the submissions from the EPA process.

MR MOENBOYD: Yes. What we also considered was, as I mentioned before and as Kade mentioned as well, the framework that would apply to EDN if it was approved without a safe work instrument. A safe work instrument only adds to or modifies certain regulations but it doesn't mean that the rest of the regulations don't apply.

So there's a range of requirements in the Haz Subs Regulations that do apply to EDN: the general requirements applied to all hazardous substances like inventory or safety data sheet requirements, emergency management, training, risk management; then the requirements applied to EDN as a flammable gas regarding its storage, separation from other substances, hazardous substance locations; requirements for toxic substances like certified handlers which are specially trained and certified workers, controlled substance licences to possess some of the more dangerous substances; and the requirements for fumigants as well.

But there are requirements in the regulations that apply not just to classifications but to specific substances. A good example of this is methyl bromide, which has a number of additional specific requirements. Given its similar use as a fumigant we did consider that framework for methyl bromide as a useful starting point and some of those requirements, where appropriate, have been the basis or starting point for our EDN requirements.

Once we did decide that EDN was likely to need some additional or modified requirements, we reviewed the regulations for safe work instrument provisions that allowed us do that. In the fumigant requirements especially, we used the safe work instrument provisions for ventilation requirements and the part 13 requirements for toxic substances. There's quite a broad hook, which enables us to make a wide range of provisions.

[11.25 am]

The Minister must consider how the current provisions eliminate or minimise risk, whether those current provisions are practicable and whether a safe work instrument can come up with an equally practicable set of requirements that is not any less effective in minimising or eliminating the risk.

Then, after the initial period of working through the application and receiving all of that information that followed that, in June 2019 the DMC advised it would adjourn until the safe work instrument had been developed. At that point we were going to develop the safe work instruments with the information that we had on hand and the information that continued to arrive.

As I said earlier, first we checked the existing framework for any similar requirements that existed that we could adapt for EDN. We did use methyl bromide as a starting point but as more and more information became available we adjusted that to reflect the characteristics of EDN and ended up modifying quite a lot of those requirements for methyl bromide. Susan?

MS COLLIER: Basically there's been many new documents shared since the initial hearing. In developing the safe work instrument, we've just listed here the key pieces of information that have informed the development of the safe work instrument. It doesn't mean we didn't take into consideration some of the others as well.

So the first one, because workers and others should be given level of protection that is reasonably practicable, in our advice before the hearing we proposed that scrubbing may be required. So we required the applicant to provide a justification for not using scrubbing, as that is the highest level of control we would consider from the hierarchy of controls. So they have provided that information for us.

So the next one is statements from expert conferencing. These were key in influencing the modelling that we commissioned in late 2019. That includes parts of the methyl bromide expert conferencing as well that applied generally to log fumigation at the Port of Tauranga. As part of the 2019 log-fumigation trial that was run, a worker-exposure assessment was conducted by Derek Millar. So there was some information as part of that trial that we received as well.

Once we had developed a draft safe work instrument of requirements, we commissioned Todoroski Air Sciences to do further air-dispersion modelling to test those proposed requirements. Based on the modelling, we modified the requirements which we then consulted on.

As part of the submission process, the first safe work instrument consultation, we received 2020 Sullivan modelling and we then got Todoroski Air Sciences to review the 2020 Sullivan modelling. That review concluded that they were complementary pieces of information.

In developing the final safe work instrument we considered many pieces of information, including the submissions we received from the two rounds of public consultation. As I have described it, you'll realise that when we began the development of a safe work instrument early in 2019, much of this information was not available, so we continued to receive information throughout the process.

To explain a bit about the additional modelling that we commissioned, there were some clear objectives when we commissioned this modelling. They were to (1) examine whether an approximate 50-metre buffer is adequate for the ventilation of log stacks under tarpaulin covers and from ship holds following fumigation with ethanedinitrile. The second was to identify how long the buffer needs to be in place and the third was to examine whether time of day for ventilation or log stacks per hour and other factors, how that affected air dispersion. So we were looking at what other factors could we put in place, what other

requirements could we put in the safe work instrument to manage the risks.

[11.30 am]

We also gave Todoroski some parameters, using the best information we had at the time. These were some of the parameters that we set. We wanted to know about endpoint concentrations of 500 parts per million, 700 parts per million and 1,000 parts per million and how that affected the concentrations in air. We also gave them the log-stack dimensions of 60 metres long, 5 metres wide and 4 metres high. Based on the maximum number of log stacks that were fumigated and ventilated at the Port of Tauranga in 2019, we set them a maximum of 30 log stacks, so we did modelling for 30 log stacks. We do need to keep in mind that it's not a daily occurrence but they do 30 log stacks a day. That was like the maximum we considered they might do in a day.

In developing the safe work instruments, we were aware of the limited date and information available, as the proposed use of EDN is a fumigant. It's a new use in New Zealand. As is the case for any new substance, we have to rely on modelling to assess potential risks. In determining the safe work instrument requirements, we also must prioritise the health and safety of workers and others. We also have to make sure that any requirements we put in place are reasonably practicable, as this is a requirement in the safe work instrument when we do need safe work instruments.

MR MOENBOYD: We're just going to work through the requirements very briefly. There are two areas of the safe work instruments that address the risk of EDN by keeping members of the public and workers away from the areas of risk associated with EDN during the times of greatest risk. The main one of these is the requirement to set a buffer zone around each enclosed space where fumigation is taking place and to ensure that no member of the public is in that buffer zone during that buffer-zone period.

This is an area that extends in all directions around the enclosed space to at least 50 metres. We say at least 50 metres between there's a need to expand the buffer zone if the TEL is exceeded at the boundary of the buffer zone. This has to be done on the basis of measurements by the PCBU at the downwind edge of the buffer zone boundary. Once again this buffer zone is a minimum buffer zone because there is a prohibition on the hazardous substances regulations of releasing toxic substances above the TEL, above the tolerable exposure limit. Without this buffer zone requirement it would be impossible to ventilate EDN as proposed here.

Another requirement that we've developed is to protect workers from exposure to EDN. This requires the PCBU to establish an effective area, which is the area around the enclosed space where the Worker Exposure Standard is exceeded. This also has to be developed based on the measurements in that area and only fumigation-related workers, who are wearing appropriate PPE may enter that affected area.

What the safe work instrument does is it distinguishes between the exposure to which the public cannot be exposed, and that which workers cannot be exposed, because of the two limits that are established, first the TEL by the EPA under HSNO and then the Worker Exposure Standard by WorkSafe.

[11.35 am]

When the PCBU was developing or establishing, determining, reviewing and adjusting that affected area, we'd expect them to take into account the size of the enclosed space, the volume of logs it contains, any other enclosed spaces that are being fumigated and/or ventilated at the same time, and the weather conditions during fumigation and ventilation.

We also have, as applies for methyl bromide, notification requirements. One that we really highlight here is the requirement to notify other PCBUs whose workers carry out work in the buffer zone area.

In our original proposals, we had proposed not to allow any workers other than fumigation-related workers into the buffer zone. But following the consultation process and also reviewing that requirement, we decide that because a Worker Exposure Standard exists, which establishes that appropriate level of exposure for workers, those workers should be allowed into the buffer zone but both the operator, the fumigation PCBU, and other PCBUs in that area need to work together to ensure that the workers are aware of this risk and that the appropriate measures are taken, which is the basis for this notification requirement here.

MS COLLIER: There are a number of requirements we have set in the safe work instrument to minimise the risk during the fumigation. These are that fumigation must take place in enclosed spaces able to contain the substance, and the monitoring that has been talked about by the applicant, they're required to continuously monitor. Depending on the enclosure space, that may be one of three monitoring tubes that they need to use.

They need to continuously monitor. Once they get some decay curves as EDN absorbs into the logs, they will know what the decay curve should be looking like. Once they have those curves, they should be

able to tell if there's a sudden drop, so if there's a release of the substance. That's one of the reasons that we require the monitoring tubes. Obviously because we've got an endpoint concertation and they can't release until it's below 700 parts per million, then they also need to be monitoring to make sure that they're meeting that requirement. That's some controls for during fumigation.

We've talked a bit about adaptive controls. We had the requirements around what we've called the affected area. There was proposals to have a particular zone for workers but that has been turned into a control that the PCBU must manage it and must measure to make sure they are meeting the requirements and making sure nobody is going in areas where the WES may be exceeded. We also have that they also need to be measuring the wind speed and direction. This is important so we know where the fumigant may be going. So together with these other measures, this will ensure that the buffer zone, which has to be at a minimum of 50 metres, is making sure that the TEL is not exceeded at the perimeter of the buffer zone.

During ventilation, we have set a number of requirements to minimise the risk during this time. So the first one is that ventilation can only take place between sunrise and sunset. The modelling showed us that this is a means to minimise the risk. I think we proposed between 8.00 am and 3.00 pm in the initial safe work instrument. But we received submissions that this is not necessarily a reasonably practicable step to be taken. So this has been amended to between sunrise and sunset.

So, as I have already mentioned, ventilation can only take place when EDN concentrations are 700 parts per million or less.

[11.40 am]

I think the trials have shown that this is a practicable thing that can be done and has been accepted by the applicant.

So, during ventilation, EDN concentrations must be measured and until the end of the buffer zone period. So they must be measured adjacent to the logs or processed wood and at the edge of the buffer zone. Once the ventilation has been completed, logs or processed wood cannot be moved until the end of the buffer zone period. So the buffer zone period lasts until 1 hour after the ventilation has been completed or after measurements of EDN adjacent to the logs show that the concentrations have been below the WES for 15 minutes.

MR MOENBOYD: Okay. There are also a series of requirements that require the PCBU to record a lot of information about each individual fumigation. And the idea of these requirements is that, because EDN is a new substance,

there is limited information about it at least for the use that's proposed in New Zealand. This will enable the PCBU to develop a body of knowledge that can be available to WorkSafe if necessary and that can potentially be used at a future point to refine some of the requirements that we are proposing here.

There is also a requirement to produce an annual monitoring report to WorkSafe that must be provided to WorkSafe each year, which contains a lot of that information that we've asked the PCBU to gather, so that WorkSafe can also start developing that body of knowledge. Not only about the use of EDN in general, but also about how the requirements are working and, once again, that potentially could be useful if we ever did come to the point of reviewing any of the requirements for EDN.

MS COLLIER: When WorkSafe sets workplace exposure standards, these are generally just guidance values. In this case, we have considered that it will be relevant to actually prescribe this workplace exposure standard. Once we prescribe the workplace exposure standard, it becomes like a mandatory standard. And it activates provisions in both the Hazardous Substance and the general Risk and Workplace Management Regulations.

These provisions that are activated include reviewing and revising control measures of exposure monitoring, determines EDN concentrations exceed prescribed workplace exposure standards, ensuring no person is exposed to EDN above prescribed workplace exposure standards. The PCBU must carry out exposure monitoring if the PCBU is uncertain whether the concentration of EDN exceeds prescribed exposure standard.

So along with prescribing the workplace exposure standard, we can also prescribe substances that require health monitoring. And if we do that it activates other requirements. So these are to review control measures in specified circumstances, including health monitoring results indicating exposure at concentrations that may cause harm, informing workers how health monitoring will be carried out and why it is needed, and ensuring health monitoring meets requirements in the regulations, and obtain a report about health monitoring and keep records of health monitoring.

So, in considering the requirements for EDN, as an ototoxic substance, we have prescribed that audiometric health monitoring is required and also respiratory health monitoring, as we heard that the exposure route for EDN is by inhalation. So these are prescribed and required on a 6-monthly basis.

[11.45 am]

MR MOENBOYD: Once we developed these requirements in February 2020, we consulted on them and we received quite a large number of submissions. Probably most relevant, or very relevant for today, is we did receive submissions on the lack of requirements for ship hold fumigations. Where submitters viewed EDN as intended to be a replacement for methyl bromide that should therefore allow for all uses of methyl bromide to avoid impact on exports.

So we did consider ship hold fumigations but at the time we developed the safe work instrument very little to no data was available on ship hold fumigations. And our own modelling that we commissioned did suggest that the buffer zones that would be required for ship hold fumigations would be too large to be practicable.

As Kade mentioned earlier, if more information becomes available and it satisfies our needs to create practicable controls that we believe would protect workers as we are required to do when we make requirements under the Health and Safety at Work Act, we would reconsider that, but it would be subject to all of the usual steps that a safe work instrument must go through. So that would require consultation as well. It would require the legal drafting process and it would require the approval of the Minister as well. So that is potentially something we would look at in the future but at this point we considered that it was the best path to create requirements that we knew were practicable and safe for workers and to use those requirements as a basis for building some data and knowledge about EDN in New Zealand with the potential possibility to review the safe work instrument in the future.

Besides the ship hold issues, we did receive submissions on many other of the requirements and we did review those. So, for example, as I mentioned earlier, we did review the restrictions on entry of buffer zone for the workers. We did review the concentrations of EDN before fumigation. We did review the restrictions on time of ventilation and on the movement of logs following ventilation. And essentially on each of those we took into account comments from submitters about the practicability of the controls. But also, as always, our prime focus had to be the health and safety of workers, so we only reviewed those requirements or revised those requirements when we were certain that the health and safety of workers could be protected.

So, having reviewed those requirements, we did consult on those again. I believe that was in mid-2020, towards August of 2020. And while most submitters did acknowledge the changes that we had made to make the safe work instrument a little more practicable, obviously the ship hold issue remained. But at that point we still felt that we did not have the basis to create requirements for ship holds.

Just building on those last comments, so the next steps for the safe work instruments will depend on the decision of the Decision-making Committee. If the decision does not impact on the safe work instrument to the extent that we would need to amend it, we would simply need to return to the Minister and seek his approval for the safe work instrument, which would be a simple process because the Minister has already approved those in principle.

As I mentioned earlier, once the approval is obtained, that has to be notified and can come into effect 28 days after that. But we would work with the EPA to ensure that, to the extent that it's possible, the approval of EDN and the safe work instrument take place at a similar time.

[11.50 am]

However, if the DMC does place controls on EDN that require us to take another look at the safe work instruments, that would obviously involve us taking a look at the new controls, obtaining and reviewing all of the information that we needed to review or revise those safe work instrument requirements. This could involve commissioning new modelling, the need to develop any new requirements, and redraft the safe work instrument. To the extent that any change is a significant change, we do need to consult on those again and take into account the submissions that we may receive on the consultation, and then finally there's those approval processes again, so if we did need to revise the safe work instrument it would be a fairly large timeframe before we could once again come up with a newly finalised safe work instrument.

So, thank you for listening to our presentation and that's it from us.

QUESTIONS

CHAIR: Thank you very much, WorkSafe. Perhaps if you can just mute. Is that an echo I'm getting? No, it's not.

Okay, it's time for questions from the DMC members. I'll start first with Ngaire.

DR PHILLIPS: Okay. Thanks, John, and thanks to Susan and Paul for the presentation. I just had a few questions that's just really points of clarification, trying to understand some of the thinking behind just a few of the things that are in the safe work instrument. I hope that's okay. I'm not actually questioning the safe work instrument, it's just my understanding and whether the concerns that I might have around EDN as a whole -- whether there might be more control. Anyway, I'm rambling on. Basically, I'll cut to the chase.

In limiting the fumigation to sunrise and sunset, is that effectively a control for low wind speeds or is that a surrogate, I should say, for control? Initially you had a lower limit of 5 metres per second and as you're probably aware, in methyl bromide we settled on 2 metres per second. I'm just interested in whether, in the end, the modelling or some other evidence made you think, "We don't need wind speed here but the sunrise to sunset thing would do it".

MS COLLIER: It's based on the modelling. I guess that wind speed may have something to do with it but it's about the climatic conditions that occur overnight being different to during the day. I'm not sure exactly what the details of that are, I'm sorry.

DR PHILLIPS: No, that's cool. But you didn't feel that there was also a need to have a minimum wind speed as well?

MS COLLIER: The concerns around having a wind speed control are that it might not be a reasonably practicable step for the fumigators to take because they start fumigating the logs and they have a certain period of time where they have to get everything done, and wind speed can change at various times. They have to be measuring the wind speed at the time of venting - well, during the fumigation - and they still must meet the TEL requirement. They must not exceed the TEL at the boundary of whatever buffer zone they set. I guess it's up to the PCBU to manage that, how they're going to do that. They may decide with certain wind speeds they're not going to vent at that time. That may be a measure that they can take to ensure that they're not exceeding the TEL.

DR PHILLIPS: It does mean that they have to have a pretty good understanding of the relationship between wind speed, where the EDN is likely to be dispersed, all that sort of stuff; but as you say, the responsibility is on the PCBU to ensure that.

MS COLLIER: Correct.

[11.55 am]

DR PHILLIPS: Okay. Thank you. You've got a notification of a TEL exceedance of five days. That's quite a long period for something which could potentially be quite serious and, as you may be aware, in methyl bromide we actually changed that to 24 hours. I'm just wondering - I'm been thinking about this - is that simply because the TEL is a chronic measure, not an acute measure, and therefore that's your thinking behind the five days?

MS COLLIER: I guess our thinking was that that was the same as methyl bromide at the time that we did the safe work instrument.

DR PHILLIPS: Yes, I know. Sorry we changed it.

MS COLLIER: Yes. If you had changed that before, we probably would have done that as well, I guess. But yes, in practice, the methyl bromide controls have been in place for a while and there's no indication that they can't actually follow those controls that were in place, so we started with that as practicable controls that they can do. Then, as you've seen, we've added a few extra things on top that we think are managing different risks. Yes, I guess that's where we started from.

DR PHILLIPS: Okay. Thanks. In terms of notification of fumigations, I understand you've got that you notify other PCBUs that might have workers in place but I'm also wondering what your thoughts are about notifying the council, the regional council or the local district council, whether that was something that you had thought was necessary or important.

MR MOENBOYD: We did receive some submissions like that from a local council. Our view was that it wasn't WorkSafe's role to be setting requirements on their behalf and we felt that they would have tools to collect that information as they required it. We did receive those comments, we did consider it and we did come to that conclusion.

DR PHILLIPS: Okay, thanks for that. So, basically, through the resource management process you would see that being a role -- okay, thank you. You've answered that question.

Then in terms of the annual report - and perhaps this is a similar answer - you've got it going to yourselves, to WorkSafe. The annual report goes to WorkSafe. I was wondering what your thoughts are on the report also going to the EPA as the approver, as the regulator from the approval process of the substance. Is that something you've thought about?

MR MOENBOYD: I guess our response would be similar. I mean, we could look into what that means under the MOU that exists between EPA and WorkSafe, which isn't at the top of my mind right now but we could certainly look at what that means. But yes, we have tried to avoid making, as I said, requirements on behalf of other regulators as part of WorkSafe's relationship.

DR PHILLIPS: Yes, sure. That's okay. I guess my questions are really coming from one of the submitters making the comment about consistencies with the methyl bromide. I do appreciate their different timing and, as you say, a lot happened. The timing is quite different. Just looking at exploring your thoughts about those, I guess. That's about all I have. Thank you, Chair.

CHAIR: Thank you, Ngaire. Kerry Laing, Dr Kerry Laing.

DR LAING: Thank you, John. Thanks, Susan and Paul. I guess I've got a number of comments as well as the odd question. Just going back to something that Ngaire was referring to with wind speeds, I guess there is this small dilemma of the SWI or WorkSafe approval and the EPA approval as to whether they're totally complementary and any controls that are written into them don't necessarily have to be repeated in the other approval. I guess that applies to a number of things.

[12.00 pm]

One of those would be that there is no comment from WorkSafe about a dose rate, 120 grams per cubic metre. The only thing you're really interested in is having 700 parts per million at the end of the fumigation period. It's really a matter of whether the SWI should refer to a dose rate or whether the EPA report should refer to both a dose rate and an end concentration. It's really a matter of trying to get the balance as to whether things are doubled up, or this one's standalone and you've got to look at the other standalone to get the complete picture.

I've got a number of questions of clarification for understanding the wording that's there. The one concern that I have had - obviously expressed earlier - was a larger stack size than was modelled and, I guess, also information from the methyl bromide air dispersion modelling. It appeared from that the best correlation with the monitoring that had been undertaken was at the 99.9 percentile. I just wonder, in terms of bigger stack sizes and perhaps moving to a higher percentile, whether the 50 metres is an adequate buffer for all environments, particularly as I'm unclear as to what has been done with respect to about a dozen other ports where EDN could be used. Any comment?

MS COLLIER: I guess if you're aware of all the information for methyl bromide and EDN, it is really hard to pin down exactly what's happening: how fast they're pulling off the tarp, how big the log stacks are. It just kept changing. That's why, when I talked about the modelling we got done by Todoroski, these were the parameters we gave them, and it was the best information we had at the time.

So I agree, it seems to be a moving feast of what the parameters should be or what they actually do. Industry say they do one thing and then someone says, "Well, I've seen them do this", or whatever. I think that is very difficult.

So in terms of what the buffer zone should actually be, that's one reason it's set at a minimum, and they must meet the TEL, that is another requirement, so those things work together. If they may be doing one

log stack, it might not be a problem meeting the TEL at 50 metres, but if they're doing 30, that might be a problem, and if they're going to do 30 on the day with the worst weather conditions, then maybe they have to extend their buffer zone or whatever.

So our view is that the PCBU needs to be doing some risk management, and we've suggested that even event modelling may be useful to them. I guess you might be aware of, with the methyl bromide, WorkSafe got some exposure monitoring done, and we also got PDP to look at developing a model that tried to reflect what those monitoring results were, so that was like sort of elevating a model that could actually predict the - I mean, I think that is quite a difficult area and we expect the PCBU to actually be managing any risk they create so, while we have tried to develop requirements that will cover just about every situation, I think that is quite a difficult thing for us to do because maybe next year they change, there's different numbers of logs or, I don't know.

It's just one of those things that you can't put too many parameters in place because that would restrict their ability to do their job, so that's where a reasonably practical part sort of comes in. I don't know if that really answers your question.

DR LAING: Yes, that's helpful, Susan. Then, going back, just seeking some clarification on words that are written there, the buffer zone period that you talk about, and you talk about ventilation being completed, which seems to be a bit vague to me at the moment, is ventilation being completed a 1-hour period after they removed the tarpaulin?

[12.05 pm]

MS COLLIER: I think the 1 hour is after the tarpaulin is off, and then I think the modelling showed that, after 1 hour, EDN levels were low enough. I think initially, in our first consultation, we had three hours but we had submissions that that wasn't necessary so we did put it back to 1 hour, but also that, adjacent to the logs, the measurements, for at least 15 minutes, have to be below the prescribed exposure standard.

DR LAING: Yes, I understand that. What's not clear to me is whether there is any requirement for monitoring close to the log stack during fumigation, that doesn't seem to be a requirement.

MS COLLIER: During the actual fumigation?

DR LAING: Yes.

MS COLLIER: I guess, if they're going to be working in that area, then they would need to be monitoring where the affected area actually is, so if there's

an area that's exceeding the workplace exposure standard, then that becomes the affected area and they would need to be monitoring for that if they're going to be working in that area.

In terms of knowing what's going on with the fumigation, the monitoring tubes they have under the tarp should be giving any indication if there's any unintended release, that's one of the purposes of having those monitoring tubes in there. So are you concerned about, say, there might be an unintended release and there's people around?

DR LAING: I guess my concern is the monitoring within the stack, there would have to be a pretty significant drop to be able to say that there was a leak there, I mean, it seems to me to be a fairly crude measure of whether there are leaks or not and there could be quite a significant leak there that isn't detected by your tubes in the stack but you don't know what the concentration, that people outside are, but if they're going to be in that area and they're going to have monitors on, then there's not a problem.

MS COLLIER: Yes, and that's the sort of thing we would expect. We haven't said exactly how they determine their affected area but it's their PCBU's responsibility to make sure they know what that affected area is. One of the reasons we don't have a set distance for that is people need to do work in those areas at different times so it may actually be safe for them to do that, but they need to make sure it is safe by doing some monitoring, checking that, and we haven't been proscriptive about how they do that but they need to make sure they know where that affected area is.

DR LAING: Yes, okay. I'll just make a comment on the sampling within the stack. We've already had a bit of a discussion with Kade earlier and I have a concern that the industry needs to know that they're getting EDN to the extreme ends of the stack and you're proposing sample locations in the centre, it seems to be centre-top, centre-centre, and front-and-bottom, and that seems to me that a greater spread of the three sampling locations would be far more beneficial.

MS COLLIER: But that requirement for the monitoring tubes was based on an Australian standard, so that was for methyl bromide so that's why we set it where we did, it's sort of a replication of those requirements.

DR LAING: Okay. And the follow up to that is that it said that the sampling tubes should be as far away as possible from the fumigation injection point. That seems to me to be contrary to what you would do, you would expect to get the highest concentrations close to the fumigation point so putting your sampling location as far away as possible seems to be not what you should do.

[12.10 pm]

MS COLLIER: I think that was also based on the Australian standard.

DR LAING: Righto. I'm sure Kade may come back later in the day but that's all. Oh, no, one final point, when you talk about meeting a final concentration of 700 parts per million at three different locations, are you referring to an average or is that the highest reading of any of the three sample locations?

MS COLLIER: I would say the highest reading at any location.

DR LAING: Yes. Well, that's not clear in what's written. I think that's also what Sam Weiss has written, that it should be the highest concentration. Right, okay, that's all, thank you very much, thanks, John.

CHAIR: Thanks, Kerry. My only comment, it's a quick one, could you confirm that, in deriving the draft SWI, that there are no location-specific factors that might alter the applicability of the SWI at different sites around New Zealand?

MS COLLIER: I guess the implementation of it may be different at different locations and, as I've tried to explain, we have set a minimum buffer zone, but, if they can't meet the TEL, then they need to set a different distance, and, in terms of the affected area, that may be quite different characteristics at different sites. So I guess the controls are set so that they can be applied to different locations. I don't know if that answers you question.

CHAIR: I think so but, essentially, provided the distance from fumigation was maintained, would you then assume that a new site wishing to use EDN could proceed within your existing SWI?

MS COLLIER: Yes, I think so because that distance is a minimum and they still have to be able to meet the TEL, so if a new site had different characteristics that meant that the 50 metres wasn't enough, they would have to set a buffer zone distance of more than 50 metres to meet the requirements.

CHAIR: Okay. That's the questions from the DMC, I'd now like to offer the opportunity for any other submitters or other parties who may wish to ask questions of WorkSafe. I've already had an indication that there's a question from Sam at Bay of Plenty Regional Council so, Sam, go ahead with your question.

MR WEISS: Yes, thank you, Mr Chairman. Susan and Paul, thanks for your presentation, I just have a couple of questions for you, so the first one relates to distinguishing the difference between a member of the public and a worker in terms of those SWIs because, clearly, it's important

because a worker is able to be exposed to significantly higher levels of concentration of gas, so the question really is, is an office worker who happens to be based on the port, are they considered a member of the public or a worker, say, like a forklift driver, or are they given some additional protections over and above a worker in terms of the WES values?

MR MOENBOYD: I guess it would depend whether that worker was working inside the buffer zone, if the worker was working inside the buffer zone, then their PCBU would need to be notified and, having been notified, they would have a responsibility, or they'd have it anyway, to take whatever measures are necessary to protect that worker. I think it's potentially worth noting that the TEL is calculated on the basis of the exposure of all members of the public including vulnerable people on a 24-hour basis, whereas the Worker Exposure Standard is more on a --

MS COLLIER: You're on mute.

MR MOENBOYD: No, I don't think so. You can hear me?

CHAIR: Yes.

[12.15 pm]

MR MOENBOYD: Whereas the Worker Exposure Standard is based on a standard eight-hour shift and other assumptions about workers as well. That particular case that you raise, it would depend on whether that work was taking place within the buffer zone, and within the buffer zone the PCBU would have those additional responsibilities to the worker.

MR WEISS: Historically the buffer zone has always been established as the boundary of the port, so those people are always located within the buffer zone.

MR MOENBOYD: And those responsibilities would then apply.

MR WEISS: The second question I have for you, if I have time - and, Susan, you alluded to it before - is about expectation or consideration being given to requiring fumigation staff to actually wear meters so that they have some confidence as to whether or not they are being exposed to significant levels or indeed if the WES, the instantaneous ceiling value is being complied with. Is that an expectation, a requirement, how would you view that?

MS COLLIER: We don't set specific requirements on how they're going to manage that affected area. But I can't see how they could meet those requirements if they're not actually having personal monitors.

MR WEISS: Thank you.

CHAIR: Okay. Are there any further questions that anyone would like to ask of WorkSafe at this point? Ken Glassey, please go ahead.

MR GLASSEY: Thanks very much. I've a series of questions to clarify the hierarchy for what has been arrived at. It's my understanding - and I'd like to get it confirmed - that to establish the WES, the level is ten times less than any known harm. That is question number one.

MS COLLIER: Was that a question for me?

MR GLASSEY: Yes.

MS COLLIER: Setting the WES is a completely different process than the safe work instrument, so I'm not able to answer anything about how the WES was set.

MR GLASSEY: Sorry, the other one is with bystanders and the TEL. It's essentially 100 times less than any known harm, is that correct?

MS COLLIER: The TELs are set by the EPA, so you'll have to ask any questions about the TEL of the EPA.

MR GLASSEY: Okay. The other parameters that have been used to arrive at the controls or the SWI - and I get confused about the hierarchy, as I say - is that it's based on 30 log stacks a day of 1,000 cubes each, so that's 30,000 cubic metres being fumigated, which would equate to some 3,000 kilograms of gas. The assumption is that that's all within one area on the port and that is what has been used to set the SWI, is that correct?

MS COLLIER: Are you talking about the modelling that was done based on 30 log stacks? The safe work instrument requirements are not just based on that one set of information, that particular modelling. There is a number of pieces of information that we took into consideration. If you look at that modelling, you'll probably see that 50 metres under some circumstances may not be enough for 30 log stacks. It depends on a lot of other factors as well. While the modelling is conservative, we have actually looked at a lot of other pieces of information to give out the safe work instrument.

[12.20 pm]

MR GLASSEY: Thank you. I may be able to answer Dr Kerry's question if I may, while we're on it. The normal practice that's referred to that Susan Collier said about the Australian methodology is to monitor the treatment for efficacy reasons. It's a combination of front, middle and back of a

fumigation and at three different heights. That's normally how we monitor methyl bromide fumigations. The assumption is in reference to that for EDN as well.

CHAIR: Thanks, Ken. Any further questions?

MR PROCTER: It's Mark Proctor here. I'd just like to maybe respond to Sam's question earlier on. Forgive me if I've interpreted your question incorrectly, Sam, but in terms of on-port workers versus the public, and the appropriate buffer zones, I think it's worth everybody understanding that anybody that enters the port boundary is required to be fully inducted. Part of that induction requires or is identifying risks for that individual while on the port, which includes fumigation. So all port inductions for all people that set foot on the ports are inducted to the risks of fumigation, as they are with heavy machinery and/or traffic and vehicle speeds. So there is a difference between Joe Public who is outside the port gate, not inducted and therefore not having any understanding of the risks inside the port gate, versus the office worker who is inducted and therefore is aware of the risks and knows where to go to get clarification.

Of course, those workers are also part of a business and therefore they have regular health and safety meetings, so there is an opportunity to talk about fumigation-related activities at the health and safety meeting. I just wanted to clarify that in case it helped Sam. Excuse me if I've interpreted your question incorrectly.

CHAIR: Are there any further questions that anyone wishes to ask of WorkSafe at this point? If not, I'd like to thank them again for their presentation at the hearing.

In view of the time and that we are behind time, I'd like to proceed on to the EPA presentation at this point. If we need to keep questions until after a lunch break, we can continue with those questions after lunch. So would the EPA like to present?

EPA PRESENTATION

MICHAEL BERARDOZZI PRESENTING

MR BERARDOZZI: Thank you, Chair. Kia ora koutou katoa. My name is Michael Berardozzi; I'm principal advisor at the Environment Protection Authority. Today I'll give you an overview of our evaluation of the application to import EDN in New Zealand.

The presentation is structured in the following subsections. First I'll give a quick overview of the application, including the timeline and the key events associated with that evaluation. I'll cover the approach

we've taken to produce the updated documents we published in August 2021, then cover off a quick summary of our evaluation, the main points of our evaluation, and provide a more detailed discussion about specific points which were raised during submissions and also discussed today already, as per the list here. I'll provide an overview of further considerations, such as benefits, costs, cultural risk assessment and recap what our overall recommendations to the Decision-making Committee is.

Starting off with the application, as mentioned and as covered quite extensively earlier this morning, the application is from the applicant Draslovka to import or manufacture EDN into New Zealand. EDN contains 1,000 grams per kilogram of ethanedinitrile, which is also known as oxalonitrile or cyanogen, at a minimum purity of 95 per cent. For completion, you've got the chemical structure here.

[12.25 pm]

EDN is intended as a fumigant for the control of insect pests and pathogens on timber and logs in commercial settings. As part of the application form, four types of situations were covered: fumigation under sheet, such as pictured in this photograph here; using shipping containers; using fumigation chamber or similar structures; and using a ship's hold.

I'll now cover briefly the application timelines and the main events that were related to the application. This is a graphical overview of the application timeline. I've only included the main events related to it, the starting point being the fact that the application was formally received in July 2017, following which there was a public submission period between February and April 2018. That led to the production from our end of a science memorandum and a staff report. As mentioned before, there was also a WorkSafe advice which was produced. These documents were published in August 2018.

Following the publication of those documents, a hearing was held in Wellington and Rotorua, as mentioned before. A number of key discussions occurred during that hearing. At the conclusion of those hearings, the hearing was adjourned.

A number of key technical topics were raised during the hearing and two specific ones resulted in the DMC directing the need for joint expert conferences. There was one on the topic of tolerable exposure limits, TEL, and the other one about dispersion modelling. Those two conferences were organised and were held in October 2018, and resulted in the production of joint expert witness statements which haven't recurred before in previous presentations today. The TEL position resulted in an agreement between different parties, while for

air dispersion modelling, there were still a number of open areas that were covered in this joint expert witness statement. That resulted in the production of further modelling information, as it was covered quite extensively before.

The DMC directed us to produce an addendum to our Staff Report to list all this information and provide an overview as to how this new information will deter our initial conclusion, which is how we published the addendum to the Staff Report in October 2019. As WorkSafe just presented, during the course of 2019, the need to generate those safe work instruments has been identified, and during the course of February to December 2020, this process happened, a separate statutory process happened, both the public consultation and the further targeted consultation as WorkSafe has mentioned, and in December 2020, the approved in principle draft safe work instruments were forwarded to us which allowed us to resume our evaluation and led us to production of the updated science memo and Staff Reports in August 2021. These documents were made publicly available, submissions were received, which led to today's reconvened hearing.

Now, we want to cover a bit further the approach we followed and the production of those updated reports. So there have been a number of key changes between the initial documents we produced back in 2018 and the current ones which we'll produce in 2021, one of which is the fact that the UPI and the hazard substances classification system moved from the previously applicable HSNO classification system to the Globally Harmonised system which was implemented in April 2021, so we had to update the classifications for every region in relation to that change. We also received and reviewed the information provided by the application as they covered previously in your presentation around the changes in overseas registration status of ethanedinitrile, and obviously the key point of our analysis has been the analysis of the requirements that are laid out in the draft safe work instruments developed by WorkSafe for EDN, with a view of providing a further evaluation of the potential residue risks, or to public health and the environment. This also included the analysis of the points raised by submissions.

[12.30 pm]

For completeness, we just want to highlight the fact that our analysis did not include any further analysis of any technical parameters related to air dispersion modelling provided, and we'll come back to that a bit later in a presentation; nor did it include any work on analysis of the tolerable exposure limits beyond what was agreed through the production of the joint witness statement back in October 2018.

So now we will cover a summary of our evaluation, starting with the hazard classifications. So these are, for reference, the hazard classifications that were proposed in the August 2021 Science Memo for EDN. As mentioned before, these are now according the GHS system, and although there is a relatively one-to-one equivalence between the previously applicable HSNO classification system and the GHS system, there are some differences, especially for the environmental classifications. For instance, for the aquatic environment there is a subclass between differentiation between the acute and chronic classifications, which we then took into account and proposed there.

I think the important point to note there is that those classifications all trigger prescribed controls in requirements, according to both the HSNO Acts through notices, and Health and Safety at Work Act through requirements as was also covered by WorkSafe. Therefore, for instance, the flammable gas Category 1A classification, which trigger a series of controls aimed at addressing the potential risks with that hazard. So it's been covered quite extensively by WorkSafe in their own presentation, but it's been a fundamental point of our own evaluation as what the role of WorkSafe and the requirements laid out in their addressed safe work instruments, acknowledging that WorkSafe has responsibility for the overseeing of the Health and Safety at Work Act and has responsibility for assessing that the requirements are adequate to measure the risk from a substance in the workplace.

So we have actively sought WorkSafe's views for this application, which was provided as an advice back in 2018 and resulted, as covered quite extensively before, into those two drafts SWIs which have been approved in principle and shared with us in December 2020. Basically, we have used the requirements of the draft SWIs more or less as input for our own analysis of the remaining risks to public health and environment, and in doing so, we've also incorporated and taken into account the approach that has been followed by WorkSafe, as detailed in their Public Consultation and Targeted Consultation document, and also that has been now elaborated with their presentation.

As mentioned by WorkSafe, we noted that they've taken a precautionary approach to the generation of those draft SWIs, that these have been generated and reviewed to generate data for potential future revision of requirements, and that they've worked their way through it by adapting many of the requirements which are applicable to methyl bromide, taking into account the relevant differences between the two substances. Obviously, one important point is the fact that they've commissioned their own air dispersion modelling report, so called Todoroski Report.

I won't go into the details of the points that are covered by the draft SWIs, they cover quite a range of different aspects, but I think the way we looked at it is trying to establish an understanding of the landscape of how these requirements translate into a more operational setting for us to then look at our own evaluation, and I've highlighted here, so a graphical representation of those requirements from the basis for our own evaluation. One of the key aspects of the draft SWI requirements, again mentioned by WorkSafe, is the fact that workplace exposure standards are to become Prescribed Exposure Standards, and it's worth noting that there are two values there; an 8-hour time-weighted average value of 3 parts per million which is there to cover for a potential worker exposure on the basis of the duration of a work shift, but also a maximum ceiling value of 5 parts per million.

[12.35 pm]

The release concentration is an important parameter which is fixed by the draft SWIs at 700 parts per million, and again, as mentioned before, the ventilation period is restricted to be happening between sunrise and sunset, this further by defining "enclosed space", which is either the space under a tarp or a shipping container where monitoring needs to be taking place; again, this has been discussed already through the discussions that we had.

There is the definition of an "affected area" which has to be determined, reviewed and adjusted by the person conducting the business or undertaking. The EDN concentration may exceed the Workplace Exposure Standards during fumigation and ventilation, and, therefore, they will have to restrict conditions for entry of it is only for workers carrying out fumigation-related work with appropriate PPE only. An important point, and I will come back to that, is that there is no set distance, as was explained before, and that this affected area needs to be set by the PCBU.

Quite importantly, there is also a definition of what a buffer zone is, and a buffer zone is an area and not so much a distance, an area that encompasses the enclosed space and that needs to extend at least 50 metres from the parameter of the enclosed space. One of the key aspects here, to us, is the fact that this distance is a minimum distance, and again, this has been discussed already through the hearing so far, but the fact that this distance needs to be set and adapted as per the conditions of the fumigations operations by the PCBU, and link with the requirements of meeting the TEL at the edge of the buffer zone, so for us that's a very important consideration when we've been looking at how the draft SWIs translate into operational aspects. Monitoring locations need to be set in the most downwind direction.

And so this is more or less the picture we took into consideration when looking at our own analysis of the situation. Obviously, there are way more aspects, there are draft SWIs that cover other aspects as well. So when looking at this, then what we did is we looked back at our initial risk assessment that was provided in 2018, and looked at what key parameters have either changed or remained the same, or have been changed in terms of their overall approach. I've listed here a number of those key parameters, just to provide an overview of the changes there and what has led us to our own analysis.

So one to thing to notice, in terms of the Workplace Exposure Standard, when we did our assessment in 2018, the applicable value at the time was 10 parts per million, and I'm talking about an eight-hour time-weighted average, while a proposed value of 2 parts per million was considered at the time. This has now been changed to a value of 3 parts per million and also an additional maximum value of 5 parts per million has now been set through the draft SWIs.

In terms of the tolerable exposure limits, what we initially considered at the time was a 24-hour time-weighted average of 0.34 parts per million. These values remain the same and has been the subject of specific expert conferences back in 2018 as told before. I will come back to the specific point of TEL in a minute.

The maximum application rate, as mentioned by the applicant earlier today, has been changed from 1 in 50 grams per cubic metres over 24 hours to 1 in 20 grams per cubic metres over 24 hours. The uses that we considered being covered by the information provided, we initially considered timber logs fumigation under sheets to be covered, further dry test to be revised. We note that shipping containers use are also covered.

In terms of modelling data, this is one area where we have already been discussing quite a bit on this, but initially we had the original information provided through the Sullivan report in 2018, for which we asked for Dr Bruce Graham to review this so that that was the information available at the time.

[12.40 pm]

There has been further information and quite a number of different reports and discussion points that were provided in relation to this, including the own works they have commissioned a report and further modelling from the applicant, which also includes ship holds.

In terms of field data that's the sort of the same situation in relation to the fact that initially we didn't have any data. There's been some further information provided with their own limitations and extent of use and

types of situation covered that have been provided through the course of this evaluation.

The concentration before release of the sheets, tarps, was considered to be 700 parts per million in our initial assessment. This has now effectively been set as a requirement of the draft SWI. The area where probably there been a shift in terms of the approach is in terms of the buffer zones. Starting with the workers buffer zone, in our initial risk assessment we did determine distances, 10 metres for a single log pile source and 20 metres from a multiple log pile source with the modelling information that was available at the time, based on the WES value , which was applicable at the time.

We note that this concept of distances for workers has been changed and replaced by the concept of the condition of an affected area where, as just explained by WorkSafe in their presentation, no specific distance is set. But the responsibility of setting the affected area and ensuring that the entry requirements are met has transferred to the PCBU.

In terms of bystanders, we also had calculated buffer zones for bystanders on the basis of single log exposure or multiple log exposure scenarios. That included a number of uncertainty factors related to modelling. And at the time it was considered that 120 metres was a suitable value. We note again that this has been incorporated into the draft SWI requirements as a minimum distance of 50 metres. It needs to be adapted to the circumstances and the responsibility for setting this appropriately is linked to the compliance in comparison with the TEL value at the edge of the buffer zone and that this distance potentially can be bigger than 50 metres.

From our own analysis, we have added a further exclusion zone, which I will come back in a minute, which is this further exclusion zone between the fumigation site and sensitive areas.

So, looking at all of these requirements that set this landscape, what we noted is that all of the draft requirements are there to decrease the EDN concentrations during and after ventilation. That although these requirements are related to workers primarily, as they are the population, which is exposed primarily to the gas, they also contribute to reducing potential exposure levels outside the fumigation area. And therefore not only for the workers but also for members of the public and the environment.

We did look at whatever other gaps might be there in terms of further protection of the bystander and the environment and in a similar fashion that WorkSafe has used methyl bromide as a starting point for their own analysis of the necessary requirements, we did conduct a

similar exercise. And it's important to note that under the Health and Safety in Work requirements for methyl bromide there is, under 14.38(5), a requirement for a situation where people might be present and unable to readily evacuate, and this is to account for potential breaches of TEL and that sort of scenario. For methyl bromide the distance is 25 metres for that sort of scenario. And we did propose to add a similar distance for EDN. And we propose a distance of 120 metres based on the initially calculated concentration at the time for this further exclusion distance.

[12.45 pm]

We have used the same wording in terms of the definition of "sensitive areas or sites" for EDN and methyl bromide. And what we have tried to do is to set parameters, additional controls, as in a complementary fashion compared to the draft SWIs and not necessarily looked at duplicating controls. And look at things, which are there to be there as reasonable and practically feasible controls as well.

Initially in our initial assessment there was a number of controls that we have introduced to take into account the fact that there was a number of uncertainties related to how far the exposure, the levels of EDN might be reduced during the fumigation or ventilation phases of the fumigation aspects of the use of the substance. We know that with the draft SWIs in place, those uncertainties have been addressed to a large extent. And therefore we decided not to maintain those controls that were initially proposed to address those specific uncertainties. That includes some of the controls that were initially included for the protection of birds, for instances. Because again we considered that the draft SWI provided adequate measures to reduce the exposure levels.

So to simplify in terms of how to translate that into a more visual way of presenting what I've just explained, we have added this extra layer of protection for bystanders, for sensitive sites, that integrates into what the landscape of the draft SWI requirements lay out.

So this is a general overview of our own analysis where we reached conclusions in relation to our additional controls and I would want to cover a number of additional specific points, which were raised during submissions. Starting with the tolerable exposure limit, TEL, value. So as mentioned previously, the DMC directed a joint expert conference on the specific topic of tolerable exposure limits. This took place in October 2018 and resulted in the production of a joint statement agreeing on the 24-hour average value of 0.034 parts per million.

There was no discussion on potential 1-hour TEL value at the time. And it is important to note from a procedural point of view that this joint expert witness statement was available for comments for all parties involved in this application. It is worth mentioning that different exposure levels were used throughout the evaluation of this application and amongst which the so-called AEGL values, which are active exposure guidance levels, that exist at different levels, so they are AEGL 1 to AEGL 3 values. AEGL 1 are there to present more transient minor potential effects, while AEGL 3 are there to take into account more life-threatening aspects.These levels can be set for different durations, from 10 minutes to 8 hours types of durations.

The use of AEGL 1 values, as mentioned, have been considered very small to compare against the air dispersion and modelling results. That included a 10-minute AEGL 1 value of 2.5 parts per million or AEGL 1 value of 1 hour of 2 parts per million.

It is important to note that for EDN a ceiling WES value has been set and that is to become a prescribed exposure standard that has to be met for workers in a workplace as covered by WorkSafe. That the setting of those WES values were the result of a separate statutory process in terms of determining those values and it did not include the setting of a short-term exposure limit, which is a possibility through that process, which is aimed to cover a 15-minute type of exposure.

[12.50 pm]

We did not propose a 1-hour TEL value for EDN on the basis of the process that was followed with the joint expert conference.

The main focus in terms of our own analysis of the risk was really related to potential exposure to bystander or resident that might live in the vicinity of places where fumigation takes place. Because they are potentially exposed to lower concentrations but on a more continuous basis, which is really why the key aspects to us was the 24-hour average.

The other point I'd like to mention in relation to this is the fact that the reference value situation landscape is not directly comparable to methyl bromide in that the WES values are not exactly the same and there's no ceiling WES value for methyl bromide, for instance. For methyl bromide, there is a 1-hour TEL value and also a chronic TEL value which is to correspond to an annual average.This is for this first point in relation to TEL.

Another point which has been raised and discussed, and has been further discussed already, is the use of EDN in a ship's hold. The use in a ship's hold was one of the uses which was included in the

application form, as is covered in my first slide. We did not consider that we received sufficient information to consider ship hold use and that included limitations around air dispersion modelling information provided to us prior to the hearing. This was discussed more specifically during the joint expert conferences and both experts agreed at the time that the modelling results that are available for logs under tarp cannot necessarily be used to extrapolate potential impacts for other forms of fumigation.

We do acknowledge and did acknowledge the importance of ship hold use for industry, formally speaking, in our addendums to the staff report published in October 2019. We do note that the modelling for ship holds was then provided by the applicant in the March 2020 Sullivan report, based on the Port of Tauranga, and that also WorkSafe commissioned their own report on air dispersion modelling, the Todoroski report, which also looked at ship hold use specifically.

Now, what we note is the purpose for which EDN may be used in the draft SWI does specifically not include the use in a ship's hold and therefore, based on our analysis of the draft SWI, we don't know if there are adequate requirements for workplace use in that particular scenario, which is why we did not consider that we have enough information to conclude on that particular aspect.

Another point which has been raised is in relation to the application rate and use restriction controls, which I intend to cover now. In terms of our initial risk assessment, there was a proposed control in relation to the maximum application rate, which at the time was of 150 grams per cubic metre This has been changed in two ways, one of which is to adapt the dose rate to 120 grams per cubic metre, as explained by the applicant, which has been proposed by them during the course of the application, and we have reflected this here in this control.

We have also included a duration, over 24 hours, as a specific wording in our control. This has come from the fact that we reviewed the overseas registration status of EDN and noted that in most cases, the use rate/dose rate is also accompanied with the duration over which it is applied. When checking back the information we had from the application, the application form and further documentation, we noted that it was indeed a setting that was proposed through those documents. This is how we concluded on getting this wording on our proposed control, noting that this is there to provide an upper limit of what is potentially intended.

[12.55 pm]

In terms of use restriction controls, as mentioned before, we have included in that specific wording in relation to export situations. This

was the case in our initial 2018 staff report and we did not see any reasons to deviate from that originally proposed wording. We note the submissions that we received in relation to the point and the discussions that have occurred already today in relation to this. We note that in terms of the risk assessment and the situation, it does not matter that much in relation to the flow of the logs in terms of whether they are for import or export, and therefore we would find this potential change acceptable in relation to the wording. The reason why the wording was there is because that was based on information we had at the time.

Now I'll go through other considerations. I've covered most of the risk assessment part and the controls that stemmed from this risk assessment, I just want to provide a brief overview of other considerations in relation to this application, one of which is related to uncertainty. As I've touched on before, our initial risk assessment highlighted a number of uncertainties.

Some of those uncertainties were related to modelling and I think it's been discussed already to some degree today, modelling does, by nature, include some level of uncertainty. Through the report that was commissioned by WorkSafe in relation to air dispersion modelling, we note that there's been a bit of a shift in terms of a prescriptive situation to a more outcome-based approach in setting out the requirements. We did take note of this fact quite strongly in our own overview of the situation.

There was also uncertainties of whether scrubbing and recapture would be required but as mentioned by WorkSafe, this has been considered and concluded that it is no longer a requirement. These particular points we consider are addressed to quite some degree.

In terms of controls, I think it's important to note that there's three sorts of layers in relation to the controls, the first layer being the prescribed controls that are triggered by the 'hazardous' classification of EDN. These are considered to address a number of identified risks to human health and the environment, for instance, the flammability-associated risks.

The second layer is obviously the requirements that have been identified and proposed in the draft SWIs, which would allow for further identified risks to be mitigated to what we consider a negligible level, for the uses covered by the draft SWIs, obviously, which comes back to the point I raised around the ship holds, for instance. In line with the draft SWIs, we have proposed to set additional controls to adequately manage residual risk to human health and the environment. Although, prior to the hearing adjournment, additional controls were proposed by the EPA, we've reviewed this with a view of those draft SWIs being in place.

Here you have a list of what the controls look like, the HSNO additional controls. That includes the maximum application rate, along with its duration, the types of uses that are covered, the exclusion zone for sensitive sites, the fact that those application rate and use restrictions are to be labelled statement, the maximum impurity level for EDN on the hydrogen cyanide content, and the setting of the TEL value over a 24-hour average period.

To try and summarise the situation, we have assessed what was submitted in the application form, which included the use on timber and logs under sheets, in shipping containers, fumigation chamber or similar, and a ship's hold. We have incorporated the requirements that have been proposed through draft SWIs under the HSW Act, which is a separate statutory process to any consideration under the HSNO Act.

[1.00 pm]

We have assessed the residual risks to the public and environment and we consider that these draft SWIS provide more clarity around a number of considerations, especially buffer zones, monitoring, as well as exposure levels outside the affected area. Some aspects of our evaluation were reviewed but have not substantially changed while the hearing has been in adjournment, and that includes considerations around benefits, costs or cultural risk assessment.

So, overall, our evaluation and recommendation is that we consider that with the proposed prescribed controls, SWI requirements and additional HSNO controls, we consider the risk to human health from the use of EDN to be negligible, and that the potential benefits of EDN outweigh the potential risks to the environment if used in accordance with the appropriate controls and requirements. We consider that EDN is not likely to pose significant potential risks or impacts on Māori interest if the appropriate controls are assigned to EDN.

Therefore, our recommendation to the Decision-making Committee is that EDN is approved for import and manufacture with the prescribed and additional controls, in line with the requirements of the draft SWIs. That's the end of our presentation, thank you.

QUESTIONS

CHAIR: Thank you very much, Michael, for your presentation. We'll return to Kerry for any questions from the DMC.

DR LAING: Thank you, John. I thought I was going to be able to go and have some lunch. More questions.

Thanks, Michael. If we approve -- uses and we cannot approve specific locations?

MR BERARDOZZI: I'm sorry, Kerry, we had a bit of technical difficulties here so I missed the first part of your question, sorry.

DR LAING: Yes, certainly something that is a problem too. I was just saying, if we give approval to this we can approve for specific uses but we cannot approve or limit locations at which it may be used?

MR BERARDOZZI: Yes, that is correct. We haven't proposed the framework or the approval would be site specific, let's put it that way.

DR LAING: The only comment I would make on what I guess you are proposing to change is we had discussion earlier in the day about other uses such as imported timber and the like. Helen indicated at that stage that this was not part of the applicant's request and in fact was something that came in very late in the day from other parties. There is no information that has been provided on them. They may be relatively minor contributors to EDN but we have no information that we could make a decision that covers anything other than what the applicant has requested.

MR BERARDOZZI: Yes, it is true as explained and covered in my slides, we had initially proposed a restriction to the export only situation because that was what was provided to us in the first instance and we did not receive any specific information that would cover for any other types of situation.

DR LAING: Okay, and one other thing that was talked about earlier this morning, and I don't believe is the way, is to have something in place whereby the controls could be reviewed after a specified time. I think we have looked at this in the past, having management plans or something that would sit outside the approval but there is not really any instrument for us to be able to do that.

MR BERARDOZZI: This is not something we have either explored or proposed through our evaluation, and I guess there would be operational constraints to take place in terms of putting that in place. So, yes, we did not consider those.

DR LAING: Okay, the only other comment I would make is related the 700 parts per million, which I think originated with Bruce Graham in the EPA. I just wonder whether that should be included in the controls as well as the dose rate?

[1.05 pm]

MR BERARDOZZI: Yes, that is a fair question and it is a question we ask ourselves as well. What we considered is like well this specifically said under the draft

SWI and with a view to try not to necessarily duplicate controls which are set separately we decided not to add this as an additional hazard control. Yes, that is the approach we have taken there, although we do acknowledge that it is a key parameter for the use of EDN.

DR LAING: Okay, thank you very much, Michael.

CHAIR: Thank you, Kerry. Ngaire, do you have any questions?

DR PHILLIPS: Yes, I do, thank you, Michael. Although Kerry has kind of asked them. One first question is would you think it appropriate to include marae in the sensitive areas definition? Especially given the location, Tauranga in particular, of the marae across the water.

MR BERARDOZZI: So the way we looked at introducing this further exclusion zone is really coming from the methyl bromide requirements, which is currently applicable. There is a definition of what sensitive sites are, which is provided in this particular clause, that includes places such as prisons, hospitals and others. The rationale for these is really in case of a potential breach of the exposure levels and a need and necessity to evacuate those places. On the basis of both how this particular control is wedded to methyl bromide and the fact that it comes from this requirement to readily evacuate we did not believe that it was necessary to include marae in this definition.

DR PHILLIPS: Yes, I am sort of quite surprised. In fact, as you are very aware, I was the chair of methyl bromide and one of the drivers of the whole sensitive areas reasoning for having sensitive areas was around the fact that there is the marae so I am a little surprised. The other thing too is that there is a requirement under the SWI for notification of Māori for fumigation events. So what is the driver of that then if it is not because they are considered part of sensitive areas.

MS BERARDOZZI: Again, the driver is more on the basis of the inability to readily evacuate in relation to a potential breach of the CL, which I guess is the potential issue of the definition as sensitive area, it is not to say that marae are not considered sensitive areas but more that it might be considered to be possible to more readily evacuate in case of a breach of CL.

DR PHILLIPS: Sorry, I really don't follow the logic there. Also I would just reinforce the fact that there is a marae that is just across the water from Tauranga port and we had presentations from them, we had submissions from them, at the first hearing and there were real concerns expressed. Anyway I will leave that at that.

I thought it was very interesting that in your slide where you said you proposed to remove export - this is picking up on Kerry but it is a slightly different way of looking at it, I guess - so you could align with

SWI. I understand that, but then when Kerry asked you the question, do you have information, and the answer, of course, is no, we don't have any information in which to assess this. I am wondering why you even considered just simply removing export?

MR BERARDOZZI: Because it was a matter raised in the submissions.

DR PHILLIPS: But there is no basis. I would like to know your basis for removing it, other than the fact simply being consistent with the SWI. When in fact, as far as I can tell, you haven't actually assessed the risk of imported logs. I don't even know what processed wood is. I wasn't even aware that we were actually even assessing risks of processed wood being fumigated in this application. Just a little confused there.

[1.10 pm]

MR BERARDOZZI: Well, the first basis is that, as far as we have looked, there is no specific wording and the directors realised that it was restricted to use for export situation only.

DR PHILLIPS: I appreciate that, yes.

MR BERARDOZZI: The only other aspect is that independently of what happens, whether the logs would be exported or imported, with the conditions of the draft SWIs you have a number of requirements and key things that you need to abide by that would result in the risk being acceptable. This is not something which we have a particular strong view on but we don't equally see it as being quite critical. It is completely different to the ship's hold situation in that regard.

DR PHILLIPS: Yes, I do understand, I appreciate that, yes.

MR BERARDOZZI: I guess our view is that it is more a very different situation to the ship's hold, where we are constrained by the draft SWIs, there are considerations in terms of air dispersion modelling being potentially quite different, while in terms of import versus export is a bit more less directly relevant to all those considerations around air dispersion modelling, and maybe that is where we are coming from in terms of the different positioning on those two aspects.

DR PHILLIPS: I guess from the DMC's perspective it is potentially quite a significant change simply because we have not assessed it at all, assessed the risk. We have not been presented with anything to assess the risks. Even if the risks are exactly the same, we have not been presented with those risks, so by simply taking that word out that is quite a substantial change, in my opinion anyway.

MR BERARDOZZI: That is a fair comment, for sure.

DR PHILLIPS: Yes, that is fine. Is there a definition for processed wood? Someone else might be able to give me that. I have all sorts of imagining of when you come back from Thailand and you have your little wooden ornaments that you have bought over there. Is that processed wood? Does that get fumigated by methyl bromide? Does anyone know?

MR MCCONVILLE: Ngaire, I will have a go. I didn't see anyone else coming in. So processed timber is anything which is milled, be that planks, boards for construction, for example, so anything which is not a round timber, that has gone through a process of manufacture to a degree, is classified as processed timber.

DR PHILLILPS: So all of the modelling and information that we have been given is based on logs, right? I know early on there were those few lab-based experiments in little containers and things with sawn timber.

MR MCCONVILLE: Yes, so everything that we have so far is based on round logs. The loading factor, etc, is always more so with processed timber than what it is with round timber. When we simplify it down, no matter what is in that volume that is being treated our end point concentration is always 700 parts per million and that's what we are relying on as our control, regardless of what is in that volume to start off with, as long as it is timber, round log or a processed type.

DR PHILLIPS: Okay, thanks for that. Thanks, John.

CHAIR: All right, I have a quick question to ask, but just before I do that there will be an opportunity after the DMC has concluded their questions for any other parties to ask a question of Michael and his team. If any other party wishes to do so, can they indicate to me in the chat that they might have a question? We have one already registered. Can I remind all parties that questions of the hearing are restricted to questions of clarification of the points made in the preceding presentations? There's no provision for any sort of cross examination of the presenter, you may not agree with some of the things that you've heard but this is not the environment for testing that or debating that. That does not serve the purpose.

[1.15 pm]

So the question, Michael, I wanted to ask you - and I'm really just trying to get you to make a confirmation statement, and it follows that I asked of the applicant and Dr Pemberton earlier - in terms of the data used to calculate the TEL, which is fundamentally the measurement at which you apply controls to protect the public, are you satisfied that the quantum and the quality of data used to calculate that TEL is in line

with best practice and best standards across all regulatory environments that handle this kind of information?

MR BERARDOZZI: It's quite a unique situation we have with the TEL in that it followed this process of this joint expert conference, with both parties being a part of that discussion. I think it resulted in the consideration of a lot of information, like the specificities around the data package which is available for the particular active ingredient, but it also takes into consideration specific uncertainty factors and other considerations to take into account the specificity around the data package.

So I do believe that the process which was followed, and the outcome and the value which was set, are the result of a robust process, and the value that we selected at the end of the day, which was agreed by experts from both parties, is a robust and also relatively conservative value that is quite good.

CHAIR: Okay, thank you very much. Right, I'll invite Sam Weiss who's indicated he would like to ask a question. Sam, are you there?

MR WEISS: Yes, I am, Mr Chairman, thank you. So I have two quick questions, if I may, I think both points of clarification of Michael. Slide 21 refers to a joint statement being made by the expert panel at the time and it states that there was no discussion of a 1-hour TEL, and I'm just wondering if that might be the reason that the EPA didn't recommend a 1-hour TEL, or a STEL, especially considering a health impact clearly can occur over a relatively short timeframe and that there is a TEL in place for methyl bromide?

MR BERARDOZZI: Yes, formerly, the discussions around TEL were focused on the 24-hour exposure window at the time, and again, that's really to account for the significantly different exposure patterns that residents or members of the public can be exposed to in relation to EDN. That's not to say that shorter, acute types of exposure are not relevant but these are somehow addressed through the WES values, especially the maximum value. I can't comment exactly why the 1-hour TEL value was not discussed at the time; it was certainly the focus at the time to look at the 24-hour exposure type.

MR WEISS: Okay, thank you. My other question refers to slide 17, and there's a comment there that said the buffer distance of 25 metres is applicable to methyl bromide. Now, my understanding that that 25 metres relates only to containers and, in fact, for logs it used to be 50 metres, and now that requirement is over 500 metres buffer where there isn't recapture applied, so my question is to what extent did the information presented throughout the EPA hearing for methyl bromide, and the decision, dated August 2021, help inform the EPA's deliberations or decision making for EDN?

[1.20 pm]

MR BERARDOZZI: So I might need to provide a clarification here in that the buffer zone which is referred to here is specifically the point under the respective regulation, this point 14.38(5), which is really just further exclusion to sensitive site, this is not the more general buffer zones which are associated with methyl bromide, which are of a different nature, and I wouldn't be able to comment exactly on the most recent values for the buffer zones for methyl bromide, but this is a separate buffer zone we're talking about here, it's really to account for the further exclusion zones for sensitive sites.

MR WEISS: Okay, thank you.

CHAIR: Okay, thank you, Michael. I'm going to draw this session to a close. I've had an indication that some parties may wish to provide further information around these topics, I'd ask them, if they wish to address some of the points that were raised by Sam Weiss, they might include that in their own presentation scheduled later for this afternoon.

So we are behind schedule, at that point I'd like to take a break for lunch, I think we can give ourselves until 2.00 pm to resume. Now, it's very likely that we're not going to finish the hearing by the scheduled time of 4.00 pm. We had indicated, we had signalled to the EPA that we wish to make provision for a second day should it be required but it's really not our desire to see things go into a second day and we would hope that we could extent the 4 o'clock schedule, perhaps to 5.00 or even 5.30, to allow proceedings to close today.

If anyone is unable to extend beyond 4 o'clock, could they please send the message to Marree who's the co-host of the meeting, you can message her through Zoom or you could send her an email and, if need be, we can restructure or reschedule some of the presentations that are scheduled for the second half. So please resume promptly at 2.00 pm for the remainder of the hearing, thank you all.

MR SLYFIELD: Mr Chair, can I interrupt, very sorry to do this at that point when we're all, I'm sure, keen to get to the lunchbreak. I just noticed; I think it's Dr Pemberton who has indicated in the chat that he can add responses on the questions that were asked just now about the TEL. I'm just conscious, with him based in the UK, he's already at the middle of the night and I just wondered whether you might want to take advantage of his availability now rather than have him potentially have to come back after another delay for the lunchbreak?

CHAIR: That's a very fair point and thank you for introducing it. Unfortunately, there are two Marks at the hearing and I'm not sure whether it's Mark

Pemberton or the other Mark who's scheduled to speak later, so I assumed it was the latter; if it's Mark Pemberton, then please add your comments now.

DR PEMBERTON: Thank you, Mr Chairman. Yes, I wanted to support EPA's position about the strength of the evidence on which the 24-hour TEL, and indeed the WES, was based because I know you were concerned about that in a previous comment. The evidence that supports the strength of those settings is not just the data on EDN, if you look at the WES, for example, for EDN, without looking at the actual basis for it we do know that EDN is hydrolysed to cyanide and cyanate and, therefore, evidence for hydrogen cyanide, cyanide salts and acetone cyanohydrin, for which there is extensive data and many, many years of experience, they have very similar exposure standards, both time average and peak, and that has supported decades of safe use. So, as a toxicologist, I would say that those WES values, to me, seem very reasonable for EDN.

The other comment I would add would be that the 24-hour TEL is actually a very, very precautious level. The point of departure for that study was a six-month inhalation study and, in that study, the effect, what it's protected against, was a reduced bodyweight gain in animals exposed to EDN vapour and gas where the nil effect level was 11 parts per million. And, if you remember from a comment I made before, we do know that, somewhere between 8-16 parts per million, both in humans, also in animals, sensory irritation is occurring and it's very likely, from that study, that the reduced bodyweight gain that was seen, that was the point of departure, was probably related to the sensory irritation in those animals and the fact they couldn't escape from that irritation and that was affecting their eating habits and bodyweight gain, we do see that in animal inhalation studies.

[1.25 pm]

The other evidence supporting that would be that, from the studies on other cyanides, where there are very extensive studies, up to lifetime studies, that the chronic effects of systemic exposure to cyanides normally have an effect level that's at least an order of magnitude higher than that, almost approximating a cubed mortality (? 13.25.53), because we do know that, with cyanides, the mode of action in animals is highly preserved right the way through from insects up to humans. That knowledge can be very clear in telling us that other effects can be discounted in those animals and, indeed, in humans.

So, coming back to the EPA's point, I actually was very supportive of their position, I thought the 24-hour TEL was very conservative but the present data we have, there's probably no sound science to set it, and I do think that the WES is protective not only of health effect, but also of sensory effects as well, where workers will not even experience the

sensation of being in the presence of EDN. I tried to keep it brief because I know everyone wants to go out to lunch. Thank you very much.

CHAIR: Thank you, Mark, and I apologise for not allowing you the floor earlier; as I say, there's more than one person with your name listed as a panellist and a participant today. Anyway, thank you for your contribution. We will close now, or we will adjourn now briefly for lunch, and we'll resume at 2 o'clock. Thank you.

ADJOURNED [1.27 pm]

RESUMED [2.00 pm]

CHAIR: We have a revised schedule of proceedings for the afternoon session. This will either be emailed to all parties by the EPA or a link will be provided in the Zoom chat through which those parties can read the new schedule. At this point, we're scheduled to finish around about 5.30 pm. It may, of course, go on a bit longer if there are more questions, but I would ask all presenters in the sessions scheduled for the afternoon to remain on time if they can.

So, first of all, the next speaker is Sam Weiss from Bay of Plenty Regional Council. Sam, please deliver your presentation.

BAY OF PLENTY REGIONAL COUNCIL PRESENTATION

SAM WEISS PRESENTING

MR WEISS: Thank you, Mr Chairman. I will just share my screen. Are you able to see that okay?

CHAIR: Yes, that's clear.

MR WEISS: Great. Well, tēnā koutou katoa, ko Sam Weiss, (Māori content - will be inserted when script finalised). I'm here representing the Bay of Plenty Regional Council. The regional council and I personally began our involvement with fumigation when we issued a resource consent in 2005 for methyl bromide and phosphine fumigation at the Port of Tauranga. I've been extensively involved since that period, including being involved in the methyl bromide reassessments in 2010 and the recent 2021. Now, I'm not here arguing for or against the use of EDN. I'm simply here to share our experience and to help ensure that appropriate safeguards and controls are put in place.

In the Bay of Plenty there is high fumigant use, as you can see from the figures there. This, combined with the proximity of fumigation to public and industry, has resulted in significant public concern. Two

community groups, in particular those listed, and Whareroa Marae have kept pressure on council and the fumigation industry, which has contributed to an improved standard of fumigation practice and recapture well in advance of the EPA requirements.

This is a shot looking down at the Mount. We have the port on the right-hand side and we have the high-value residential properties on the left-hand side here, so you can imagine there is some tension.

This is a bird's eye view. So before getting into the detail of the presentation, I would just like to set the context with showing how close the fumigation occurs to various parts of the community. So the bird's eye view here, we have the port on the left. I'll turn on the marker so you may be able to see. I may be able to use the laser pointer. You have the port on the left here where the fumigation is carried out. The prevailing wind is a south-westerly direction, and then notable features around, we have Whareroa Marae down here. We have residential along here. There's Blake Park here, which is an international cricket venue and international hockey venue. They play tennis, netball. There's a play centre. Then we have a lot of industry along here and this channel here runs right past the port to this marina. All those things within a few hundred metres of the fumigation. It's a large-scale operation as this photo gives some indication about. You can see a little fishing boat is not too far off.

[2.05 pm]

Here's a picture of a ship venting methyl bromide and I've just used it to illustrate a control that is in place. If you can see my pointer just above it, it's one of the main controls which is actually a warning sign not to come too close to the ship. Let me try and zoom in a little bit. So you might be able to make out that sign, or maybe not. I guess the point of me adding that slide is that controls need to be sufficiently detailed. This ship could be discharging up to 5 tonnes of methyl bromide. We have sailing ships and fishing boats running right alongside here, yet the control some might argue is not adequate.

So not only do the controls need to be sufficiently detailed and prescribed in such a way, but they also clearly need to be enforced. The first control that we'd like to comment on are the exposure limits. To protect the public, the EPA are only proposing a 24-hour TEL. We consider it's vital to also introduce a 1-hour TEL, such as is in use in Australia and is in place for methyl bromide. Health effects can clearly occur over a much shorter exposure period than 24 hours and from our experience with methyl bromide it's relatively common to get an exceedance of a 1-hour TEL but rare to get an exceedance of an eight-hour WES and extremely rare to get a 24-hour TEL exceedance. For these reasons, we think a 1-hour TEL is essential. We'd also like

to see the same ceiling value introduced to apply to the public as is in WorkSafe's SWI so that a short-term spike of fumigant gas isn't diluted by averaging over a longer period.

The next control we want to address are buffer distances. Buffer distances or exclusion distances are one of the most important controls for protecting people's health. They're easy to set up, easy to verify and very effective. The current proposal is for there to be no minimum exclusion distance to protect non-fumigation workers on a site, instead suggesting that the fumigator checks gas concentrations and adjusts the exclusion distance accordingly. We don't consider this is appropriate as in our experience fumigators have a poor record of detecting fumigants in air. I'm happy to elaborate on that point if required. We believe; therefore, a minimum exclusion distance must be set to protect workers.

We also suggest the 50 metres proposed as a buffer for public is insufficient, particularly for the large log stacks of 2,000 metres cubed or more. Interestingly, the methyl bromide buffer was first set at 50 metres for log rows and now, following the latest reassessment, is over 500 metres without recapture. Fifty metres simply allows for nothing to go wrong, yet we know there are regular reports to the EPA of what is euphemistically called a loss of containment, where sheets containing fumigants blow off in the wind or some other event occurs.

The 50-metre buffer appears to be based primarily on WorkSafe-commissioned modelling dated February 2019, and Jenny Barclay from Atmospheric Global will speak more about this shortly. Our position is that this modelling may be flawed and must be peer reviewed in order for any confidence to be had in any derived buffer distance.

An important point to stress here is that the inputs to the model must reflect the reality. One of the key inputs here is the rate of release of the gas, and Todoroski modelling has assumed venting of each log stack occurs over ten minutes. Some of you would have seen these slides already, but these are based on a video provided by the Port of Tauranga showing venting of some of the log rows at twice that rate.

These images are time stamped and are from a video where it can easily be derived, but I've just given you a couple of images before and after. So either the modelling must reflect reality or a control is required to align practice with the model inputs. For example, perhaps a control is required that ten minutes is the duration for uncovering of a log stack, and that needs to be staged. This is just one example of where assumptions may be incorrect and which may then have significant implications for the buffer distance predicted by the modelling.

[2.10 pm]

There are other key inputs such as the 700 part per million concentration before venting, where it's vital that these parameters can be checked by the regulator, again ensuring that the model used to determine the buffer distance and the practice actually align. Otherwise the risk is the exposure to the public or workers will be higher than acceptable.

In terms of the issue of where EDN can be used, we support a control that limits its use to only under a sheet or in a shipping container. In particular, we don't consider it can be used safely for fumigation in ship holds, largely because of the flammability risk. You may have seen the comments in our written submission by the original developers, or I understand they are the original developers, of Fumigas, Linde in Germany, describing EDN as an extremely flammable gas. They go on to say in that manual for fumigation that the risk of an explosive atmosphere creation is one of the most obvious and important issues to manage.

Secondly, in a ship there is clearly far higher volumes of fumigant used and, therefore, there is an associated greater risk. Based on methyl bromide, there is approximately 50 times more fumigant used in five ship holds than in a typical log row, so if anything goes wrong, clearly the consequences are that much greater.

Now to address wind speed. In a recent decision on methyl bromide, there is a control setting a minimum wind speed of 2 metres per second before venting can occur. Our belief is that it would be useful, perhaps even important, to have consistent controls across all fumigants used at a port. Another reason for establishing a minimum wind speed includes that it allows for a minimum amount of mixing and dispersion, as well as it is far easier to protect the direction of gas travel. This is both important for determining the exclusion area and also for knowing where to locate monitors. For those of you who have been out there monitoring a vented gas, as I have, you will know sometimes you set your metres and then half an hour later you have to pick them up and put them somewhere else because the wind direction has changed in that short time. That occurs especially when winds are very light.

That sunrise to sunset control, we don't believe that's sufficient as a de facto wind speed. Low wind speeds can clearly occur during of between the period of sunrise to sunset. We agree with the original EPA science memorandum that recommended that EDN should not be vented under very low wind conditions, and suggest that a control is required to make sure that that's the case.

Verifying compliance on a port is difficult and can be dangerous. The regional council often plays an important role here. We have permanent staff member based on the Port of Tauranga for compliance and education purposes. We've been monitoring the activity since 2005.

In order to know where to place our gas detection monitors to check maximum gas levels are not being exceeded, and when to place them there, we need information in advance on what is going to fumigated and exactly where. Despite this, WorkSafe's SWI or the EPA recommendations has no requirement for the PCBU to notify local authorities about fumigation events or report any information to local authorities.

We'd like to see a control introduced requiring that local authorities are kept fully informed and that the information gathered in compliance with the EPA controls is also made available to them, as we have been identified clearly in the methyl bromide decision by the EPA as one of the parties with responsibility for compliance, monitoring and enforcement. This will help better regulate the activity and so protect the public.

In the interests of time I won't go through my summary. Ngā mihi, thank you, Chair, I will now hopefully hand over to Jenny Barclay of Atmospheric Science Global, who many of you will know is regarded as one of Australasia's top air-dispersion modellers. Over to you, Jenny.

JENNY BARCLAY PRESENTING

MS BARCLAY: Thank you, Sam and thank you, Chair. I have a few slides. I would like to share my presentation. I will start my video just so that you can all see who I am.

[2.15 pm]

I am going to talk a little bit about looking at the material since August 2018, since that was the brief. The documents that I have actually looked at since August 2018 are in fact the expert conferencing advice in November 2018, the Todoroski modelling report and then teleconference minutes, 2019. I understand there may be other documents and I haven't looked at the latest Sullivan report.

I want to make the point there is a lot that I disagree with, starting with the November 2018 statements. I disagree with Graham's statements in the conference in particular, with these points. AERMOD is not a suitable model. I believe this has been applied with the early Sullivan model but not the Todoroski. It's a steady-state model. It's being

applied to an environment that is very non steady state. The 95th percentile would underrepresent the peaks, and EDN WES and TEL of 8 hour and 24 hour which is assessed in New Zealand at the maximum.

The other point in this that was made that I disagree with was that the point was made to use WRF meteorology. In 2018 the Bay of Plenty Regional Council set about developing an advanced meteorological modelling dataset on which WRF data was developed specifically in 2018 for Tauranga, but it was developed for use in CALPUFF, not AERMOD. The inconsistency was saying AERMOD suitable, use WRF. WRF was developed for use with CALPUFF not AERMOD.

Then I have some disagreements with the February 2019 statement and comments. In particular the point was made that area sources equal volume sources. They simply do not. The other point was good-quality monitoring data is paramount. I agree. Good-quality monitoring data is desirable but it is very complicated. As Sam has pointed out, and the stuff that we've seen done with WorkSafe, it's very difficult to get to actually hunt down that view. We've got a very variable atmospheric environment going on and in many cases it's almost impossible to monitor the plume well. So field trials would not necessarily give the best outcome. Even best field trial can miss the plume entirely.

I want to make the point that expert conferencing was conducted on methyl bromide fumigation specifically around atmospheric dispersion modelling. We met twice, once in January 2020 and the second time in March 2020. This expert conference should supersede any expert conferencing conducted in 2018 and 2019. My understanding is that neither the Sullivan 2020 model nor the Todoroski Air Sciences modelling have updated their models to follow this new guidance that they agreed would improve the modelling in that conferencing that they were part of in 2020.

Issues that I have with the Todoroski Air Sciences. Neither the report nor the model files have been peer reviewed. They may contain human errors that have simply not been detected. The modelling did not use Bay of Plenty Regional Council's three-dimensional meteorological data set, and the TAS model and the Sullivan models are too simple and incomplete. The characterisation of the log piles is completely incorrect, which results in under-prediction of up to four times in the 40- to 80-metre downwind distance.

The other thing I want to point out is the emission rate is incredibly sensitive to the assumed headspace volume of 450 metres cubed for log piles and 3,800 metres cubed for ships. If the actual headspace volume size is slightly larger, then the emission rate is significantly higher. So there are a lot of assumptions around the emission rate and the log-pile sizes that are currently being made.

[2.20 pm]

The other thing is that ship holds are released over six hours in this report. This implies that all the holds are open after 2 hours, but there is no explanation around the how the six-hour emission profile was derived. There is no science, there's no experiments, there's no filed studies behind this. So EDN in the model is currently incorrectly being gradually released for a further four hours after the holds are opened. What this means is that the emission rate is being released over a much longer period than is actually happening. As a result you'll get much lower concentrations.

Some of the figures did not make sense and this is possibly due to the randomness of the scenarios. There's other vital information missing such a receptors, what percentile was assessed.

I want to just mention meteorology. The Bay of Plenty has an advanced, full evaluated, three-dimensional meteorological dataset, which was fully available in 2018 for the period of 2014 to 2016. The TAS model used the Tauranga Airport station only. However, the Port of Tauranga has a whole lot of Bay of Plenty Regional Council owned and managed stations. These include the marae, Bridge Marina, Totara, Otūmoetai and the Port A beacon. None of these were used, and all of these BOP stations are within a few hundred metres of one another in and around the port.

As a result, if you look at these three wind roses at the bottom, just imagine the wind is blowing along the wind into the centre. For instance, the first wind rose is Tauranga Airport and the predominant wind is from the west. So the TAS model is using that data. It shows much stronger winds in the category of 5.4 to 8.5 metres per second and the winds are much more west. If you then look at Totara Street, which is one of the Bay of Plenty stations, and the marae, you can see how the wind speed is much lighter and much more variable than just the Tauranga Airport. So the TAS model and, I understand, the Sullivan reports are biased towards Tauranga Airport and not to actual conditions on the port.

Other issues. I won't go into this but there's a couple of other concerns about the meteorology. I have other slides so I don't want to dwell too long on one thing.

This particular slide is quite important. The slide is showing the log piles on the port. North is obviously to the top of the picture here, and here is a typical ship berthed alongside the wharf. You can see that it's aligned pretty much in a northeast to southwest position. If you look at the dominant winds from the marae, you can see for nearly 30 per

cent of the time the winds are actually along the ship. What happens in this instance is that you get a much more concentrated plume when the wind is blowing along the ship than you would if the wind was blowing from the west. You get much better dispersion if the wind is from the west, across the ship, perpendicular to it, than along it.

Exactly the same applies for the log piles. You'll have a much higher percentage of wind, 53 per cent of the time, northeast-southwest wind is along log piles. Again you get a higher concentration when the wind is along the pile than perpendicular to it.

Source characterisation in the model is incredibly important. This is a well-known issue in source characterisation. What has happened in the TAS model is that because the source has been incorrectly determined, it basically means that they've unrepresented the amount of EDN by as much as 4 times, or approximately 53 per cent of the time, if the winds are from the northeast to the southwest winds.

The other issue of course is that the modelling has assumed a constant free headspace of 450 metres cubed, a very small increase in headspace size, which is almost possible to detect, means a significant increase in emission rate. So this chart below is just showing you what the difference is.

[2.25 pm]

The TAS model has used one large 60 by 60 metre single volume source, whereas the correct way to model this is 12 5-by-5 volume sources, which actually ends up representing a 60-metre long stack that is 5 metres wide and roughly 5 metres high. The difference that this makes in the model is significant.

So here is a whole year of model run just to show you the differences that it can make. So the top model is the correct model and the bottom model is how it's been run in the TAS situation. And if you go down to the lower plot we now have a zoomed-in image of this above. But just looking at the period between zero metres downwind and 100 metres, and this is where you can see the correct model is up to four times higher EDN than has currently been modelled. So the effect of this is to affect obviously the concentrations by a factor of 4 all the way down.

Now the other, moving on to ship holds, the TAS ship hold emission profiles are shown in this figure below. So what we have here for three different endpoint concentrations, so let us just look at the 700 parts per million. So over 6 hours we have the emission rate slowly increasing to R2 and then from R2 to R6, so that is 4 hours after all the holds are

open, we now have this emission rate gradually decreasing over 4 hours.

But in reality this doesn't happen. When a ship hold is opened, the rate at which the fumigant is stripped off that ship hold depends largely on multiple things, it depends on the wind speed, it depends on the wind direction, and it depends on atmospheric stability. So these things are absolutely imperative. And so in reality what is actually happening is, as you open a ship hold, under fairly poor dispersion conditions, ie you have an unstable environment and you have some wind speed, you are going to strip off that fumigant within minutes. So to have this emission rate gradually decline over 4 hours is to completely underestimate the actual concentration of EDN per ship hold.

And we know in this dotted line here is showing you a situation that happened in August 2019 when all five holds were opened in 1 hour. So actually the profile would look something like this. A massive spike within the first hour and then a massive decline immediately downwind. And so, yes, one can have monitors out there to get some idea, but I can assure you with the very unstable conditions on the port, lots of structures, you have an awful lot of turbulence and a lot of mixing, and so it would be very, very hard to actually measure the concentrations coming out of these ship holds under these conditions.

And so this slide is taken out of the report and the TAS model is showing, even at 700 parts per million, the 50-metre distance criteria is breached at the 1-hour average. But if you actually went back and corrected those emission rates to really what might be happening, then this 50-metre would be breached at concentrations including a 500 part per million endpoint.

So just a summary on ships, the TAS emission profile suggests that all holds are open after 2 hours, allowing a gradual reduction in EDN over 4 hours. But this is not backed up by any scientific literature or any field study. And we also know that EDN can strip, or methyl bromide for that case, a lot faster depending on the conditions. So this slow decline of EDN profile from the peak is unrealistic. The Port of Tauranga winds are 30 per cent of the time along the ship, therefore 99 per cent of EDN would be stripped off within the hour from a single hold with no decline. So the TAS emission profile seriously underestimates TAS's own model. Plus, opening all holds within 2 hours simply cannot be an option.

[2.30 pm]

Now the AEGL have a 1 hour and 10 minute criteria and these are important for ship holds. And the modelling did not consider a 10-minute AEGL and I guess he question is why is there no 1-hour TEL?

It is important and it would help greatly when trying to assess compliance at the additional WES and New Zealand TEL.

Ship hold ventilations need to be controlled. With methyl bromide, one of the controls was to consider looking at one hold each hour or more and then model it accordingly. EDN is highly flammable and just based on the model results I have seen it is seriously questionable whether ship holds can ever be adequately safe.

And then the same thing applies to ship holds, the emission rate has been assessed on a constant free headspace size of 3,800 metres cubed. But a very small increase in headspace size, say it was 4,000 metres cubed or 5,000 metres cubed instead of 3,800, the emission rate is significantly increased.

So my summary is that there are fundamental errors in the source characterisation and emission profiles. It means that the 50-metre distance criteria as portrayed in the TAS report are invalid for all the model scenarios. The TAS model likely under-predicts EDN concentrations for exposure to worker and public is quite likely higher than currently expected.

I also want to make the point that atmospheric dispersion modelling is very important. Good-quality meteorology like we have at the Bay of Plenty and accurate emission rates, so that is trying to get the emission rate as accurately as possible, you will get a good result from the model. The results of a dispersion model are generally conservative and therefore they are protective of human health. Monitoring, computation of the emission rates, estimating the log pile size, computation of the headspace size, and the ventilation rates, are all highly variable. And these are factors that we are all grappling to try and get a handle on. But they are highly variable. Whereas the model is the one thing that will ensure protection of human health.

So I have a few recommendations. I recommend new modelling using the Bay of Plenty dataset, mitigation for log piles, Sam has already mentioned this. I am just simply pointing out daytime only, buffer distance, minimum wind speed, and very importantly the slow release of each tarp removal and setting a minimum time interval between each pile.

Mitigation controls must be required for ships, one hold at a time, and the modelling must reflect the mitigation. At the moment it seems like the modelling has happened and we have no controls. So correct source characterisation, setting the sources up in the model for the new-field assessment is imperative. Modelling should also occur on realistic large log piles, not just 1,200 metre cubed piles. Then modelled

emissions of EDN are currently dependent on the assumed headspace size. Model scenarios should be readdressed.

And, lastly, just an additional point on the 1-hour TEL. Controls, if you set controls around a short-term criteria, this sets you up to protecting for the longer-term criteria. So if you are setting up controls for a short term, that means you have automatically set up those same protections for the longer-term criteria.

And the point that I want to make is, what about eight big log piles being ventilated in 1 hour? You can easily get exceedances of 8 to 16 parts per million. But the 8-hour WES and the 24-hour TEL will not be breached. So this is why a short-term criteria would help mitigate against these spikes and it would also set up the protections for the longer term.

My last slide, I just want to go back to something that we have of methyl bromide where we have a typical, this is only three log piles being vented, and you can see spikes of up to 7,000 parts per million. And this just happened to be a case where the monitor was in the right place. There are multiple scenarios where the monitors have not been able to catch the downwind plume. This is a case when they did. We can see spikes of 7,000 parts per million and if you had to consider a 15-minute AEGL this would be pretty much a very high average, maybe 5 parts per million to 7 parts per million. Thank you. That is all that I have.

[2.35 pm]

QUESTIONS

CHAIR: Thank you very much, both Sam and Jenny. Again, we're running behind schedule, but I'd like to offer an opportunity for questions, first of all from the DMC. Ngaire, do you have any questions?

DR PHILLIPS: Sorry, I'm just trying to avoid the sun beaming down on me from a high window. Thank you, Sam and Jenny. Now I'm in the dark. Okay, here I am. I just had a question to Sam. I appreciate where your concerns are coming from and I guess the question I have is that you do have a power through the RMA to set more prescriptive controls than you may see as being set by either the SWI or the proposed control that the EPA have proposed. My question really is, why not just use the RMA process?

MR WEISS: Yes, question. I think there's three responses to that. One is once a control is established by the EPA it's difficult or it just makes it difficult for us to do anything different, even through the RMA process, because there's obviously a lot of smarts go into this hearing, there's a lot of

input and a lot of consultants fed into this. The RMA process doesn't necessarily have that quite same degree of rigour. We do rely, to some extent, on the decisions made by the EPA through this process even though we have the ability to set additional controls where we have evidence for it and believe it's necessary.

The second point is that because we've had so much experience in the Bay of Plenty with fumigation we feel as if we have some responsibility to the rest of the country as well to share what we have learned through these last 15, 16 years. Our interest clearly doesn't stop at the Bay of Plenty border because there will be regions where this activity perhaps will be carried out without resource consent because up until fairly recently methyl bromide fumigation, my understanding is, we've been one of the only regions requiring a consent for methyl bromide fumigation until relatively recently. Those are the reasons.

DR PHILLIPS: All right, thank you. That's all I have, thanks.

CHAIR: Kerry, I'll come to you in a minute. I notice that we have a request from Mark Pemberton to provide some information. I'm prepared to allow Mark the opportunity to provide this information. It may not be a question but, Mark, the floor is yours.

DR PEMBERTON: Thank you, Mr Chairman. Repeatedly the issue of the 1-hour TEL and why we don't have a value keeps arising and I thought I'd just explain a little bit of the background toxicology why. An AEGL-1 value is the concentration above which it is predicted the general population, including susceptible individuals, like EPA said, could experience notable discomfort, irritation or certain asymptomatic non-sensory effects, and however these effects are non-disabling and transient reversible.

The issue with EDN is that it doesn't produce any effects of short duration. The only effect it does produce is actually sensory irritation and that's specifically excluded from the definition of an AEGL-1 value. Therefore if you were to look for a point of departure, a health effect, upon which to try and set a 1-hour standard, there is nothing other than things that are occurring on chronic repeated exposure and the time extrapolation from those down to orders of minutes is so imprecise that it's actually unmeaningful.

If you were to, for example, set an AEGL value or a TEL-1 hour on a century effect, which is not what we've recommended, then the threshold for that currently from the 1960 study would be a point of departure of about eight parts per million.

[2:40 pm]

The normal factor you would set on the local effect like that, in humans, would be a factor of three and that would lead to a TEL-1 hour around 3 parts per million. What value that would be, I'm not 100 per cent sure but I think it's worthwhile just clarifying that point for people to understand the reason why EPA and others have not set 1-hour TEL. Thank you.

CHAIR: All right, thank you for that. Kerry, do you have any questions to ask of Sam or Jenny?

DR LAING: Thanks, Sam and Jenny. I'll start with you, Jenny. That last slide you put up comparing the methyl bromide emissions and modelling, I guess it moved rather quickly for me. That indicated that the monitoring actually recorded higher spikes than the modelling, is that what I was seeing or not?

MS BARCLAY: Yes, that's correct. So WorkSafe did a wonderful study with PDP to try and look at these short-term spikes and we couldn't actually get the model to meet those spikes. There's multiple reasons for this, even though you were using 1-minute meteorology there's a chaoticness and such randomness to this whole situation at the Port that it's almost beyond the model to properly get right. So with the model we were able to match the spike to the event but we weren't able to get the same value. The monitoring was still much higher. Over one hour the model did better.

DR LAING: Okay, thank you. I don't know whether the question should be for you or for Sam. I know that you have reported according to the brief you were given and there's a fair focus on the Todoroski Air version modelling and not Sullivan's work. You will have heard from WorkSafe this morning, and Susan, that there was a fair amount of information that went into their decisions about the distance than anything else, which was more than just the Todoroski report. I know you've indicated what you believe are a whole lot of shortcomings in that report but there was more to what's gone into the SWI and just that it's unfortunate that in fact you haven't had time to look at Sullivan's modelling, although you have commented that he doesn't seem to incorporate it or redone any modelling since the experts worked on methyl bromide; is that right?

MS BARCLAY: Yes, that's my understanding.

DR LAING: The comment really stands, Sam, that it's unfortunate that time has not permitted a more thorough investigation of what's up on offer and what has been used in the SWI. Thanks, John.

CHAIR: Thank you. I'm aware that we're stretching into the afternoon however this is clearly a key parameter in the assessment of this application.

Kade McConville has indicated that David Sullivan is available and he has sought his involvement at this point to address some of the modelling parameters and characteristics that we've just heard so, David Sullivan, you may ask questions of clarification.

MR SULLIVAN: Just to clarify the record. Ms Barclay believed that we had not updated our EDN work apparently since 2018. But that's not correct. When I returned from the expert panel prior even to doing the methyl bromide modelling, we modelled EDN in accordance with the panel's recommendations. We used the exact meteorological dataset that she mentioned. We subdivided the volume sources similar to what she had mentioned. We had used the state-of-the-art Monte Carlo methods that the expert panel signed off on and used the actual Port operations to simulate how they apply it; how many they would do in different zones and when. It went through a lot of detail. That was of course submitted a year ago and three or four months, about 15 months ago, so it's been around.

[2:45 pm]

The issue is that I saw in her statement, that she's implied that because Todoroski found some fundamental errors that I guess implied you couldn't rely upon our modelling. But that also is not true. Basically if anyone had attended the hearing of methyl bromide in August 2020 I spent probably 10 to 15 slides showing how insignificant that issue was for long-term analysis, like the buffer zones we are talking about here at the boundary. It's confused. To me the work that was done there, based upon the expert's panel recommendation and the EPA process, clearly should have been reviewed here. It's been around for a long time. I have slides, if you want me to show you some of those slides I showed at the public hearing, but those areas that she's referring to are extremely minor. Am I able to share my screen?

CHAIR: Actually we're not going to proceed with that at this point. You do have an opportunity to address the presentation that's been made. At this point I'm not going to permit you to introduce your own evidence. You may have an opportunity at the end of the day to participate in the final summing up on behalf or as part of the applicant's allotted time at that point.

MR SULLIVAN: Very good.

CHAIR: Thank you for that. I see no further questions or requests to ask questions in the chat. I have no questions of the previous presenters so I'd like to thank them again for their presentation. We will move on to the next presenter. The next presenter is New Zealand Forest Owners Association, and we have Glen Mackie presenting.

NEW ZEALAND FOREST OWNERS ASSOCIATION PRESENTATION

GLEN MACKIE PRESENTING

MR MACKIE: Good afternoon. First of all I'd just like to present my credentials and the Association's credentials. The New Zealand Forest Owners Association is the represented membership body for the commercial plantation forest owners industry in New Zealand. Our members are responsible for the management of approximately 1.2 million hectares of New Zealand's plantation forests. That is over 70 per cent of the plantation area and over 75 per cent of the annual harvest.

I'd just like to make some comment about importing country requirements. I'd like to emphasise the fact that treatment requirements are set by the importing country, not by New Zealand. New Zealand has struggled to get acceptance of EDN by importing countries because it is not approved for use in New Zealand. Approval will help MPI negotiators make the case with importing countries to allow exports from New Zealand to be treated with EDN. Countries are waiting on this decision before making their own decisions. One of the things we hear constantly is why do you want us to approve EDN if New Zealand hasn't as well.

I'd just like to set the scene for just what the industry is and how important this decision is. Export revenue is forecast to reach NZ$6.3 billion in the year ending June 2021. Harvest volumes are set to reach 36.5 million cubic metres in 2021, up 14.5 per cent from last year. Log export volumes are expected to increase 21.4 per cent reflecting increased demand for export logs. The source for those figures is the MPI SOPI report in June.

The forestry sector, alongside two other primary industry sectors, has been identified as a key contributor to New Zealand's post-COVID economic recovery by 2030 in the Government document, "Fit for a Better World". The industry plays an important role in the New Zealand economy. New Zealand's harvest for 2020 was just over 32 million cubed. Of this, 14 million cubic metres was processed in New Zealand, and 18.5 million cubic metres exported.

You can't just harvest export logs or harvest domestic logs. A typical plantation radiata tree yields up to five different log grades per tree, typically the higher-grade logs being processed in New Zealand and the remainder being exported. A forest owner must have a market for the whole tree, or it's not viable for him to harvest. A domestic market relies on a viable export market.

In the year ended March 2029, log exports to China were worth NZ$2.2 billion. Total wood product exports to China were worth

$2.9 billion, so that's including New Zealand timber, 53 per cent of New Zealand's total wood product exports, or 87 per cent of total log exports going to China.

[2.50 pm]

Industry and Government are very aware of the risks of exposure to one market, and the Government has been making overtures about that to the industry recently. It's unfortunate we have lost access to our third largest log market, India, as we are no longer able fumigate ship holds, which, for the year ended March 2021, was worth almost 70 million; two years previous to that, it was worth NZ$1.5 billion. No more log exports to India will occur from New Zealand under current treatments settings as they require methyl bromide treatment; it is now practically impossible to use methyl bromide in a ship's hold.

Decisions made by regulators can have very real effects on industry. The New Zealand forest industry at the moment is very fragile. Current average to low export prices, very high shipping costs and severe concerns about the Chinese market, which concerns much of our exports, means that returns to forest owners are currently severely affected. Returns to all growers are down; those that are particularly hurt at the moment at the small growers.

In addition, COVID impacts over the last two years coupled with current market conditions have severely impacted the resilience of companies in the industry. Segments of the industry, particular those areas associated with smaller forest owners, have limited ability to absorb current downturn and are reducing or stopping harvest.

General comments: We would like to note particularly that the FOA does not support any increase or amendment to the proposed buffer of 50 metres required by WorkSafe to protect the public. We note this supported by the EPA staff; any change will need to be supported by sound and clear scientific and technical evidence to support such a change, and these must be balanced against their practical workability and the impact of any such changes they impose, otherwise we're going to have another India situation.

The application of fumigants within ship holds is a key and critical phytosanitary treatment option. With methyl bromide effectively no longer able to be applied within ship holds, there's an urgent need for an alternative ship hold treatment option. The FOA therefore recommends that the DMC consider approving in-hold use of EDN subject to WorkSafe preparing a safe work instrument. FOA considers the work down the EPA WorkSafe has been thorough, and while the proposed controls are considered to be conservative, they are workable.

The New Zealand forest industry needs to be able to access a range of phytosanitary treatments; these are specified by the importing country, our trading partners. Anything we arrange for the treatments is acceptable by the importing country, limitations in New Zealand are imposed by local councils, ports, infrastructure such as debarking capacity, but it is essential that the exporter has a wide range of phytosanitary options in the toolbox as possible. EDN represents a significant addition to an ever-shrinking phytosanitary toolbox.

One of the major risks to the New Zealand plantation forest industry is an intrusion by a best. We need access to effective treatment options to ensure imports into New Zealand are safe. There are many products where heat treatment is not an option and an effective fumigant is essential.

In summary, FOA considers EDN can be used safely with the controls that are proposed. We request the committee approves the use of EDN for the treatment of exports and imports. In addition, we request the committee considers additional approval of an appropriate safe work instrument or in-hold treatment. Thank you very much.

QUESTIONS

CHAIR: Thank you, Glen. Any questions from the DMC, Kerry?

DR LAING: Thank you, John. Thanks, Glen. Only a comment, not a question, maybe I should've brought it up with the EPA earlier: My understanding is that we cannot approve ship hold fumigation subject to something being developed under another regulatory regime, it's just not an option available to us. I know what you're wanting but we cannot do it, and perhaps, Michael, you could comment on that?

[2.55 pm]

MR BERARDOZZI: Hi, yes, sorry, indeed, Kerry, that's not something we're able to undertake at our level.

DR LAING: Michael.

CHAIR: Any further questions, Kerry, of Glen?

DR LAING That's all, thanks, John.

CHAIR: Ngaire, any further questions for Glen?

DR PHILLIPS: Yes, thanks, Glen. I'm just sort of following up on this, there was a discussion earlier on about extending the application to include both the important and export of logs, and I'm just interested to know, how

often do we import logs? I was a bit surprised that we even did it, so excuse my ignorance.

MR MACKIE: The request isn't for the imported logs, the request is for the imported wood products, and what happens is we currently use methyl bromide to fumigate containers coming into New Zealand and to fumigate materials that cannot withstand heat, okay, because the other main treatment is heat, but we have very limited radiation options in New Zealand. But we do bring in plywood and timber and things like that, and the suggestion is that to reduce the risk of a pest of some sort such as a (inaudible 14.56.29) or something like that coming into New Zealand, which would have severe impacts, we think that MPI should have the widest range of options in their toolbox to be able to address these issues.

DR PHILLIPS: Okay, yes, thanks. It's just it is interesting because I don't really recall it being discussed at the methyl bromide hearing, that's why I'm a wee bit -- but that's cool, that's fine, yes. Thank you, John, that's all.

CHAIR: One quick question from me, Glen, is it practical for the industry to consider a ship hold fumigation whilst the cargo is in transit?

MR MACKIE: Okay, that comes down to maritime law there's only one chemical that you're allowed to actually use in a ship when it's in transit, and that's phosphine, and the only reason you're allowed to do that is because they've been doing it for 60-odd years and that was pioneered by grain. It's actually against maritime law to fumigate a ship with any other chemical when it's in transit, so what they have done in Australia, for example, is take a ship offshore, anchor it and do it, but that leads of all sorts of problems. But, no, you are not allowed to use any other chemical other than phosphine under maritime law.

CHAIR: Is there an opportunity that within New Zealand's economic zone, and I don't know far that is so I'm quite prepared to be schooled on that, that at sea, fumigation could take place using EDN?

MR MACKIE: Look, I'm no expert; my understanding is no, we did look at this about ten years ago. My understanding is we would have to go to New York and actually try and work through the shipping people there, but Mark Procter may be better up on this, or else possibly Ian Gear.

MR PROCTER: Okay, so it's Mark here, team. I can't comment any further, what you've outlined, Glen, is correct. New Zealand waters is 12 mile mark in reality, so it's a long way out, but, Glen, you're correct, phosphine is the only product we can currently use in transit, and I'm not aware of having the ability to or actually any recent fumigation using other products at anchor, inside or outside New Zealand waters.

CHAIR: All right, thank you both for your answers to our questions. I see no requests to ask any further questions; I'll just give everyone an opportunity, is there any other party wishing to ask Glen a question at this point? No? Thank you, Glen, for your presentation. And now I'd like to move on to Chris Rayes from Rayonier Matariki Forests.

RAYONIER MATARIKI FORESTS PRESENTATION

CHRIS RAYES PRESENTING

MR RAYES: Look, thank you, John, and thank you, the DMC, for the opportunity to address the hearing. To give something on our credentials, Matariki Forests is the third largest forestry company in New Zealand; we supply both the domestic and the export markets with our own logs, we also purchase logs from others, and, as Glen said, the forest industry is a key part of the Government's Fit for a Better World policy going forward.

[3.00 pm]

During the period that EDN has been considered for approval, Matariki Forests and Hancock Natural Resources Group Australasia, so HFMNZ in New Zealand, has actually formed a joint venture export operation called Ava Timber LP. That operation manages about 4.5 million cubic metres of log exports from New Zealand and is valued at around NZ$800-900 million of export earnings per year. Obviously, that goes up depending on things like freight, exchange rate and CFR selling price.

Although subject to some regional variation in New Zealand, the best grades of logs are supplied to domestic customers with the lower grades exported, and Glen's already explained why we have to sell everything when we cut a tree. We currently hold-fumigate and finish shipments to India at Northport, Marsden Point, and we're actually loading our last India shipment as we speak. As you all know, from January next year the regulatory requirements make it prohibitive to hold-fumigate shipments. The final shipment we're making at the moment does come at significant commercial risk, as previous explained to the DMC, where customers run 150-180-day LCs, and there is a risk, if they believe we can no longer supply the Indian marketplace, that they may default on payment. We hope our relationships are strong enough that they won't.

The forest industry need certainty. Methyl bromide decision did provide a level of certainty but it has left the industry with no approved chemical alternative to support log exports. No fumigant alternative to methyl bromide is currently available to meet phytosanitary requirements for India and, in some cases, China.

Risk to the industry. The forest industry is increasingly reliant on China and exposed to the increased risk of debarked deck cargoes which remove habitat but do not kill insects and are only suited for larger-diameter saw log treatment. We have all seen what has happened to Australian log exports to China when the Chinese quarantine service found live insects and, as a result, banned the importation of Australian softwood logs. A similar ban on New Zealand log exports to China would be devastating.

We would like to diversify markets but, as we've heard from Glen, one of the tools in our toolbox is now being removed. The weight of evidence supporting EDN is clear, we believe the information gaps identified in earlier hearings by the DMC have been filled since the last hearing by the applicant and STIMBR. EDN efficacy has been proven by robust science and good research. We know an upper dose rate of 120 grams per cube sought by the applicant is effective and efficacy trials have proved this. We understand MPI is seeking approval from trading partners of treatment rates to 100 grams per cubic metre for 20 hours, so, again, reducing the exposure and the risk.

It's critical EDN be approved for treatment for ship's hold cargo. Our Indian customers, and we've had these customers for more than two decades, are dependent on New Zealand radiata pine logs. The uncertainty, as Glen pointed out, has led to the collapse of New Zealand's market share in India from around 1.6 million per annum on average three years ago to approximately 200,000 cubic metres in 2021. Uruguay and Australia have taken that market share from us but customers are still undersupplied.

[3.05 pm]

The length of time it's taken to consider and approve EDN has also contributed to the industry's uncertainty around investment and alternatives. No better example is the Genera investment in recapture technology and the uncertainty that still surrounds that technology and whether it will successfully work.

What's needed to recover the Indian log market and increase market diversity and security? Firstly, WorkSafe have demonstrated it uses a thorough approach in its analysis and development of safe working instruments. We believe the safe working instrument they proposed is sound. We would like to work with WorkSafe and industry and regulators in developing a safe work instrument that enables ship hold fumigation to be done and without causing any human harm.

We are very concerned further delays approving EDN will mean competing countries have access to EDN in the near future making

them more competitive again than New Zealand. You may be aware Russia has already approved EDN for the fumigation of timber. At the very least, markets could be disrupted and possibly lost.

As I said, we are very keen to cooperate with industry, with the applicant, EPA, WorkSafe, MPI, port authorities on gaining approval of EDN for ships' holds in addition to container and under tarpaulins. In our particular case, our company finishes vessels in Marsden Point and Northport would seem a logical site to do this work.

In summary, Matariki would like the DMC to complete its assessment of EDN and recommend approval of EDN to enable the process of approving EDN for use again within export market, primarily India and China, because we know there is a long row ahead of us in getting EDN approved in those markets. Thank you very much.

CHAIR: Thank you very much, Chris, for your presentation. Do we have any questions from members of the DMC?

DR PHILLIPS: No questions from me, thank you.

DR LAING: No, thanks, John.

CHAIR: No, Kerry. And none from me either, Chris, but thank you very much for the presentation, we'll move on, the next presenter is Philip Taylor from Port Blakely Limited. Do we have Philip Taylor from Port Blakely Limited? It doesn't appear that we do. I think, given the need to maintain a schedule this afternoon, I will ask if the next submitter, STIMBR, is able to use this slot, and if Philip Taylor is --

PORT BLAKELY LIMITED PRESENTATION

PHILIP TAYLOR PRESENTING

MR TAYLOR: Hello, sorry, can you hear me okay?

CHAIR: I can.

MR TAYLOR: Where's your camera, oh, there you are.

CHAIR: So can you confirm --

MR TAYLOR: Can you hear me?

CHAIR: -- next on the agenda, Philip Taylor from Port Blakely?

[3.10 pm]

DR PHILLIPS: He's under Glen Mackie, John.

MR TAYLOR: Sorry, John, I have been here all the time but I must've been on a link that didn't allow me to connect in, sorry, I apologise, my apologies.

CHAIR: That's all right, good to have you. Please proceed with your presentation.

MR TAYLOR: Can somebody put my presentation up for me, is there somebody in there somebody in the secretariat that can do that?

CHAIR: So I believe you'll be granted the ability to share your screen.

MR TAYLOR: Yes. Sorry, the problem, John, is that, as I say, I've had to rush to another computer because I've had a problem with mine and it's on that.

CHAIR: Oh, right, okay.

MR TAYLOR: So, look, that's fine --

MS QUINN: No, yes, are you there, sorry?

MR TAYLOR: Yes.

MS QUINN: Gareth, are you please able to hook up Philip's presentation, please?

MR TAYLOR: Look, it's not necessarily that important - oh, here we go.

MS QUINN: There we go.

MR TAYLOR: Right. Well, first of all, thank you for this opportunity to present to the DMC on the registration of EDN. A lot of what you'll hear from me has already been covered, either by Glen Mackie or Chris Rayes from Rayonier, so I'll try and just focus my attention on areas probably of a more general nature. First of all, I am an industry practitioner who supports the registration of EDN as a fumigant provided it is done so in a safe and harmless way as determined by the experts. We are not expecting the DMC to progress the interests of our industry at the cost of the communities and the workers that operate in and around our ports, and I want to make that very clear.

Port Blakely and myself personally, I've been in the industry for 40 years and I've never been as optimistic about the future for forestry than I am right now. As part of its programme around the Fit for a Better World strategy, which was the Government's post-COVID-19 economic recovery strategy, and their ITP, Industry Transformation Plan, the New Zealand Government is relying heavily on the forestry sector to add an additional $2 billion worth of export income per annum

by 2030, and while the focus of those two plans or programmes is on increased domestic processing in New Zealand, you've heard from both Glen and from Chris that there will, inevitably, still be a significant component of our lower-grade logs that will need to be exported into the international market, and while I am optimistic about the future of our industry as a result of what I call a large number of meta-economic forces around supply and demand globally, the pressure on our supply chain in the export markets is increasing.

The reality is that New Zealand has two major competitive advantages in terms of its competitiveness in the global softwood logs and lumber and wood fibre areas, and they are, first of all, our world-leading ability to grow exotic species at the highest productive rates in as short a period of time as possible, and also, up until now, our most efficient log supply chains. Those supply chains are increasingly being challenged across a whole range of areas, not only in terms of export phytosanitary treatments but also increasing costs both domestically and internationally, increasing government regulations.

Now on to Port Blakely. Port Blakely itself is a forest owner and we've been exporting logs into the international markets since 1994. The majority of our Port Blakely estate is located in regions without any significant domestic processing capacity and this is what makes our access into the export market through an efficient supply chain critically important. We don't have access to domestic markets simply because the regions in which we grow our forests don't have any domestic processing. That may change over time and certainly we would like to see an increase in the amount of domestic processing in the area of our forests, but that's not likely to happen for a good five to ten years.

Port Blakely has relied heavily in the past on fumigation to access its export markets and will continue to do so in the future. Port Blakely is a relatively small to medium-sized forest owner and so we operate at a scale that limits our ability to use other phytosanitary techniques such as joule heating or debarking. Port Blakely is increasingly dependent on fumigants to access our intentional markets.

[3.15 pm]

On another note, there has been some discussion around the use of EDN for phytosanitary protection for inbound cargoes. As a forest owner, the biggest threat that faces our forest estate here in New Zealand, which is worth around about $60 billion, is a pest incursion, potentially from imported wood products. Glen talked about that previously. We need tools in our toolbox to protect what is an increasingly strategic asset for New Zealand and it's not too far-fetched to say that an incursion of some of the more serious pests out there in

the international market - Ips grandicollis, pitch pine canker - could have a devastating impact on our forests here in New Zealand. EDN, if registered, would represent a significant addition to our ever-shrinking phytosanitary toolbox.

So, in summary, Port Blakely certainly supports the registration and use of EDN. We need to have a decision which is founded on science, acknowledges the critical importance of the export log market to the New Zealand economy, adequately addresses the risks associated with the use of fumigants, provides certainty for the industry and our trading partners, and, importantly, acknowledges that trading partners are waiting for the EPA DMC to make a decision before approving EDN in their own national treatment schedules. Thank you.

CHAIR: Thank you very much, Philip, for your presentation and sticking to time. DMC members, are there any questions for this presentation?

DR LAING: Thanks, John, and thanks, Philip, I don't have any questions.

DR PHILLIPS: Likewise, thanks, Philip, but I don't have any questions for you.

MR TAYLOR: My pleasure.

CHAIR: Okay, and none from me either, Philip. Thank you very much, and thank you to all the speakers and the presenters in the session since lunchtime, especially the latter, who have managed to get us back on schedule. I am going to take the break that's scheduled in the revised timetable for the proceedings today. If we can resume our presence here in 20 minutes, just over 20 minutes, at 3.40. Thank you.

ADJOURNED [3.17 pm]

RESUMED [3.39 pm]

CHAIR: Morgan Slyfield is at the ready, so our next presenter will be Morgan Slyfield on behalf of STIMBR.

[3.40 pm]

STAKEHOLDERS IN METHYL BROMIDE REDUCTION INC PRESENTATION

MORGAN SLYFIELD PRESENTING

MR SLYFIELD: Thank you, Chair, members of the DMC. Sitting with me - I'll just reiterate what I said this morning - I've got Ian Gear, the research director for STIMBR, and Don Hammond, the chair of the STIMBR board. I've zoomed out the camera so that you can see me a little better. If the opportunity comes up where there are questions or issues for

either of them to address, then we'll get them on screen so that you can get the benefit of their knowledge.

I think we can probably stick to time today, you'll be pleased to hear, in terms of the amount of time we're going to take up. You have had an indication of what the presentation for STIMBR would cover and I'll be sticking to that, beginning firstly with the topic of what is to be treated.

Draslovka's application is for approval to use EDN as a phytosanitary treatment of wood products, including logs. That's how it was framed in the original application document. That includes use on imported wood products. MPI will address you on the importance of having EDN as a treatment for imported goods, and biosecurity responses protecting New Zealand from unwanted pest species.

The EPA staff report has described the use of EDN as a fumigant for timber and logs for export but there's been some clarification provided by Mr Berardozzi today, where he has recommended the removal of that term "export". The essence of STIMBR's submission is that's in fact on all fours with the application as it was originally framed. In fact, the application as originally framed didn't seek to specify import or export. That has been added at some point along the way. But the jurisdiction that is created for you by the original application is in fact broad and encompasses both export and import and encompasses not just logs but also wood products.

I go one step further than that and say on behalf of STIMBR that now that you have the benefit of knowing what the content of the draft safe work instrument would be - subject of course to an EPA approval for EDN - you can see that there is an element in there that is to have a 700 part per million concentration limit prior to ventilation. Once you have that type of control in play, it becomes - I'm not going to say irrelevant - less relevant what is inside the relevant enclosure. What has become relevant at that point in time is what's the concentration in that enclosure before you ventilate it and that of course is based on modelling of what happens to concentrations at that level as they then disperse through the atmosphere. That's the exercise that fundamentally STIMBR says WorkSafe has undertaken.

The second topic I want to come on to is this issue around ship holds. You've been hearing quite a lot about ship holds from other submitters. I want to begin that when this hearing was last convened back in 2018, there was at that time a lack of air-dispersion modelling for ship holds and a lack of real-world data from any ship-hold tests or trials. The EPA staff concluded that that prevented them from making a proper risk assessment for the use of EDN in ship holds.

Following that, as the DMC knows, the application was put on hold and in part that was to allow time for WorkSafe to undertake its programme to develop a safe work instrument and to see what the outcome of that programme would be. As part of that exercise, the DMC acknowledged at the time that it is WorkSafe's responsibility to set controls to manage effects on workers, and any such controls would be directly relevant to the DMC's assessment of this application.

Moving ahead, we have the benefit, as I say, of knowing what those controls will be if the in-principle safe work instrument is passed into force. That addresses the use of EDN under sheets and in shipping containers but, obviously enough, not in relation to ship holds.

[3.45 pm]

STIMBR understands there are effectively two reasons why the safe work instrument did not cover ship holds. Firstly, WorkSafe did not consider it could progress a safe work instrument for ship holds in the absence of real-world data from ship-hold tests. You've heard from Draslovka about the work that it's been undertaking in Australia to obtain some data from actual fumigations on ship holds. In relation to that issue, WorkSafe has advised that it will be prepared to develop a safe work instrument for ship holds once data becomes available, and Draslovka is working on obtaining that data. That's the first reason why it wasn't covered in the safe work instrument.

The second reason, which is of greater concern in some respects to STIMBR, is that WorkSafe said it has restricted its consideration because it thought the EPA - i.e. this DMC - was not likely to include ship holds in its approval. I simply want to make the point that there is some circularity going on in terms of the way that process has unfolded. On the one hand you have the decision that this DMC took that it wanted to know what controls WorkSafe would impose before deciding this application. Then WorkSafe has gone away and undertaken work to develop controls but has done so basing it on an assumption about what the outcome from this DMC will and won't cover.

In my submission on behalf of STIMBR, there is a need to move outside of that sort of loop effect that has been happening. STIMBR's essential submissions to you is that if Draslovka can obtain real-world data from ship holds and if WorkSafe then develops a safe work instrument based on that data, then there should not be any need for a further assessment - i.e. a reassessment - of EDN by the EPA at that time. Rather STIMBR considers it is open to you to grant approval for the use of EDN in ship holds on a conditional basis, avoiding the need for a further HSNO assessment following the development of a safe work instrument. The condition that I'm referring to there would be of

the nature that EDN could not be used in ship holds until there is a safe work instrument in force covering that use.

STIMBR says that is an outcome open to the DMC, in part because of the work that has already gone into the other controls, particularly the setting of a TEL to protect public health. If a conditional approval were granted by this DMC in the way I've described, then when WorkSafe gets to the stage of developing a safe work instrument to cover ship holds, WorkSafe would have the certainty of knowing what the TEL is and would be able to use the safe work instruments it has already developed for other enclosures as the basis to assess what controls are necessary in respect of ship holds.

STIMBR anticipates that many of those controls would or could remain the same. For example, the requirement for concentration of 700 parts per million prior to ventilation seems as applicable to ship holds as it is for other enclosures. The exposure standards for worker protection, namely the eight-hour WES and the ceiling WES that form part of the WorkSafe safe work instrument would remain the same and, just as the current in-principle safe work instrument sets a minimum buffer zone, a buffer zone would be set in the new safe work instrument specific to ship holds, taking into account the data and modelling that is available to inform WorkSafe's decision.

In those circumstances STIMBR says no further change to the HSNO approval would be required. If approval for ship holds is given, conditional on WorkSafe developing a targeted safe work instrument, then once the safe work instrument takes effect, the industry will be able to rely on HSNO approval without further delay. I won't reiterate but simply refer you to the submissions you've already heard from industry participants about how critical it is that there can be some progress towards being able to use EDN in ship holds. It's that importance of the issue to the industry that is driving some of the submissions that you are hearing from STIMBR.

[3.50 pm]

Before I move on to the next topic, I would like to pick up on what I think is potentially an area of slight confusion in the way that this has been discussed so far today. The easiest way to address this is perhaps by reference to Dr Laing's way of expressing it when he put the question back to Mr Berardozzi at the EPA, saying, as I understand it, "We cannot approve ship holds subject to other regulatory controls".

I leave Mr Berardozzi's response to one side and want to give you the benefit of what I say the legal position is. I don't know of any jurisdictional bar to the DMC acting in that way, but I took it from Dr Laing's way of expressing the proposition that what he was perhaps

contemplating was in the nature of a jurisdictional bar, "We cannot do this, we're not allowed to do this". The submission I'm advancing for STIMBR is that from a jurisdictional standpoint I don't see there being any limit on your ability to go there, but I separate out the merit of going there from the jurisdiction of going there. What I'm saying to you is jurisdictionally I don't see that there is anything to prevent you from contemplating a control of that sort, whether you see merit in it and whether you accept the underpinning basis for that and for managing the risks, it is a matter for you to assess and make a determination on but I say that it is something that you will have to make a determination on because it is part of the application as it stands.

The next topic I wanted to touch on briefly is on risk, and there are three subtopics here: there's risk to workers, risks to the public, and environmental risks.

In terms of risks to workers, STIMBR's position is that those risks have already been comprehensively addressed by the in-principle safe work instrument that WorkSafe has developed. STIMBR maintains that it is WorkSafe's role to assess and set appropriate controls to manage those risks and it is not the role of the EPA or this DMC to relitigate where WorkSafe landed on those matters but rather to simply take account of where WorkSafe has landed on those matters in setting controls under HSNO. I say that is the approach that the EPA staff have adopted, and quite correctly, in my submission. As you know, they are recommending controls that will work alongside those in the safe work instrument.

On the topic of risks to workers, I would just say that I think there was a considerable quantity of material you heard from the presenters for the Bay of Plenty Regional Council, much of which, not all of which but much of which was about worker safety. All that I really want to say about that issue is that those are matters that Bay of Plenty Regional Council could have and, I assume, probably did put in front of WorkSafe as part of WorkSafe's development of the safe work instrument. We've now gone beyond that. The safe work instrument in principle is already now formulated and available for you to take account of. So I simply say, well, all of the material that you heard that has been critical of the information on which that safe work instrument has been formulated has, to some extent, been incorrectly put in front of you as if it is a matter for you to now weigh up and assess in the way that WorkSafe has gone through a process weighing up and assessing that has resulted in the draft safe work instrument.

[3.55 pm]

I want to turn next to the risks to the public. The fundament here is risks to the public will be addressed by setting a buffer zone from which the public must be excluded. I agree with what Mr Weiss said to you in that regard, and, obviously, jointly with the setting of a buffer zone is the setting of a tolerable exposure level, a TEL, to be met at the boundary of that buffer zone, an equally important part of the controls to protect bystanders or members of the public. The setting of that buffer zone is already achieved by the provisions of the in-principle safe work instrument.

As for the TEL, STIMBR endorses the assessment that EPA staff have made that compliance with the requirements of the safe work instrument will reduce the risks to members of the public to negligible, as concentrations outside the buffer zone would be maintained below the TEL. In addition to that, STIMBR considers that this level of protection is more than adequate because the TEL itself incorporates significant conservatism, and I won't attempt to reiterate what you've had, I think, quite authoritatively today from Dr Pemberton about how that TEL has been formulated and his confidence that it is appropriately conservative and appropriately scientifically robust; all I will say in that regard is STIMBR relies on Dr Pemberton's assessments on that topic.

The final topic on risks was environmental risks and I won't dwell on that. I think all I really want to say on that is to express STIMBR's agreement with the EPA staff position on environmental risks that's recorded in the updated science memorandum, which is to say that the controls in the in-principle safe work instrument will reduce exposure levels for non-target organisms so that it is unnecessary to include any controls specifically to address environmental effects here.

The next topic I wanted to come on to - and I'm nearing the end of what I wanted to say - is to just briefly address you on this part of context which I think is important for keeping front of mind, that we are here dealing with an approval to operate at a national scale and not with controls that are specific to any one region or any specific fumigation site. For that reason, if the controls are based on robust science and incorporate appropriate conservatism to ensure that the risks are reduced to a negligible level, then in STIMBR's view there will be no reason for regulation to be more onerous at a regional or a local level. STIMBR believes the controls supported by the EPA staff, adjusted to reflect what you've already heard from me, in combination with the controls that will take effect in due course in the form of the safe work instrument, are based on robust science and do incorporate an appropriately precautionary approach towards risk.

In conclusion, can I say that in 2010 the EPA set a high bar for the users of methyl bromide and STIMBR to fund and undertake research to find alternatives to methyl bromide. STIMBR has risen to that challenge

and met the 2010 aspirations by identifying in EDN a potential substitute for methyl bromide and supporting Draslovka to seek HSNO approval for this sustainable alternative. STIMBR considers this DMC now has all the information it needs, or at the conclusion of this hearing will have all of the information it needs, to make a robust and science-based decision approving EDN with workable controls.

Now, there is one matter that I've touched on and that I will hand on to Mr Hammond to address you on briefly, and that's to supplement with some real industry-based understanding what I have put is an important element of the ability to use EDN for biosecurity purposes. If I can hand over to Mr Hammond to briefly mention those matters and then we're happy to take any questions following that.

[4.00 pm]

MR HAMMOND: Thank you for the opportunity. You heard from Phil Taylor before about the $60 billion of forest assets in New Zealand and the risk that those forests are exposed to from imported pests and diseases, so the ability to use EDN to protect those assets from their importation by way of pathways involving wood products is critically important and arguably as important or more important than the ability to export.

Mr Gear has in his past life been manager of import health standards and understands this distinctly, as have I with one of the largest incursions in New Zealand, painted apple moth in Auckland a couple of decades ago, where those pests arrived, to the best of our knowledge, in packaging and dunnage inside the containers. Wooden pellets, wooden packaging to hold products inside containers, became the pathway by which that insect arrived into New Zealand. Those are real risks that we tend not to think about. We think about packets of timber and packets of plywood, but almost every container that comes into New Zealand contains wood packaging and it's vital that we have tools to prevent the ability of those insects and pests, diseases, nematodes, to arrive in New Zealand.

So we are quite clear that while the highly visible face of the use of EDN is to treat export logs, the treatment of imported product to protect not just our commercial forest but to protect New Zealand's indigenous and exotic flora and fauna is critically important. It's very important we don't distinguish between imports and exports. This very much is an application for the use of EDN on wood product. I'll leave it at that but we'd welcome questions.

QUESTIONS

CHAIR: Thank you very much, gentlemen, for your presentations. I think I may say something first, before I invite my fellow DMC members. To Mr

Slyfield, I think the DMC are quite aware of the concept of circularity that exists between HSW and HSNO. We didn't at the outset; we certainly do now.

Also a comment in reference to the inability or inappropriateness of relitigating the draft SWIs. I think we're also aware of that and I believe I referred to that as being out of scope at the start of the hearing. The DMC does have the responsibility of making a decision under HSNO though, and whilst the SWI has perhaps constrained the scope of that decision in the requirement to accept evidence as it applies beyond the workforce, we do have to consider the risk to the environment and the risk to bystanders.

I'm coming to a question. I guess my question was: in referring to the evidence that was presented today by or on behalf of the Bay of Plenty Regional Council, was it your intention to suggest that we are restricted to considering only the information used by WorkSafe in its application to the safety of bystanders, or are we able to consider a different point of view or a different subset of information as it regards to the same parameters and the same matters considered in the development of the SWI.

MR SLYFIELD: Well, forgive me if I've misunderstood your question, which will become apparent in the answer I'm about to give you, so by all means correct me if I go on the wrong track, but, no, I don't think you're constrained to consider only information that was available to WorkSafe as it developed its SWI, plainly, this DMC and WorkSafe are operating under distinct, but somewhat overlapping and somewhat parallel, jurisdictions and the information that was available to WorkSafe is, in some senses, not even fully transparent in that, as you know, WorkSafe's legitimate practice is to undertake rounds of consultation, but the information it receives as a result of that consultation is not necessarily publicly available.

[4.05 pm]

And so you can't look behind some parts of that process, and that's probably a point of difference, I think, between the process WorkSafe has undertaken and the process here, but, inescapably, this DMC has before it information that is not identical to the information that was available to WorkSafe and, in some respects, that means there is some information that you have in front of you that has moved on from the information that was available at that time and, in undertaking your duties under the HSNO Act, you must take account of that information to the extent it is relevant to those duties.

CHAIR: Thank you, I think you must have got my question because I got your answer.

MR SLYFIED: Okay.

CHAIR: Any other members of the DMC? Kerry, I'll invite you first, do you have a question?

DR LAING: Thanks, John, and thanks, Morgan and Don, I don't really have any questions, I've only got comments. You made reference to the application and the very broad interpretation that may be put on those, including looking at imported material, and put forward the argument that, with a criterion of 700 parts per million before release, then there's no need to worry yourself about what might be being treated. The only problems that we have with that is that we have been provided with no information about what might be treated, what sizes, and the implications of release are governed by more than just a concentration of 700 parts per million, it will depend upon the size of what's being fumigated and it will depend upon the circumstances in which it's being done and the surroundings.

We heard from Helen this morning saying that it was not the applicant's proposition to us, it was being raised by other parties, and right at the last minute, with no information, data, to back it up. It may be very small and inconsequential but we haven't got any information to assess the risk, and to base something on just, "Hey, if it meets 700 parts per million you don't have to worry about it", that's just a comment.

Further going back to the circularity argument, the DMC has no idea what might have transpired by WorkSafe and EPA but it would be very wrong to assume that the DMC holds the same position as the EPA and there was a foregone conclusion they would never be approving ship holds, the process had to be gone through.

And the last comment I would make, when you asked about the conditional approval that I referred to with Michael Berardozzi, I would just have to say that we have had legal advice from in the EPA that that is not something we can do. We don't want to get into an argument at the time that one lawyer says this and the other lawyer says that, it's a bit like the air dispersion model is disagreeing. It's something we will revisit but I'd say that was based on advice we have already been given. Thanks, John.

DR PHILLIPS: And now it's my turn, so thank you. Again, I didn't have any questions but I do have a comment. Just picking up on the last point, I agree entirely with you that what we are doing is setting controls that are at a national level, and you made a comment that you would not then want or expect to have more restrictive controls at a regional level, and, unfortunately, I don't see how we can be in a position to dictate that, I mean, the HSNO Act and the RMA are quite separate pieces of

legislation and the regional councils are quite within their right to put in place controls that are more restrictive; they cannot be less restrictive, that's the bottom line, so I don't actually agree with your summation there. That was just a comment, thank you.

CHAIR: Okay. If there are no further questions for anybody else, any other parties, I have seen no one's raised their hand, I'll thank STIMBR again for their presentation and we'll move on to the next presentation which is from Mark Procter, Director of TPT Forests.

[4.10 pm]

TPT FORESTS LIMITED PRESENTATION

MARK PROCTER PRESENTING

MR PROCTER: Are you able to see the presentation on your screen?

CHAIR: Yes, we are.

MR PROCTER: Okay. Tēnā koutou, tēnā koutou, tēnā tatou katoa. Thanks to the Decision-making Committee and those on this call for the opportunity to present at this hearing. I think it's important that individual --

CHAIR: Mark, sorry, if I can just interrupt you. If you just "present" your slideshow, it doesn't seem to be in presentation mode and it's easier to see the small text.

MR PROCTER: Oh, sure. Is that better?

CHAIR: That's better. I think you have another option to maximise your live screen.

MALE SPEAKER: Up the top under "display settings", if you change that to second display.

MR PROCTER: How's that?

MALE SPEAKER: And click on "swap presenter view".

CHAIR: Now we're back out of presenter view.

MR PROCTER: Sorry, step me through that again, please.

CHAIR: So the first step seemed to work but then I think you have another step to go to project your slide up full screen. It's all right, if we can't make this work just proceed as you started.

MALE SPEAKER: Mark, I can share it from my end.

MR PROCTER: Yes, sure, and I'll just tell you when to change slides, yes.

MALE SPEAKER: Perfect, thank you.

MR PROCTER: All on share. How are we? I'm not going to refer to each point on this presentation anyway, I'm going to talk through it, so just stay on the first page as you have it and I'll tell you when to move on.

MALE SPEAKER: Thank you, that's clear enough.

MR PROCTER: I think it's just important that individual companies affected by these processes are heard and, like Phil and Chris have also presented, we don't just rely on industry organisations to represent us, so, again, thanks for the opportunity. Mr Chair, I know we need to focus on the new information since the last hearing but I will reflect a little on wider industry issues before getting to it so please bear with me. I also note that some of my comments have already been made by previous speakers, sort of unsurprisingly, but I suppose that shows a consistent message in support of EDN for the industry.

This has clearly been a long and thorough process, formally commenced I think in 2017 with respect to this application, and evidence of the thoroughness has been demonstrated by the presentations we have heard so far today, but, of course, from an NZ industry perspective, it's been part of a wider process to investigate alternatives to the widely used methyl bromide for log fumigation while meeting New Zealand's Kyoto objectives, while maintaining market access for export logs as we all know, and has already been commented on already, for what has become a significant part of New Zealand's economy.

Therefore, in my mind, this has not only been a four-year process but a 10-year one considering the work STIMBR, supported by the industry, has been involved in over the time. So it's an important process and one that I believe has had thorough expert advice and opinion, as well, appropriate wider community consultation that supports the introduction of EDN as one of the tools available for the industry to maintain our market options. There has, of course, been more information provided to the DMC since the last hearing which we, as TPT, have monitored, and support many of those outcomes.

[4.15 pm]

Would you please move to the next one? So TPT Forest, so, look, I'm an owner and director of TPT, we're one of New Zealand's few

privately owned and operated export companies primarily focused on export logs. We do have experience in processed lumber exports but, clearly, log volume is the lion's share and most affected by the outcomes of this hearing today.

It's important that I acknowledge New Zealand-owned entities because it's not just large corporate international organisations involved in the sector, whether it be growing forests, processing, or exporting processed products including logs, is a significant investment of time, expertise, experience, as well, of course, financial capital by private individuals and companies like TPT that these processes and decisions effect, and in this case, the decision of the DMC. Now, large growers and exporters, there is, depending on market conditions, and, of course, a variation by region, somewhere between 40 and 50 per cent of the volume harvested and exported comes from smaller growers and exporters, and in many cases, their location and/or scale does not provide the ability to develop and use alternative tools such as debarkers to meet the market phytosanitary requirements. Therefore, fumigation remains a critical tool for all parties, yesterday, today and maybe, more importantly, going forward.

In addition, debarking is not accepted by all markets and, therefore, is not a silver bullet for the industry. As well, debarking of volumes required going forward, which will be significantly higher than historically. As a result of the recent changes with the methyl bromide reassessment, has potentially increased the sector's risks for log exports to China. We all know China is plus or minus 90 per cent of New Zealand log export markets.

As Chris pointed out earlier in the day, debarking does not kill insects or bugs, and, therefore, there's a potential for bark to be left on the log, providing a habitat for those insects or bugs during transit from New Zealand to market. If there are increased or ongoing issues with infestations, we can only imagine the response from the Chinese authorities; worst case is banning New Zealand logs to China like what's going on in Australia at the moment, logs are banned to be exported from Australia to China, or banning debarking, or allowing debarking but only if complimented with fumigation. Therefore, potentially DMC, if you approve the use of EDN, supports large corporate business as well as the small and New Zealand-owned and operated businesses, large and small, as well as an alternative tool and/or backstop if there are issues with debarking.

Importantly, it's also worth noting that some of these forests are also located in the original regions where there is little or no processing facilities and, therefore, access to export markets is critical. I think Philip Taylor alluded to, earlier in the day, that Port Blakely have little access to domestic markets. In other regions where there's domestic

processing for logs arising or in excess of domestic demand, ie don't need the specifications required, also need a home; that home is export. Therefore, export is critical to maintain the supply to domestic mills as well. If there is no export in some regions there will be no domestic supply either.

Harvesting is an analogy, harvesting is like harvesting cattle beasts; the beast produces high quality provides like eye fillet steak, but, of course, it produces low quality products like blade steak and sausages. Well, a tree or a forest is not too dissimilar; the tree produces high quality logs for the domestic market, but it also produces low quality logs that have no domestic home and have to go to export market, and of which some cannot be debarked, and this is what Glen was alluded to earlier in the day. TPT exports to all key log export markets and we have exported in excess of 60 million cubic metres since 1998 when the company was established, to help the DMC and others put that in perspective, it's in excess of 1,800 full log vessels or it's a couple of million trucks and trailer loads, or it's 200 million individual logs, so our business has been a significant contribution to the sector and New Zealand's economy, and will continue to do so. Can we move to slide 3, please?

[4.20 pm]

Just going on to the hearing, we all know that through the reassessment process, there have been very recent decisions for the ongoing use of methyl bromide, and this is clearly new since the previous hearing and it's being alluded to today, and with the current environment and with the current recapture technology available to us, the controls are restrictive and will become more so in the new year when they take effect. There will, no doubt, be changes and/or potentially significant disruption in the new year as these new criteria are implemented.

Yes, there are also debarkers in place where it makes sense and, yes, there are more being commissioned, but we must have multiple tools to continue this important sector, and a timely decision by the DMC, now four years after the application, is required to allow it's use; we do need another sustainable fumigant as part of our toolbox. I'm not an expert in the technical side of fumigation or/or EDN for that matter, but there is now a significant catalogue of information developed and presented by a range of experts supporting the registration in the use of EDN, experts like the EPA supported by the Staff Report; experts like WorkSafe supported by the safe work instruments that are being developed, and MPI supported the sector's access to markets.

So from my personal involvement and parts of this process over the last four years, in fact, ten years considering the wider considerations of market access, fumigation and alternatives through STIMBR, these

experts that I've just mentioned give me the confidence to support EDN as one of the tools available to us going forward.

Move to the next slide, please. So I've touched on evidence, so in terms of those exports, TPT notes the evidence presented by Draslovka and their experience in other jurisdictions. Chris commented today on other competing markets, and Draslovka are involved in some of those other markets such as Russia.

A Minister has reviewed and approved the WorkSafe work in considering EDN. We note that EPA Staff Report recommends for the use of EDN and have provided reasonable and workable controls from our perspective. Importantly, those parties' decisions and recommendations are based on advice and they're aligned with science, and more eloquently outlined by Morgan from STIMBR, but, therefore, from my perspective, who am I not to accept their work and the findings, and, therefore, TPT supports the outcomes and asks you to as well.

So what's needed, you've heard some of this before, but finally, from our perspective, please accept the robust and workable controls that are recommended by the EPA Staff Report and the WorkSafe work instruments, and allow EDN to be part of our phytosanitary toolbox, but also we need options, not only for sustainable onshore fumigation, but as has been debated during the day, ships' hold fumigation as well.

We acknowledge the issues regarding what appears to be in-hold fumigation coming to the table late in the process, from some people's perspective. We also acknowledge your comments, Kerry, and from Mark at the EPA, but as a result of the recent methyl bromide reassessment, we can't fumigate ship holds with methyl bromide in the new year, therefore, we cannot meet the Indian market phytosanitary requirements. Therefore, as I think Glen or Chris referred to, India is no longer a market for New Zealand radiata logs and so India is our third largest market. There's a lot of talk and expectation on the industry for market diversity, while these recent restrictions have effectively closed one of the developing markets from us.

[4.25 pm]

There are other markets in the same boat, and excuse the pun, but these other markets don't accept debarking or don't accept debarking without fumigation as well. The Government's Fit for Purpose World strategy will rely on forestry, without doubt, and, therefore, like it or not, will involve export logs. We do need market diversity and fumigants as a tool, and in-hold fumigant as a tool needs to be part of that strategy. If the DMC approves use of EDN, and we expect and hope that you will, can you please find a mechanism to provide this continual use that

we're alluding to for ships' hold fumigation as well. Don't know the answer, we'll leave that to the people a lot smarter than I, but on your conditional approval, then allow us to work with WorkSafe, the EPA and other stakeholders to develop the appropriate controls and Work Safe Instruments to provide the opportunity for EDN to be an in-hold tool as well. So, no, that's it from me, thanks very much for your time. Open to questions.

QUESTIONS

CHAIR: Thank you, Mark. I do have a question but I noticed on one of your slides you asked us to close the hearing today, I can tell you that we won't be doing that, we will be adjourning the hearing, that's simply a procedural requirement and we close the hearing when we have completed our consideration and come to a decision, so the fact that I will say I will be adjourning the hearing at the end of the day doesn't really impact our commitment to progressing a decision as quickly as possible. Do either of the other DMC members have any questions for Mark?

DR PHILLIPS: Yes, I just have one, just a clarification. You talk about things happening in the new year, but my understanding is that the ban on methyl bromide in ship holds doesn't come forth until January 2023, so are you referring to the restrictions associated with the letters of credit, are you?

MR PROCTER: Well, I'm referring to the buffer zones required under the new --

DR PHILLIPS: Okay, thank you, that's good. Thanks, John.

MR PROCTER: -- and effectively, it doesn't allow us to fumigate in-hold.

DR PHILLIPS: Sure, thank you.

MR PROCTER: I don't know.

DR LAING: No more questions, John. Thanks, Mark.

CHAIR: Yes, okay, thank you, Mark. We have one more meeting submitter. That's the Ministry for Primary Industries. After that hearing we'll take a short break, primarily to allow the collection of thoughts for the applicant's response to the day's proceedings, and any final questions. So we'll take a ten-minute break after the next presentation.

I invite Shane Olsen to give the presentation on behalf of MPI.

MINISTRY FOR PRIMARY INDUSTRIES PRESENTATION

SHANE OLSEN PRESENTING

MR OLSEN: Thank you, Chair. I acknowledge the applicant and the DMC and all those submitters for the work that's done, and EPA and WorkSafe for the work that they've done to date on this important area of work.

I'm just going to cover some key points today. I'll probably try to skip over some things that we've already covered in depth, and pass on to my colleagues. I'm Shane Olsen. I'm the manager of the plant exports group within MPI. A key role of myself and my group is meeting overseas country requirements for exports such as forestry, anything plant based.

The Ministry for Primary Industries' vision for New Zealand is that New Zealand will be the world's most sustainable provider of high-value food and primary products. As part of that we've got some key pillars here that are needed: prosperity, enabling the primary sector to thrive. That includes increasing the value of our primary sector exports, which also has downstream impacts for New Zealand, the New Zealand economy and New Zealand society as a whole.

[4.30 pm]

Another one is protection and leading our biosecurity and food-safety teams, in particular in this context in preventing diseases and pests from entering and establishing in New Zealand. Thirdly, sustainability. That is across not just environmental sustainability but economic and social sustainability as well. Lastly, MPI taking some visible leadership in order to achieve this vision, which is a really challenging vision as such. One way that we're doing that is the New Zealand Government Fit for a Better World programme, which is a roadmap to achieve a more productive, sustainable and inclusive food and bio sector over the next decade.

Our main interests in regards to the EDN application, EDN's main interest, is EDN's ability to effectively control insects, nematodes, fungi and potentially other pests and diseases associated with logs and timber. But we also have a key role in leading New Zealand in terms of the biosecurity system and, as a number of people have mentioned today, the importance of EDN as a potential phytosanitary tool in preventing biosecurity incursions that threaten New Zealand's way of life, in order to protect our fauna and flora. I'll just note that this was reflected in our submission in 2018 as part of this process.

Another important part is just maintaining our current export trade, not just potentially in log and timber but other forest produce. EDN is a potential phytosanitary tool in that regard. EDN has the potential to replace or reduce the use of methyl bromide and thus meeting our

Montreal Protocol obligations and those commitments. Having a range of phytosanitary treatments is also important to maintain New Zealand's ability to continue to trade forest products into the future, even in the event of new pests establishing in New Zealand.

Therefore, having reviewed the proposed controls and the latest EPA staff report, we support these, although as multiple people have mentioned, we also support that the use is not just restricted to exports but has broader uses. Mr Ken Glassey will cover off some of those uses shortly. Furthermore, considering how we can accommodate smaller fumigations is important, which is also an important part of our biosecurity system.

I'll just quickly cover this because I know this has been covered already. Forestry makes up a significant part of New Zealand's primary production in the export sector, 13 per cent as of the year ended June 2021, $5.9 billion of which logs makes up 57 per cent of that. If we look further in our forecast we can forestry revenue is expected to grow to $6.7 billion by 2025 and log exports makes up a significant portion of that.

In terms of requirements - and I know others have covered this as well - from an official point of view, both China and India are keen markets, both currently and potential, and require the use of fumigation or other methods like debarking, including methyl bromide. Not having those tools available is potentially going to affect those exports and that trade.

MPI are currently progressing, and have been doing for a number of years, revised requirements to be agreed by China and India for Indian authorities. That includes proposing EDN as an acceptable phytosanitary treatment for our logs. This is based on the work of the applicant and New Zealand Forestry Industry have done, with support from MPI, to provide an excellent dataset to confirm EDN as efficacious against the main forestry pests associated with New Zealand forestry products.

I just lastly take a key point here. We cannot assume those treatment requirements won't change and that other countries won't ask for more than just China and India. Internationally expectations are increasing for all aspects associated with this trade and other countries are now realising, more importantly, the damage imported pests can do. Therefore, what we are doing is an increase set of requirements. Therefore that shows the importance of having biosecurity tools such as EDN into the future.

[4.35 pm]

Therefore, that is to summarise the importance of having these tools available for use in New Zealand, especially those that are not ozone depleters of greenhouse gases. Therefore, MPI committed to finding feasible alternatives to methyl bromide, especially where the use of methyl bromide is focused, such as a log fumigant.

We do have a concern, as other people have raised today, around enabling a ship-hold treatment option and particularly for the India trade, as Mark has highlighted and others as well, because of the importance of that trade and in effect no longer being feasible going into next year. So we support enabling a future option of ship-hold treatment once sufficient data is available and presented.

I now pass over to Mr Ken Glassey to cover off some other aspects of our submission.

KEN GLASSEY PRESENTING

MR GLASSEY: Kia ora koutou. I'm Ken Glassey. I've been working with the treatment programme in MPI for over 20 years. I'm also a member of the Methyl Bromide Technical Options Committee that reports to parties with the Montreal Protocol and also, as earlier mentioned, there was a four-country working group with Canada, USA, Australia and ourselves. We were looking at alternatives to methyl bromide. The group was really excited about the prospect of EDN and tried to collaborate with research and progress and hope to progress EDN as a phytosanitary treatment through the International Plant Protection Convention process.

As alluded to there are some 16,000 regulated pests on our database that we're trying to keep out of the country. That's the ones we know. With imported treatment and non-food assignments our treatment options are limited. As can be seen, there's pros and cons for each of those, whether it's tolerance, ozone. Time is important when you're talking about treatments. Phosphine, as noted before, takes ten days and needs to be done in transit.

There are some examples that have been put up and were first mooted for EDN back in 2010 when the first reassessment of methyl bromide was taken, and illustrates that if we were able to use it for non-food items it could replace quite a few uses of methyl bromide for import and obviously for some exports. Our plea, as I've illustrated before, is that the controls that are set to protect the environment and bystanders etc are relevant to the size of fumigation and what's being released.

So it has potential and we recognise that obviously logs are the biggest use. The controls have been set on the large scale that happens at the moment with logs. Even if it replaced that, it would take us from sixth

on the world use of methyl bromide users out of 50. If we replace the logs we'll drop down to 20, which would be something to celebrate, because we've been climbing up the list as the log exports increased.

[4.40 pm]

As noted, there's quite a lot of wood packaging comes into the country and it's supposed to be all treated to ISPM 15 standards, which is methyl bromide and heat, but sometimes that fails, sometimes untreated wood packaging turns up and it's infested, and as noted, there are multiple pests: pinewood nematode and various wood borers, termites and so the list goes on. At the moment we're dealing with a subterranean termite infestation in Auckland. That pops up from time to time and there's been some quite big ones. There was a big one in Otorohanga 30 years ago.

But there was also a lot of used equipment - used tyres, parts, machinery - that could be treated with EDN at very low rates, and I'm talking something like 15 grams per cubic metre, and the expected benefits from those would be very low. It also has the potential -- and as I say, various countries are excited about the ability to use EDN as a fungal control and also sterilising soil and the devitalisation of weeds as well.

So, as noted, there's two main application situations, there's under a sheet and containers, which have been modelled, and essentially it's the same process whether it's a container going out or a container coming in. The risks associated with the treatment and venting are exactly the same. It's about the volume of gas and the situation that you're in.

MPI is very disappointed with the methyl bromide reassessment, that completely ignored small fumigations, and I'll show an extra slide I've got of an industrial site in a minute. MPI believes that for a container where you're putting in something like 3.6 kilograms of gas, it is a completely different situation from the risk of fumigating a 2,000 cubic metre undercover for logs, and that the buffer zones and associated protection for bystanders in particular should reflect that. Using the figures from the Todoroski report, the buffer zone could be a lot less with the same end point for meeting the 700 parts per million.

Here's an example of an export timber yard that, though the methyl bromide reassessment and the buffer zone needed, with recapture of 9 per cent, can't meet that, and simply just doing a container-size, not a log stack. The process is, for instance, with imported timber, that the timber has to come out of the container for inspection because you can't do it, obviously, looking in the door. The timber comes out, gets covered, the inspectors inspect it and frequently find an infestation that has to be dealt with, so it gets covered and, as I say, they can't do the

methyl bromide buffer zones but it looks like they're just using good old prepamax (? 16.44.20). It may meet the 50-metre boundary but as can be seen, it's completely industrial. The only bystander might be the one that's visiting the company. That is not what I would call cause for playing fields, whatever you'd like to call it, and this is repeated a lot around New Zealand. It really affects our ability to deal with these situations. Frequently, timber from the islands, for instance, Asia, comes with a fumigation certificate but often it's not efficacious.

[4.45 pm]

We could use it for wider use and still meet the controls to protect the environment and bystanders, and taking in the WorkSafe SWI. We're concerned that even to ask for a variation you're looking at a minimum of two years. We've just had this problem with the application for using bottled HCN, or hydrogen cyanide. We provide it as an improvement because currently the technician has to enter the chamber to put in the contained (inaudible 16.46.10) that destroyed -- that releases the gas. So it was an improved safety plan to be able to input the gas from the outside but the current controls that have been approved mean that it's impossible to use the bottled gas which was a safety improvement. And the same substance, and the concern that, if the EDN was restricted just to export timber, for instance, that, with logs, the work required to do variation or reassessment is another four-year process when the risk to bystanders and the environment and workers can be managed with a -- wouldn't change doesn't have great effect on particularly the smaller fumigations that we use for biosecurity.

And another illustration is the brown marmorated stink bug, it's a common pest that we're dealing with for the last seven years now and requires a treatment principally from -- used to (inaudible 16.47.39), coming in from 38 countries, it's required to be treated. It's been a successful programme for off-shore treatment but occasionally we suspend a treatment provider, we find insects, something hasn't been treated, that the certification's not correct, etc. So we still need to treat it and a product like EDN on the surface hitchhiker, the rates would be very small, way less than 100 grams, and expect to get something like the ten we've completed, and that's repeated for ants and various other hitchhikers as well, it's very effective on adult insects.

That's the end of our presentation and happy to take some questions.

CHAIR: Thank you very much, Shane and Ken, there's no questions from me, do the other members of the DMC have any questions?

DR LAING: Thanks, John, thanks, Ken and Shane, I don't really have any questions, I only have comments. Ken, you refer to smaller buffer zones for other uses, that's obviously worker protection and will be something that

WorkSafe would need to look at, not us. Second comment I would make is I recall the 2018 presentation which covered phytosanitary requirements and an indication that MPI need to approach Draslovka to get an application to cover those uses. In all the communication and information that has transpired in between, the subject was not raised again until your response to the EPA's updated reports so it seems that no action was taken on getting Draslovka to expand their application or put in a supplementary application.

[4.50 pm]

And the only other comment I would make, and it's a personal one, not the DMC, because we've got to make decisions yet, in case anybody gets the wrong impression, understand very much the problem with ship holds under sanitary applications, and, fundamentally, if we approve EDN, there's no opposition to those things, it's a matter of what we may be able to work out under the legislation that we can do, but that, we will have to see. Thanks, John.

QUESTIONS

CHAIR: Ngaire, do you have any questions?

DR PHILLIPS: Yes, I do, I just had one question, how am I going to phrase this? So this relates to the relationships that you're building with - well, you already have these relationships with overseas markets, let's say India, for example, and we've heard about how STIMBR has spent the last ten years looking for alternatives and doing efficacy tests and all this sort of thing, so is the only barrier to establishing an acceptable criteria to work with India with EDN, is the only barrier the approval, or are you still working on efficacy tests, what are the barriers to actually making this happen?

MR OLSEN: Yes, thank you, and I can answer that question. So we've had a proposal with India, and China, for the acceptance of EDN as a phytosanitary treatment for export logs since the middle of 2019, and that was because we have considered, again based on the data provided by the industry, that is true of the applicant as well, that EDN would be efficacious against the pests of concern or the pests associated with New Zealand voles and so we have had that. So we are very much pushing, and pushing hard actually, especially since the methyl bromide decision to get an outcome from those negotiations with both India and China. In that regard we are waiting on that approval. That is the approval for the phytosanitary treatment.

However, I would note that those countries are watching with interest this process, which is obviously a different process but we would note that we do not have the ability to actually use it in New Zealand

currently. That has been raised as part of those country discussions that they are waiting to see the EPA process, in particular, and others certainly associate with that, so perhaps it has been limited to New Zealand.

So therefore there is a level of interaction between both the domestic process we are discussing here and an acceptance by the overseas countries that it is acceptable also. Hopefully that answers your question.

DR PHILLIPS: Yes, it does. That's great, thank you. Just thinking about imports, are their barriers, subject to EDN being approved for use, that still need to be overcome for use on imports?

MR GLASSEY: It is a similar situation in that the efficacy data is slowly building for imports and using the stick bait example we have a three year usage programme through the USDA working on it and we have to do that whole process very express obviously, but part of the collaborative thing with the four countries is that we be aware of other countries' interest in various pests and try and co-ordinate some research so we speed that process up.

Then there is the other simple thing domestically is getting our own fumigation providers up to speed, getting their controlled substance licences, getting their procedures approved, us specifically the treatment schedule for pests and then our other concern, as has been raised, obviously is the RMA and the consents through that process. So it really very difficult to influence changes, more so than ever before. The ship hold one I have mentioned but it is more related to the methyl bromide one, is that a couple of years ago we had a hold full of grain come into the Port of Tauranga and it had Egyptian Beetle in it and we had to fumigate the whole import with methyl bromide.

[4.55 pm]

Very shortly we will not be able to do that so we will have to send the ship away. There could be some (inaudible 16.56.05) treatment, etc, because of that.

MR OLSEN: Just to finalise, just to summarise, the key thing is that the importing country sets the requirement. So we have a bit of control in New Zealand and the inward country has to do the assessment of what is considered an effective treatment and ultimately it is about collating data, whether it is getting supplied by the exporting country, which is what we have done to hopefully encourage India and China to accept EDN as a phytosanitary treatment for export logs.

DR PHILLIPS: Great, thank you very much.

CHAIR: Thank you, once again. So that is the last of the presentations from submitters in today's proceedings. Now, I said earlier that we would take a short break. The need for that break is really up to the applicants who are the final act in today's proceedings.

APPLICANT'S RESPONSE TO MATTERS RAISED

KADE MCCONVILLE RESPONDING

MR MCCONVILLE: I am all right to go.

CHAIR: If you are all right to go then I invite you to put your final summing up remarks and final statements.

MR MCCONVILLE: Yes, no problem. I don't have a presentation to put up but I will just provide my final comments.

So thank you for the opportunity to provide comment on today's hearing. The information has been wide-ranging and varied and I would like to reiterate our position. Draslovka endorses the EPA staff reports and the WorkSafe Safe Work instrument and requests that the DMC register EDN in line with the conservative controls recommended in the EPA staff report.

We submitted our application in 2017 and we are very keen to see a resolution to this process. It is obvious from industry submissions that they would also like to see EDN registered and in use and both WorkSafe and EPA are keen to support this. There has also been a lot of discussion about ship hold treatments and whether or not the scope can be extended beyond exports to also including imports.

However, let me clarify briefly the joint export versus imports because it is a bone of contention in these discussions. In the initial submission, as described by Mr Slyfield, there was no stipulation of export or import. We did mention in the short purpose summary, which must be included in the EPA application, that EDN would be used as a phytosanitary treatment. Somehow, during the review process, this language has changed and introduced the concept of exports. There is no clear point when the language changed and a certain extent the timing doesn't matter. What does matter is that logs and timber can be treated to protect New Zealand.

We would ask the DMC extend the scope to the extent they are comfortable. When you have made your decision, if there are some important commodities that are not covered we will work with MPI and STIMBR to gather the information for a potential reassessment and widen the scope. However, if your consideration of these factors is

going to extend your decision time, we would like to ask you to deliver your decision on the wording that WorkSafe and the EPA have developed.

There is only one area of today's submission that concerned me and us and that is the presentation by Ms Barclay on behalf of Bay of Plenty Regional Council. When we received the notice of hearing we took our allocated time in good faith and did not go into detail about all parts of our application. To ensure that we would be able to answer questions and, if necessary, make appropriate comment, we arranged to have our team of internationally renowned supporting experts on standby in order to ensure some finality to this process.

Ms Barclay's presentation was very specific and dealt primarily with engineering model. The science we all know is very complex and open to interpretation. It was a summary of her opinion and we know from the expert panel established to set modelling parameters for methyl bromide modelling that the view of one modelling expert is not always representative of the views of others.

[5.00 pm]

WorkSafe considered two independent models, as did the EPA with two public consultation processes and invited submitters to comment on its model, so we were very surprised to see a vast rate of new data be submitted before the DMC. Therefore, as part of our closing statement I would like to now ask the Chair to allow David Sullivan to respond in brief to the points that Ms Barclay made as part of our closing statement so the DMC are aware of some of the concerns with the narrative.

Dr Taylor, is that okay?

CHAIR: So David Sullivan has already had an opportunity to address some of the points that were made - and I acknowledge - in the extended presentation by Jenny Barclay. I don't wish at this point to see new information introduced or to enter into a technical debate between specialists in areas who have made their reports to the EPA and the EPA have the opportunity, and the DMC have the opportunity, to consider those reports.

So with respect, David, I was happy to grant you an opportunity to make redress to some of the statements given the extended time that was used by Bay of Plenty Council's contract modeller, I think at this stage we will leave further debate out of this hearing.

Kade, is that the end of your --

MR MCCONVILLE: No. Again, obviously it is something we cannot change but we feel that the comments that were made during the Bay of Plenty Regional Council presentation could be addressed by David but we respect your decision.

While we are aware that this process to register EDN it has become apparent during the day that it has been by default held up in comparison to methyl bromide. It is difficult not to. We ask, however, that the DMC consider the substances in isolation of one another as they are very different chemicals.

One difference lies in the fact that there is less than 1 per cent of EDN at the end fumigation, while in the case of methyl bromide 50 per cent remains. On top of that it continues to dissolve from logs for a number of days. We also note that a number questions that were raised were operational in nature and questioning how PCBU undertakes fumigation and thus infers a lack of rigour by some PCBUs. We believe that although the operational nature of fumigation is important to consider this is independent to the review of EDN and is more a reflection on the professionalism of fumigation service providers and their PCBUs. There has also been questions about the ability of a PCBU to keep levels on the port within the WES.

To date we have had one dominant fumigation service provider in the country. This may not always be the case and the stewardship programme we have developed will help to ensure that whoever is the fumigation service provider is well-trained, well aware of their responsibilities and is audited. We will not sell EDN to a fumigator who use it unwisely. It is the reputation of Draslovka and it is my reputation.

I spent some time today outlining the monitors we have and their use as a personal detector. All have log in capability and SWI requires these records to be kept for seven years. Effectively under the SWI a PCBU must operate within the WES and the TEL. In Czech Republic we share our real-time monitoring with the public and the council. There is no reason why this should not also happen in New Zealand.

In addition Mr Weiss will know from the informative conversations we have already had outside of these hearings as part of our commitment to work collaboratively that we are very keen to work closely with councils to make EDN use as safe as possible and answer the concerns he and the public may have.

Therefore, some of the points raised throughout the Bay of Plenty Regional Council presentation came out of left field when these misunderstandings could have been corrected prior to the reconvened hearing.

In saying that, WorkSafe provided us with a comprehensive presentation about their process. We consider they have managed the uncertainties well and have been realistic about how risks can be managed. The SWI is conservative by nature but nicely balances safety with commercial reality. We ask that the DMC respect their work and use the SWI as a firm basis for their considerations. We would ask that your controls complement those in the SWI in order for EDN to be commercially viable while still remaining conservative in nature.

In 2010, as mentioned earlier, the EPA set a high bar for users of methyl bromide and to fund and undertake research to find alternatives to methyl bromide. We consider STIMBR has developed on that aspiration, working with us to deliver an environmentally sustainable and safe alternative to methyl bromide. The future of that molecule and its use in New Zealand is now in your hands.

[5.05 pm]

Again, we are confident we have provided you with a robust and scientifically-derived data package, which we trust provides you with confidence to make a pragmatic and workable decision. In concluding, let me again thank all those involved in the EDN review process in New Zealand, in particular the DMC, who must now decide the controls that will be placed EDN permitting its use in New Zealand. Thank you very much.

CLOSING COMMENTS

CHAIR: Thank you, Kade. Unless there are any further questions that require to be answered, to other DMC members can I ask you if you have any questions at this final point?

DR PHILLIPS: None from me.

CHAIR: So it remains to me just to make a few remarks before inviting Julian Jackson to give us a closing mihi. I would like to echo the comments of the applicant, of Kade, in acknowledging the huge amount of work, and it really is clearly an incalculable amount of hours that have gone into this process since its inception, which of course was some time before we encountered it at the hearing in 2018.

It is also very clear to us on the DMC that the quantum and quality of information that is now at our disposal is manifestly greater than it was in 2018. It is not just the amount of information, which is vast, but there have been some quite significant developments over the course of this application that give us more confidence that we have something that we can begin to address in making a consideration and a decision.

We are very aware from the submissions made by the industry of the importance of this to what is a very significant industry for New Zealand. But we are also mindful of our obligation to the New Zealand public to ensure that a new gaseous fumigant introduced at any position in New Zealand can be used safely. The additional information that's been provided over the course of the application gives us some confidence to be able to address that in our consideration.

So, in summing up, I would just like to thank you all for your presentations today. Kade, you said at the outset you were surprised we reconvened the hearing. I think it has been very valuable as an active process to allow all the parties to be privy to the updated information package that each party has brought to the hearing and we thank you all again for that.

So with that, I'll thank you once again and I'll invite Julian Jackson to give us our closing mihi. Kia ora, Julian.

CLOSING KARAKIA

MR JACKSON: (Māori content – will be inserted when script finalised)

And I've just thanked everyone for their great contributions today. There's been some stimulating discussions. And the karakia I recited at the end essentially says we've been wading through some pretty heavy material; the time is now to power down and relax and get on with what we're doing next. So kia ora tātou, (Māori content – will be inserted when script finalised). Travel well wherever you are going to.

CHAIR Thank you. That concludes the hearing. And as I mentioned earlier, we will now adjourn rather than close the hearing to make our consideration and you will be advised in due course. Thank you.

MATTER ADJOURNED AT 5.09 PM