
TRANSCRIPT OF PROCEEDINGS

**ENVIRONMENTAL PROTECTION AUTHORITY
HEARING**

**APP203989 - FIRE FIGHTING CHEMICALS
GROUP STANDARD
Hazardous Substances, Notified Amended Group Standard**

**VIRTUAL HEARING and at
TERRACE CONFERENCE CENTRE
114 THE TERRACE, WELLINGTON
on 5 November 2020**

DECISION-MAKING COMMITTEE:
Dr Ngaire Phillips (Chair)
Dr Kerry Laing
Dr Derek Belton

Hearing Proceedings

Day 01 Thursday 5 November 2020

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[10.30 am]

CHAIR: Morena, everyone. My name is Ngaire Phillips and I am the chairperson for this Decision-making Committee. To the left of me I have Dr Kerry Laing and to my right Dr Derek Belton. Before we proceeding with this hearing I would like to invite Julian if you would come up and open the hearing.

MIHI WHAKATU

JULIAN JACKSON: The invocation I have just recited talks about obtaining enlightenment from all the sources available around people. That is like a hearing when you listen to different perspectives on issues. (Māori content) I also welcomed the DMC, the submitters and I would also like to say (Māori content). I would just like to say the same, welcome to people wherever they are looking in on this from, Zoom, around New Zealand and other places overseas.

Morena, tēnā koutou katoa mauri ora.

INTRODUCTION

CHAIR: Ka pai, Julian. Thank you.

So we are here to consider and decide on application APP203989 to amend the Fire Fighting Chemicals Group Standard of 2017. This hearing is specifically to address that application and the HSNO Act does not permit the Committee to make decisions about other substances that are currently approved as part of this process.

I will just get my pages right. The Committee shall consider and decide any application other than an application which is the subject of a ministerial direction under section 68 of the HSNO Act and shall have in relation to any such consideration and decision on any matter the same immunities and privileges as are possessed by a District Court Judge.

The objective of this hearing is for the Decision-making Committee to be as informed as possible on the matters that we are challenged with making a decision on. The way proceedings will run is that we will first hear from the applicant, which in this case is the EPA, who will introduce the application, then from the submitters who have indicated that they wish to be heard. Obviously we have a number of submitters over the next couple of days, some in person, some Zoom, and hopefully we are all sufficiently comfortable now with Zoom that things will go according to plan.

After the submitters the Committee will have final questions and the applicant will have the right of reply, at which stage the hearing will be adjourned for consideration by the Committee.

5 When you do give your presentation, we ask that you speak into the microphone or if you are asking questions, we ask that you speak to the microphone. I think, Marree, there are a couple of roving microphones around?

10 MS QUINN: If they could go to the lectern.

CHAIR: Okay, so when they are asking questions?

MS QUINN: Yes, please.

15 CHAIR: Have you all got that? If you are asking questions, go up to the lectern. That is basically for audio and transcription recording purposes. I would be helpful when you are doing that if you can identify yourself before you ask your question. If you are coming in via Zoom, and there are people linked in already into Zoom, can you please make sure that
20 your microphone is muted at all times until it is your turn to speak.

Marree, just to clarify, are you collecting questions from the Zoom participants and directing --

25 MS QUINN: I will be on Zoom chat so if anyone has a question they can --

CHAIR: Then you will let me know, okay, that's great, thank you.

30 I would just also like to say that as we have a lot of submissions to get through over the next two days, I would ask that you make the most of the time that you have been allocated to give your presentation, because we don't have a lot of spare time.

[10.35 am]

35 Okay, just a few housekeeping items. To evacuate in an emergency, if it is not an earthquake, please leave the building by the main entrance that you entered, via the stairs. If those people who are on Zoom, just please make sure that you have a bit of an evacuation plan wherever
40 you are just in case something does happen. We just want everyone to be safe.

45 Please make sure that all cell phones are turned off or on silent. If everyone can take a few seconds to make sure that is the case. Are there any media present? No, it does not appear to be the case. All right, that is fine.

I will ask the EPA if you will firstly introduce yourselves, and if you have any support people.

5 MR DEBBLE: I'll start. Tēnā koutou, (Māori content). I am Ben, I am an advisor for the EPA in the Reassessments Team.

10 MR DAWSON: Good morning, I am Peter Dawson, I am Principal Scientist in the Science and Strategy Team at the EPA. I have been at the EPA and its predecessor for a very long time. I have been involved in looking at the issues surrounding PFAS fire fighting foams for quite a period including at the international level. Currently I am the Chair of the Stockholm Convention on Persistent Organic Pollutants Review Committee that assesses chemicals listed under the Stockholm Convention, which is quite relevant to things that we are considering here. Thank you.

15 MR EHLERS: Kia ora, I am Clark Ehlers, I am the Manager of the Reassessments Group within HSNO at the EPA. I have been with the EPA since 2014 and have been in various roles and iterations in the HSNO Group. I am here to support the team in their presentations to the forum this morning.

25 I would also like to introduce some of our other EPA staff in the room. Karim Youssef(?), who is from our Compliance Team, within the Compliance, Monitoring and Enforcement Unit. We have Oliver Tallin(?), who is also an advisor in the HSNO Reassessments area. We have Dan McGuigan, who is from our regulatory systems and operations policy and also colleague Mel. Mel, what is your last name? Vagnan(?). And Marree Quinn in the back who is our administration and support person for you today and tomorrow. Thank you.

30 MR DAWSON: I forgot, we have one other member on the EPA team. It is Nigel Holmes who in the Principal Advisor, Incident Management at the Queensland Department of Environment and Science, which is an equivalent agency to the EPA in Queensland. He is on Zoom and he will give a presentation after Ben and I have given our presentations.

35 CHAIR: Thank you very much. So just before we go on, Marree, is it really essential for every submitter to go up every time they ask a question to the lectern? I can see this being quite laborious. Do they need to be seen every time they ask a question?

40 MS QUINN: No, not necessarily. They do need to be heard.

45 CHAIR: Yes, I just don't think it is very practical.

MS QUINN: That is fine.

CHAIR: We could just spend a lot of time with people going up and getting back every time they ask a question.

5 I just invite the submitters to introduce themselves, please. You can go to the lectern if you want to. I should have asked people did they want that choice.

10 MR GILLESPIE: Good morning, my name is Dick Gillespie. I have been on the ground doing this work for the last three to five years and I have been involved in fire fighting foams of one sort or another for the last 30 years. I am now semi-retired and I am presenting as a member of the public but with some experience. That is really all I have to say until you want me to say it.

15 CHAIR: Thank you.

[10.40 am]

20 MR ANDREWS-PAUL: Wayne Andrews-Paul. I am the Hazardous Substance Assurance Officer for the New Zealand Defence Force. I have been involved with PFAS for a number of years now in close collaboration or discussions with the EPA, in particular Peter Dawson.

25 MR HUNT: Morning, my name is Tim Hunt, I am with the RNZAF. I am here to work alongside Wayne at this hearing and just in support to him.

30 MR LENTING: Victor Lenting, Fire and Emergency, I'm the Flammable Liquids and Bulk Fuel Advisor. We are actually making our submission tomorrow, along with Paul Turner, who is our National Manager, Response Capability.

35 CHAIR: Thank you very much and welcome everyone. I think we have got an interesting couple of days ahead of us. I think we are now ready to get underway. So we will start off with the applicant's presentation. Take it away EPA staff.

APPLICANT PRESENTATION

BEN DEEBLE PRESENTING

40 MR DEEBLE: I will lead off and then Peter will join following. So this is our presentation to our staff report or update report. I think I just have to signal side movement because we don't have a clicker. So just a bit about the EPA, we are New Zealand's national environmental regulator and we are charged with protecting our environment, enhancing our way of life and the economy. So just a quick summary of the talk, we will start with a bit of background to PFAS and the group standard, talk about the application and the proposals, submissions, some updates to

45

international regulation on these substances, and then the updates to the proposals that we have made in response to submissions and international updates, and finalise with our conclusion.

5 So just to start with, some background on the Fire Fighting Chemicals
Group Standard. So this was originally issued on 1 July 2006, along
with a whole lot of other group standards, and it's important to note that
10 it covers all fire fighting chemicals, so not just some of the foams that
we'll be discussing today. This, along with the majority of other group
standards, was reissued on 1 December 2017 as part of the working
safely reforms to take into account the split in regulation between the
HSW regs and the EPA notices. When it was originally set the group
15 standard excluded, and it currently does exclude, any fully fluorinated
alcohol sulfonate substances and PFOA as well, and a key point to note
at this point is that the group standard as it stands does not have any
restrictions on how and where or when foams can be used.

20 So a lot of the work around PFOS and PFAS recently kicked off with
an investigation into some of these substances with some potential sites
that were contaminated with non-compliant foams, this led to an
investigation of a number of sites where contaminated foams were
identified, but the key point towards what we're discussing today with
the hearing and the group standard, is we identified that there were
25 some limitations to the group standard and how it regulated these
substances.

30 Another key point that kicked off a lot of this work was the recent
Stockholm Convention COP-9, so the key point here is this listed
PFOA, its salts, and PFOA-related compounds under Annex A,
effectively making them COPs, this will come into effect in December
2020. One of the key points here is that PFOA-related compounds
refers to anything that potentially degrades to PFOA, so those that
35 include this fully fluorinated C7. This would include some compounds
and foams which are currently compliant under the group standard, but
it is worth noting that there are some time limited exemptions for
specific uses allowed for this listing, including for foams in some
systems.

40 So here is just talking to PFOA-related compounds, some examples, so
you'll just see that this C7 fully fluorinated group with different
functionalities that can come after that, so there's quite a lot of different
compounds that will be covered under those PFOA related compounds.

[10.45 am]

45 As I said, there is a key exemption under the convention for the use of
fire fighting foams. This runs from five years from when this update
to the Stockholm Convention takes effect. However, it is key to note

5 that this only applies to foams that are already installed in systems and
won't apply to any stockpiles. It also doesn't apply to the use and
testing or training, and by 2022 it restricts all use under those
exemptions to contained systems only. Following the exemptions,
foams, fire and wastewaters, and any run off are all to be treated as
10 POPs wastes. It should also be noted here that the COP encourages
parties to consider alternatives to PFOA and its related compounds
where reasonable and effective to do so, and to consider the effects of
other fluorine based foams when considering using these as
alternatives.

15 So leading on from the Stockholm Convention COP-9 and EPA's
investigation, two key steps emerged for the regulation of these
substances in New Zealand. The first is to amend the HSNO Act to
add PFOA, its salts and related compounds to Schedule 2A. In effect,
enacting the updates to the Stockholm Convention. This work is
currently being led by MfE through government and is expected to take
effect on 3 December this year. The second is what we're here to
20 address today, which is for the EPA to amend the Fire Fighting Foams
Group Standard. This will have effects to the updates of the Act, to
further align the restrictions with those in the exemptions for the
convention, and to align with international developments for the
regulation of PFAS foams, and to address the gaps identified in the
group standards in the investigation as mentioned earlier.

25 So the EPA has proposed to amend the group standard, this was
initiated with public consultation on 30 September 2019 and it is just
worth noting that we extended the deadline for submissions by two
weeks to allow for additional submissions from some key stakeholders.

30 It's just a quick point on the regulatory context some of this sits in. So
when we did the consultation we considered some of the key principles
of the Act under section 96C(1)(a), (b), (c), (d) and (e), which is to
consider that amending the group standard is more efficient and
effective than looking at individual substances that would be covered
35 under Part 5 of the Act, if we had an individual approval; that all the
substances are of a similar nature and can be regulated similarly. In
addition, in line with section 96C(1)(f) of the Act, to consider best
international practice.

40 So I'll just talk to some of the proposals as they were consulted on at
the time. So the proposed amendment was as follows, to prohibit the
use of fire fighting foam products that contain PFAS for training
immediately from the date the revised group standard is enacted. To
45 prohibit the use of these substances for testing unless all releases can
be contained. To allow the use of fire fighting foam products
containing PFAS compounds in uncontained or not fully contained
systems for up to two years to allow the use of them in fully contained

5 systems that cannot be released to the environment for a period of up to five years. To require thorough cleaning of all systems upon removal of PFAS containing fire fighting foams, as far as reasonably practicable.

[10.50 am]

10 The requirement that all foam products, including waste, be safely disposed of by an approved method. That suppliers of any fire fighting foam product must have a certification of its fluorine content, including whether there's a total absence of fluorine content, and this must be clearly displayed on the label. That all foam wastes, including Fluorine Free Foam, must be contained where possible, with some allowances for essential use in emergency incidence. To require all importers and manufacturers to notify the EPA of the composition of any fire fighting foam product upon its first import or manufacture to New Zealand. Just a final one to note, that two types of PFAS, PFOS and PFOA, as we noted at the start of this, were originally excluded or are excluded from the current group standard, we propose to remove this because it is no longer necessary as these are currently listed as POPs under schedule 20 2A and would be excluded or banned from the HSNO Act anyway.

25 So I'll just talk to the submissions that we received now. We received 21 submissions across industry users, suppliers, associations, consultants and public sector organisations. Overall we saw a general support for some of the proposals to restrict PFAS-containing foams. However, some submitters only support it in part or oppose some of these proposals. A key propose noted for reconsideration across quite a few submitters was the proposal to phase out C6 foams at the same time as C8 foams.

35 Some key themes we saw. Around training and testing we generally had support from submitters on both these proposals. For the phase out of PFAS, as I mentioned before, most submitters did not agree that C6 foams should be fully phased out at the same time as legacy C8 foams. A primary concern was whether Fluorine Free Foams would effectively perform for all uses of C6 foams. The majority of submitters here indicated that they had a preference for implementing a permissions scheme following the general phase out of C6 foams to allow for continued use.

40 On the matters of Fluorine Free Foams, a number of submitters indicated they were concerned about potential impacts of these foams when used in place of PFAS-containing foams. Alongside the concerns around efficacy, as I mentioned before, this leads to a concern that there may be greater use of quantities of these foams which would therefore result in greater exposure and impact to the environment. This also tied in with some uncertainty around the compounds in some of these foams

and whether these may need to be subject to further regulatory restriction.

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We received an indication from submitters here that for the EPA to assess assignment to the group standard would be an effective solution for allowing for better knowledge and adaptability for future regulation of any replacement compounds.

[10.55 am]

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Regarding cleaning on transition from PFAS foams, most submitters were in favour of a reasonably practical approach but expected some additional guidance on what this would actually entail. They requested that this guidance reflected practical levels of residual PFAS remaining and focused on procedures to be followed rather than setting limit values for PFAS, and that these procedures be efficient and limit the creation of additional volumes of waste.

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That ties in with some of the concerns around disposal, particularly around the high cost of disposal where there is a lack of disposal facilities in New Zealand, requiring export of waste, and a shortage of specialists. They particularly requested disposal standards be set for different wastes around risk levels, where different disposal standards could be set for low levels of waste where there are low levels of PFAS but high volumes of the waste of a whole, waste where there is low PFAS concentrations. Otherwise this would result in a higher cost for export.

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Peter is going to talk to some of the international developments that have come across since we consulted originally.

PETER DAWSON PRESENTING

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MR DAWSON:

Certainly there has been a tremendous amount of activity nationally in the area of regulation of PFAS substances and particularly in respect of fire fighting foams in recent years. There have been a lot of recent developments that have come out in the year now since we released the consultation document, which I think was the end of September last year. These international developments are endless. Every week there is something new that you can read about what's happening.

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We have summarised some of these key relevant developments in section 4 of the update report and we used some of that international information and developments in revising our proposals. We have a little bit of a summary here of some of the key points from a number of the most relevant jurisdictions that we look to for following.

5 From Australia there is both regulatory information, regulatory developments and industry development. The Fire Protection Association updated their Bulletin on the Selection and Use of Fire Fighting Foams. I think most of what we have proposed in this update report is in line with those industry guidelines.

10 Covering more than just fire fighting foams, the HEPA, which is the Heads of EPAs of Australia New Zealand - which of course therefore includes us - has been involved in an ongoing programme of work looking at PFAS issues in general, arising mainly from all the contamination issues at defence bases in Australia. That is mainly dealing with contamination in general rather than fire fighting foams but there are sections in that National Environmental Management Plan -- the second version of which just came out in May this year and it is being revised again. There will be a third edition with more information in it probably the end of next year. That has some sections in it relating to disposal and landfilling. We have also picked up some of the material from that for our proposals.

20 There are two states in Australia that have put in place some time ago quite restrictive regulation on PFAS-containing fire fighting foams. South Australia in January 2018 brought in pretty much a complete blanket prohibition on fire fighting foams and set in place a very short, two-year phase-out for those. That is pretty much blanket across the board for all types of uses.

[11.00 am]

30 However, under their overarching legislation that that policy sits under, there are mechanisms for people to apply for exemptions of a case-by-case, site-by-site basis. We understand that to date there has only been eight of those exemptions issued, subject to various conditions and for a set period of I think three years for the ongoing use of PFAS foams at those particular sites.

35 The Queensland Environmental Management of Fire Fighting Foam put out an operational policy in July 2016. This was somewhat world-leading when it came out, which is why we have Nigel Holmes from the Queensland Department of Environment to come and speak to us, mainly about how implementation of that has gone on.

40 In the European Union there has been a lot of activity in recent years. It mentions that is one place where there is continual activity coming up pretty much weekly or monthly. They have already updated their EU POPs regulation to adopt that listing of PFOA and its related compounds that came from the Stockholm Convention that Ben mentioned. That listing came into effect already on 4 July. As well as adopting the listing of PFOA, they have also picked up the exemption

5 which allows the continued use of PFOA containing the C8 fire fighting foams for the two-year period for uncontained uses and five years for the contained uses. That EU POPs regulation that puts this restriction in place on PFOA replaces an earlier regulation under their EU REACH legislation, which had restrictions on PFOA and PFOA-related compounds.

10 There is a proposal going through their system at the moment to restrict another group of PFAS compounds, the fluorohexanoic acid, that is one step down in chain length, and similarly all its salts and related substances. Those restriction processes again would apply across the board for all uses, because there is a myriad of uses for these types of products, not just fire fighting foams. If that goes through as proposed, that will have implications for the C6, the shorter chain PFAS fire fighting foam, so again it ties in very much with what we have proposed here, because they are proposing to put in place similar restrictions on the C6 foams and a similar sort of phase-out period, or a slighter longer phase-out period for those than what would apply to the C8 under the POPs listing.

20 There are other initiatives going on to try to look at -- because a lot of regulators are now feeling this is not a very efficient and effective way or managing chemicals, to look even at small groups one by one when the field of PFAS is quite an enormous, large field of chemicals and a lot of uses. So there are other processes underway in Europe to try to look at restrictions for all uses of PFAS in all what they might call non-essential uses. They get used in all manner of things like ski waxes and cosmetics and things that might not be considered quite necessary.

30 Again in the United States, there are an awful lot of developments going on there. We have the US Military Specification for the aqueous film-forming foams. I won't read out the big name there. That has long been regarded as almost the gold standard for specification for fire fighting foams. It's always had in it a provision that the surfactant in the foam must be a fluorosurfactant, so no matter how good a Fluorine Free Foam became, it could never pass the requirements of that specification.

40 That was amended in April this year to remove that explicit requirement, so now the foams that people seek to be qualified under that specification do not have to have a fluorosurfactant in them. The last time I looked at one of their websites there is at least 18 states in the United States that have passed already or are considering legislation to prohibit and restrict the use of PFAS fire fighting foams. We have some details in the update report, I think we just put the details in there for two of them, because one them, Washington State, is used quite often as an example.

[11.05 am]

5 So they put in place some restrictions back in March 2018 but that did allow some exemptions for certain types of uses at certain high risk facilities, that included things like airports, fuel terminals, chemical plants. But they have now just recently amended that legislation, back in June this year, to eliminate those exemptions and those exemptions will be phased out over specified time periods as well.

10 They still have in place a backstop mechanism where waivers can be sought from the regulatory requirements on a case-by-case basis if the operators of a site can justify why they must still keep using PFAS foams. We see what they have done there is quite similar to what we are proposing, as you will see in the slides coming up with the permission mechanism.

15 Similarly, California has legislation, I am not sure if it is finalised yet or it was pretty close to getting finalised last time we had a look. That is quite similar as well. They have phase out periods for different uses. Pretty much everybody that puts in place these regulations prohibit the use for training and testing straight away. There is no phase out period for that. That goes as soon as the regulation comes into effect. Then they have a short phase out for uncontained uses.

20 This is all similar to what came from the Stockholm Convention. A shorter phase out period for uncontained uses, a longer phase out period for contained uses and then maybe a bit longer again for some bulk fuel terminals or high risk major hazard facilities.

25 Similarly, California, at the end of all those time periods, they again have a waiver provision where on a case-by-case basis people can apply for the ongoing use of PFAS until such time as they can show that Fluorine Free Foam is available and suitable to replace the PFAS foam.

30 Just to break from the international. We do have a separate Māori assessment report for the proposals that were put forward in this update report. That is in a separate document. That has been prepared and is available to the hearing.

35 The Māori assessment report concluded that the proposed amendments are not likely to have significant impacts on the cultural, economic and social wellbeing of Māori. The proposed amendments are not likely to significantly affect the relationship of Māori and their culture and traditions with their environment and taonga.

40 Just looking at the updated proposals, which we have discussed in the update report and which now appear in the redrafted group standards.

5 That is included as appendix 1 of the update report. The first one has in fact not changed. That is prohibition of using foams containing any PFAS substances for training purposes and the prohibition of using foams containing any PFAS substances for testing, unless all releases of the foam can be contained. I emphasise the “any”. That applies both to the PFOA related POPs of the C8 foams and also to the C6 forms. That will apply straight from the date the group standard amendments take effect.

10 Like I mentioned earlier, that is in line with not only international regulatory developments but it is also in line with international industry best practice.

15 Originally we proposed pretty much thinking it might be simpler to treat all PFAS foams the same way, see section C8. We have now teased those apart so the proposals for the C8 foams, what we call legacy PFAS foams, they really stay the same as in the original proposals and they are in line with the requirements of the Stockholm Convention, which Ben has mentioned is already going through another governmental process. Those are pretty well fixed already.

20 That will allow the uncontained use of any of those legacy foams for another two years, but any fully contained use in fixed systems will still be allowed for a period of up to five years. Obviously from the point that the new group standard comes into effect, you would no longer be able to import or manufacture C8 foams because they would then be listed as POPs and there is no allowance in the exemption for the manufacture and import POPs.

30 **[11.10 am]**

35 So any stockpiles, I think Ben mentioned this already, so those exemption periods apply for foams that are already in use. They don't apply to stockpiles or material that might still be in a supplier's warehouse ready to be supplied. Those will all have to be treated as POPs waste straight from the start of the listing in the HSNO Act actually. As I mentioned, that is all in line with the work that the Ministry for the Environment are doing.

40 In terms of the proposals for the C6, the short-chain PFAS fluorotelomer foams, we have changed our proposals in respect of those. We are still setting in place standard default phase out periods for those but now we have the same phase out period five years whether it is contained or uncontained. In the original proposals we were only allowing a two year phase out for uncontained use, so that is now the same as the phase out period for the contained use for five years.

45

After that phase out period expires there is, in the proposed group standard, this provision for us to issue permissions on a case-by-case basis following an application by a user who still wishes or has a need to use those foams. Those permissions will apply, like I say, on application on a case-by-case basis after the five year transition period.

We have actually added another little provision as well. These C6 foams will still be able to be imported. Obviously if we are going to allow the ongoing use on a case-by-case basis they will still have to be able to be imported. But in the future they will have to be compliant with what was the EU REACH regulation but is now the POPs regulation. So that means they must not contain - you can see down the bottom - more than 25 parts per billion of PFOA or any other salts, or more than 1,000 parts per billion or any or a combination of PFOA related compounds.

Just in terms of the proposal that we have got in there for a permission mechanism, in clause 21 of the revised draft group standard, a permission mechanism is set in the Act and we use these mechanisms for other types of high risk substances where there is considered to be a need to have further risk consideration on a site-by-site basis. So you do the overall risk assessment and risk management at hearings like this but then for some substances you need to look at its location and things like that and consider further risk management on a site-by-site basis.

They will be used, like I have mentioned already, only for specific uses of C6 foams in contained systems after the default five year transition period. People will have to apply to the EPA for those. I am sure we have a mechanism for charging for them, I am not sure what that is at the moment. And the applicant will have to provide with a necessary amount of information to allow us to address the application.

Then normally what we will do is we will impose a set of conditions on there. For example, here we would want to address any adverse effects that might arise from the continued use of C6 fire fighting foams at that site. We would want to see requirements around the secure containment to satisfy us that it wouldn't unnecessarily be released to the environment, except in some emergency scenario, and then the risks of any discharge to the environment if that did happen in an emergency.

We would also probably want to see a timeline, like is proposed in California and also in Washington State, some timeline for when they might be able to phase out that C6 foam from those uses.

I mentioned there are similar mechanism that are obviously called different things and they are done under different legislation. For example, the South Australia and Queensland legislation is more like

our Resource Management Act legislation in allowing site-by-site conditions. But we have modelled some of these provisions on those and what is in the Washington and California one.

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[11.15 am]

10 So, as Ben mentioned, there was a lot of questions around, although people were generally in favour of us having this mechanism to clean out systems when you transition from PFAS foams to Fluorine Free Foams and having the regulatory requirement being as far as reasonably practicable rather than setting any numbers in a law. There was a lot of requests of what would it mean and there would need to be some guidance on not only what was practical levels to clean to but also appropriate analytical methods for determining how you would measure what was left.

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20 In the update report we have written some material on this and as a starting point for the guidance we have suggested those residual levels there. So we would consider that if you clean it down to something like 50 megs per kilogram, 50 parts per million of total PFAS, but within that some more stricter limits on the POPs PFOS and the other one is perfluoro-hexane sulfonate, that is likely to be listed as a POP next year and PFOA is also already a POP.

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30 As anybody in this business will know, analysing for PFAS compounds is not a simple matter, but if you're transitioning from PFAS foam to a Fluorine Free Foam, it probably would just be necessary to do a total organic fluorine analysis of the foam, but if you wanted to transition from the old C8 foam to a C6 foam that obviously wouldn't work. There is another analytical technique called the total oxidisable precursor assay, where you can just look at those long-chain ones, so you could analyse the foam and see whether it contained any of the long-chain species.

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35 We will also again, in this guidance that we'll produce, take a risk based approach, so it's not reasonable to expect. I mean a lot of the foam is used in fixed systems and some fixed systems are very complicated and would be very difficult to clean out certain pipework and pumps, and Mr Dick Gillespie there might be able to tell us a little bit more about that. So we would take a sensible approach, so that would allow for allowance for residues in difficult to clean components to be apportioned across the total replacement volume. So if you had a small amount of contaminated foam lurking in some little cranny, if that was then considered to be apportioned across the whole replacement volume, and if you got down to those sort of levels that we have there, that would likely be acceptable. We might hear from Nigel, obviously Queensland's got a lot more experience now in doing this, so we'll learn from their experience.

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5 So we have still kept the requirement that all foams must be disposed of by an approved method, not only is that international obligation on us for the chemicals that are under the Stockholm Convention, but it's also the accepted best practice by the fluorinated foam industry. So, for example, high temperature incineration is the recommended method for disposal of all fluorinated foams and fluorinated foam wastes, and it is not only required by regulators but it is actually recommended by the fluorinated foam industry around the world.

10 So what we have allowed for in the group standard is that you have got to have high temperature incineration or any other method that is approved under these Basel Convention POPs waste guidelines or you can export it from New Zealand for disposal somewhere else by one of those methods. Now, admittedly, we do have a bit of a problem at the moment because there are no high temperature incineration or any Basel approved methods operating in New Zealand, but that's something that we have started discussions with Ministry for the Environment on.

20 So we do have some proposals in the group standard that does say, what happens when you get down to really low concentration waste, because you don't want to have to send vast volumes of water with parts per billion level of PFAS in it on a ship to France, so we have got provisions in there that allow for the situation for when low concentration wastes can go to trade waste, that's like water going to trade waste, and we've also got some landfill proposals in there which, like I mentioned earlier, some of that we've taken from the HEPA, National Environmental Management Plan, and we will specify in the group standard the specific limit values for both leachable and total PFAS concentrations which could be considered by landfill operators for acceptance to their landfills.

35 **[11.20 am]**

40 So we have got that requirement that all fire fighting foams must display certification, either on the label or some attached documentation, that Ben mentioned, so we're keeping that in place and, again, we'll have guidance on how you will need to represent that. I think our proposal is that that can be determined, again, by total organic fluorine analysis, so you just have to report the fluorine content, you don't have to report the PFAS content, and that's an appropriate way to go because there are not known to be any known PFAS fluorinated compounds used in fire fighting foams. So the total organic fluorine assay should be appropriate. Again, we have just suggested some levels, like what are the minimalist levels that you wouldn't have to worry about, and I think for common sense they would be the same levels at which we are requiring clean out to be made.

5 There is also in the group standard a sort of a general duty of care provision earlier on in the group standard, this applies to all fire fighting foams not just the PFAS ones, it's just a general duty of care that you must contain them, even when you're using them, as far as possible, but there is a sort of an out around that if it's being used for emergency uses, provided that all reasonable and practical measures are taken to minimise the environmental harm.

10 So we have still kept the requirement that in the future we want all importers or manufacturers to provide the EPA with a copy of the record of assignment of their foams to the group standard. In all the group standards, there's always been the provision that people have to make a copy and keep it for themselves of this record or assignment, and that always has to be kept such that it can be available by an inspection enforcement officer, but now here we're going one step further, we want you to send that in to us and, in addition, we want that record of assignment to contain the full details of the composition of the foam. We have extended it on the basis of some of the submission we've got, we have extended that to not only apply on the first import of that product, but also if there's any subsequent tweaks to the composition, but which might not change the brand name or so forth.

25 Now, people worry that we might not be able to get that information, we are the national regulators of chemicals, so if people don't comply with the controls we set in place, then they don't get to import their product. But we do have processes in place where any confidential business information can be provided directly to us by the manufacturer and, thus, bypassing the local importer or supplier. We had that even earlier on when the group standard was first set up back in 2006, some of the importers of fire fighting foams did go through that process with us and the manufacturers overseas supplied their confidential information that they didn't want to provide to their suppliers, they were able to provide that directly to us under confidentiality agreements.

35 This is pretty much the last one, like Ben mentioned we're keeping that one. Those exclusions for PFOS and PFOA that are in the group standard now, they can be removed because they're no longer needed because both of those are, in the case of PFOS will by a few weeks' time, PFOA will be listed as POPs in schedule 2A of the HSNO Act, so there's no need for them to be in the front of the group standard as well. But the PFOA-related compounds, which do exist in those C8 foams, they will remain able to be used under the scope of the group standard for the duration of the transition periods that we've got in place for those.

[11.25 am]

5 So just in conclusion, the proposals that we have made to amend the
Fire Fighting Chemicals Group Standard are designed to better manage
the risks to the environment and to public health from fire fighting
foams containing PFAS, perfluoroalkyl and polyfluoroalkyl
substances, I should've probably said that up the front if people don't
know what the acronym stands for. They're also designed to give effect
to our international obligations under the Stockholm Convention and
to take account of other international developments in the area of
10 regulation of fire fighting foams. They're also to address the
shortcomings that we identified with the group standard from our
investigation work a couple of years ago.

15 We did receive in the public submissions, and as Ben indicated, quite
a few of those indicated some concerns and issues with some of the
proposals, so we've taken all those on board. We've also looked at the
recent international developments on PFAS fire fighting foams, and the
proposals have been revised, giving consideration both to the
submissions and the new information in order to meet the requirements
that Ben outlined that are in section 96C of the HSNO Act that we have
20 to consider when either making or amending the group standard.

Thank you.

25 CHAIR: Thank you. So you have now got another presenter, have you? Nigel
Holmes, is that right?

MR HOLMES: Yes, I am online, can people hear me?

30 CHAIR: Yes, we can hear you. Do you have a presentation as well or?

MR HOLMES: Yes, I do. I will just set up to share my screen. I'm getting a bit of echo
in my own voice here.

35 CHAIR: We can hear you clear.

MR HOLMES: Now hopefully you can see the Caltex Refinery in the Port of Brisbane.
Has that come up?

40 CHAIR: No, not yet.

MR HOLMES: I will try that again.

CHAIR: We can see you but we can't see what you're sharing.

45 MR HOLMES: I will stop my video and see if that helps.

CHAIR: No, I think maybe you stop share screen and then share it again.

MR HOLMES: Yes, I am doing that. Now can you see my presentation?

CHAIR: Yes, we can.

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NIGEL HOLMES PRESENTING

MR HOLMES: Terrific, we're in business. Good morning, and thank you very much for the opportunity to present today. I have certainly worked with Peter and some of his colleagues over time on this issue. My background is incident response for about the last 25 or more years and with fire fighting foam over that time, and particularly with PFAS-type claims, it's about 2011. It has been a long road and over that time explored a lot of new territory. So things have progressed quite considerably since then. What I'll try to do today is give you a brief overview of Queensland's experience in transitioning to non-persistent foams, and more broadly managing fire fighting foams generally.

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So far we have covered a lot of the same sort of issues, a full range of issues and management controls and it's interesting to see that there's been global consistency in the way things are going towards a best practice model.

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We first considered the issue back in 2011, when PFAS came to our attention, and it led to the development of our Queensland Foam Policy, and it was more to clarify the expectations of fire fighting foam management. So what I'll cover off on is the policy content and its application from 2016 and our experiences in that.

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Just as a little bit of background and the environmental considerations, most may be across these main issues. It maybe not so much the detail as it applies to the particular foam types but it's certainly worth knowing that.

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[11.30 am]

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It is quite straightforward. Being very soluble, dispersive, penetrative compounds that will get to the groundwater, are easily carried in surface water as well, a key issue being very difficult playing in an emergency, especially where you have roadside incidents and that sort of thing. Even bunded fuel farms where you might well have an excess of firewater if you have a very large incident occurring.

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Essentially you can divide up the effects into the short-term and long-term effects. The long-term effects definitely result from the presence of PFAS and, more lately, I would also just add a caution about things like siloxanes and other persistent organics, so it is not just PFAS for the future. There may well be other things that come along. The attention to PFOS and PFOA and hexanesulfonate is a little bit artificial

and it's a bit out of date too. They're around about 200 to 600 PFAS compounds associated with fire fighting foam, either in their composition or in the transformation products once they're in the environment.

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So just to look at how we divide the fire fighting foams up in terms of environmental characteristics. We're talking mostly about class B fire fighting foams for liquid fuel fires and essentially you've got the persistent PFAS foams and then you've got non-persistent Fluorine Free Foams, even though I don't like the term "fluorine free". It's more about persistence than anything else. All of those foams have the same short-term toxicity and oxygen depletion characteristics so don't let anybody tell you that they're different. They're not. They all revolve around the organic components, which are very similar in all of those foams. I've seen the compositions of quite a number of foams over the years. Essentially you can categorise all foams in terms of those short-term toxicity issues to be practically non-toxic or relatively harmless. That is in terms of the concentrate. So when you dilute it 1 per cent, 3 per cent, 6 per cent, whatever, you then approach almost nothing.

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So there isn't this split where people say, "Oh, look, this is ten times more toxic than something else and this will kill more fish than this will kill". As far as the short-term characteristics are concerned that's not true. The waterway oxygen depletion potential, which is a biochemical oxygen demand, is very high for the concentrate so there does need to be some thought put into how foams are managed, and obviously PFAS is an overarching-type issue. That is the long-term issue, is PFAS.

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Just to dissect that a little bit more. In the short term, your acute toxicity is very low as to being negligible for all foams. Your BOD in the concentrate is very high. You do dilute it but it's still very high and it's only a problem when it's put into enclosed waterways where you don't have dilution, you don't have flushing, you don't have dispersion.

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From our experiences of marinas, ports, different waterways in those last few years, since the policy was put in place, we found that there's very little impact of BOD unless you do have that sort of fully enclosed little mangrove creek or a drain that might have fish in it or a pond of some sort, or a dam of some sort, and you do have a one to three-day ramp-up period for that effect to kick in.

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In essence, if you've got a port where you've got enough depth of water for a ship, maybe 15 metres, or you've got a marina where there's two to three metres of water, you really don't have a problem. You can class those as open waterways, and that's been our experience for fires in marinas and in ports. That really says it all for the short-term effects

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of all fire fighting foams. They have the same sort of surfactants and solvents involved. They are all biodegradable.

5 In the long term, PFAS is obviously what we've been focusing on and nobody would be surprised to learn about the long-term chronic toxicity increasing exposure if we keep discharging these compounds because they've been classed as forever chemicals and they're bioaccumulative to different degrees and highly mobile. One of the things that's emerged with the recent recognition of contaminated sites and contaminated water bodies is it's very, very costly and difficult to remediate. There's a lot of drivers there in terms of human health, socioeconomic costs, as well as environment.

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15 So the Queensland Foam Policy was founded on identifying and defining the relevant issues. That was a real difficulty because there wasn't a lot of information available back in 2011. Since then there's been a huge increase in available studies and experiences.

20 **[11.35 am]**

25 So achieving a common understanding of the risks and liabilities between the regulator and the end user mainly was really important for us because that then defined what the real risks were and from that set the priorities what needs to be done and whether or not the goals that we were aiming at were achievable. So it's balancing all those practicalities against the risks to come up with a scheme that is going to reduce the risks from fire fighting foams, not just PFAS foams but also any other foam, including class A rural type foams.

30 There was a lot of busting of myths needed to be done throughout all of this. Breaking of old habits was an issue because, "We've done things for the last 40 years this way, why should we change?" That was a quote that I got from an old fellow at a refinery at one stage. We had to sort a lot of the fact from fiction and that meant that whatever was raised we needed to investigate it, regardless of what it was founded on.

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40 Sharing information perspectives with industry was a great facilitator of progress so that we didn't just sort of come along and say, "Look, we're going to do this". We jointly worked out in the partnership what we were going to do and so it needed to be a realistic staging of transition to take into account all of these factors, especially balancing the safety, performance, costs, risks and liabilities. There was a lot of talk that, "Oh, look, the Environment Department is only worried about the trees and koalas." Well, no, our legislation says that we have to consider the standard criteria in every decision. And it's a public interest. It's about safety, it's about the cost, it's about the appropriate risks and liabilities being prioritised.

5 So the policy sought to achieve all milestones and timelines for transition. Other countries had sort of two-year transition periods. We looked at that and said, "Well, you probably need a little bit more of that to be practical for budgeting, for redesign, for commissioning", that sort of thing, so three years was the general transition period.

10 We had the mechanisms to allow transition extensions where it was justified and mostly that's about the larger facilities and some of the older facilities where it would be very difficult to put in change in the short term. It sort of emphasised that there was no sense in having industry-wide exemptions where the facilities were vastly different, so a brand new facility could comply from day one, whereas an older facility might take four or five years to comply.

15 We also recognise that the state of art for Fluorine Free Foams was not fully mature at that stage and it has come an awful long way since 2016. So we recognise that C6 pure foams would be necessary in some situations for some time and not to put a particular timeline on that, and to have achievable milestones and timelines for those facilities that still needed to have a C6 or a PFAS foam in place.

20 We also had to accept that contamination of the new foam that put into a system by the PFAS legacy residues, which are very difficult to remove, was going to be an issue and that we needed to set that on a realistic basis.

25 At the end of the day we thought all this transition is going to generate an awful lot of waste so we better look into how we're going to dispose of this and do we need to facilitate new things. I'll touch on that a little bit later.

30 The regulatory model for us is the polluter pays. There was no change to our regulations or legislation. It fitted under our requirements to apply ecologically sustainable development, particularly the precautionary principle, and we were very lucky to have His Honour Chief Justice Brian Preston produce a White Paper on how to apply the precautionary principle in particular to fire fighting foams, and I would recommend his White Paper on that, that he produced for a seminar that some people present attended back in 2017. It sets out legal precedents for clear application of precautionary principle. It's no longer a sort of vague and tenuous motherhood statement.

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45 Precautionary principle and these obligations apply to everybody but, for the most part, it focuses between the regulators and the end user. The end user is notionally the polluter. They're the one that's managing the activity. The regulator needs to be applying it as well in

conjunction with the end user to say, "Okay, what's reasonable and practicable?"

5 If you split up what the Queensland Foam Policy did, it was to say that, all right, the class B liquid fuel fires foams, you're non-persistent chlorine-free foams, need to be managed appropriately.

[11.40 am]

10 Looking at the composition of quite a range of chlorine-free foams, there were a range of really well-known components within those foam solvents, surfactants, all that sort of thing, so we had plenty of information to go on there in terms of how to manage them appropriately and nothing specific came out of that.

15 As far as PFAS were concerned, we looked at it from the point of view of a three-way split so the PFOS and PFHxS foams, that's your 3M Light Water, needed to be removed as soon as possible. That was the great concern, the release of PFOS and the legacy contamination that has been going on. Equally the long-chain foams, that is those that are fluorotelomers, the greater than C7 - your A2 fluorotelomers and related foams - they needed to be phased out but there need to be time for that. That was part of the transition over the three years.

25 Also the C6 pures, where you say there is a need for a PFAS foam to remain in place for a particular facility. That was basically a customised sort of temporary licence that was put in place on a facility-by-facility basis. The split really is non-persistent versus persistent. This was not taking into account performance and that sort of thing. That is very important and is in the overarching layer.

30 The phase-out period of Queensland was 7 July 2016 through to 2019. The extensions of time are under our Act as temporary licences. In the interim there needed to be containment measures put in place that were achievable, so it wasn't just a case of, "Well, you can go back to sleep until 2019 and then do something". It was, "If you have a PFAS foam you need to change your procedures in some way about containment or maybe put in place some sort of infrastructure to assist with the containment to a reasonable level.

40 Obviously PFAS waste would be coming out of this transition. Most facilities were able to transition in about one to two years, the smaller facilities. Then those wastes needed to be held securely until there were appropriate disposal methods available that were not only appropriate but also economic. Storage of the PFAS waste was not an issue for us provided it was done in a secure way.

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5 Just a little caution here that if somebody says, "I've got a C6-based foam", you need to check whether it is C6 based or C6 pure. That analysis as you can see on screen is over half a 6:2 fluorotelomer plus a 4:2 fluorotelomer, in other words a C6 plus a C4. Yes, okay, it's a short-chain-based foam, but about a third of it is long chain, C8, 10, 12 and 14. That is not a C6 pure foam, it is a C8 foam. That is just a little caution. It's one of those things that was difficult to ascertain in the early days because the analysis methods needed to be developed.

10 In terms of persistent foams, that's the C6s and the C8s. The PFOS foams needed to be taken out of service as soon as practicable. The other long-chain foams phased out if you didn't have an extension of time and the milestones, if they were justified. They were enforceable timelines and enforceable milestones. It was basically a licence that
15 needed to be complied with. The C6 foams are acceptable until an alternative is available and there is a reasonable way to transition as well. We are looking at that as an extension of what we are doing, so nothing has been set in stone there.

20 One of the things that concerned us, and rumours abounded, was that the way to get rid of your foam was to do a whole lot of training or donate it to some other country or other operator. We had the navy donate a lot of 3m light water to us in Queensland and it cost us \$18 a litre to get rid of it once we realised we had that in all sorts of strange
25 little fire stations up and down the coast. There needed to be some sort of a halt put on these cheapish ways of disposal of foam.

30 Another caution. Your short-chain PFAS, we thought they were going to be saviour of everything back in about 2005. It's turned out that they're not because some of the benefits of them, such as slightly lower short-term or acute toxicity are offset by things like volatility, mobility, uptake into crops, the solubility and they go around and round in the environment. That's the problem. They are very, very difficult and
35 expensive to remediate, so what you lose on the swings you're not gaining on the roundabouts for C6, so we now regard C6 and C8 foams as the same in terms of the level of concern that we have about them.

[11.45 am]

40 Non-persistent foams. It's worth mentioning that the policy covers those as well. The main issue is possible oxygen depletion in enclosed waterways. Now, I emphasise that. It's got to be shallow water, enclosed, limited turnover. That's where we've seen a couple of
45 instances where it's occurred. We've had tanker rollovers straight into the mangroves. On that occasion I used 680 litres of fluorine-free 6 per cent and there was absolutely no effect. Several weeks ago we used something like 800 litres of a class A fluorine-free into an enclosed waterway and no effect whatsoever because there was tidal flushing.

5 So it really is about enclosed waterways for BOD. You're not suddenly going to kill everything if you use a non-persistent foam. As I say, it is no different to the AFFFs and fluoroproteins. They all have roughly the same biochemical oxygen demand, you just have to be careful.

10 As far as allowable contamination in your new foam that you put into an existing system that's had a PFAS foam in it, we set the limits at 50 mg/kg for your long chains and 10 mg/kg for PFOS+PFHxS. That also applies to a C6 pure foam that's put into the same sort of system. That's very generous because I think it's been easily achievable in the examples that I've seen, and Dick Gillespie no doubt can tell us more about where it's a problem or where it's not a problem.

15 The non-persistent foams can be treated on site. That means irrigate to land or allow it to be biodegrade in a pond, or they can be disposed at sewer/trade waste. The main issue is what are the other contaminants. If you're using a foam it's probably because you've got a spill of some sort and the other containments are going to be far more important.

20 There's obviously no significant restriction on dispersed rural fire fighting. They're only using about 0.5 per cent foam very lightly applied. In the same way, roadside incidents, we have had all sorts of incidents over the year, with no effect apart from the grass is a bit greener six months later, as chlorine-free foams, having surfactants in them, are a good penetrating agent.

30 Equally, ports had concerns about the use in a port area, what was it going to do, and could they do their essential testing. The answer to that was yes. All you have to do is manage it in terms of when you do your testing and we have no problem with that at all because there'll be no effect. The only thing the port has to manage is the media attention to the white fluffy stuff on top of the water. Provided we know about it, we can fend off the enquiries from the public to ask what's going on.

35 Testing at fuel berths into port waters and even mining vehicles, very large vehicles that you can't really put on a pad, chlorine-free foams can be dropped to the ground during their annual tests for these huge trucks that they have on mine sites. That's really all I have to say about the policy.

40 The cleanouts. I guess things that have arisen - and Dick can talk about this in more detail - certainly absorption on to surfaces has been an issue. Any rubber bladders, those porous surfaces in seals and even stainless steel and rusty areas there's a bit of a problem. Certainly the metropolitan fire brigade in Victoria had huge problems with their fire appliances, which mostly sit around doing nothing with various PFAS foams in them over the years. They had to go through some very extensive cleanouts.

5 There's certainly affinity for particular materials. That needs to be looked at in terms of the PFAS material that you've got in there. While you might have done a reasonable job of cleanout, or at least you think so, it may later be released into the new foam. However, with the sort of limits that we set, it hasn't been a problem so far.

10 Precipitates in tanks and pipework. Very much so because that can be a very concentrated little slug of contamination. In the example of Brisbane Airport where Qantas had a spill of about 22 tonnes of PFAS foam, it went down the sewer and there were all sorts of dramas in separating it from the highly organic mess that was in the pipes there, in other words the sewage.

15 It's worth mentioning that disposal is not appropriate through sewage treatment plants. PFAS just goes straight through into the effluent and biosolids and then that goes on to our crops or into the groundwater or into the waterways. That is already occurring from diffused sources - clothing textile treatments and that sort of thing that we're really not sure how it's happening.

[11.50 am]

25 Certainly not composting. We're prosecuting some composters who are accepting PFAS waste, because they don't biodegrade, as you well know. They transform by they don't biodegrade. Definitely not landfills, because landfills are not meant to last forever. They might last 60 to 200 years and eventually the PFAS will be coming out of them as the liners degrade. And not domestic incineration. You need to have high temperature incineration and very close controls on your emissions. So those were not the options.

35 We investigated all sorts of options for waste destruction and blends into the remediation-type technologies. Really, the high temperature incineration and a new method of hydrothermal treatment, which is suitable for soils and waters, is being done by Sertip(?) in the US is interesting. But we focused in on hazmat incineration. We do have one in Queensland, a plasma-arc facility. The trouble is that requires very pure fluids to be able to be injected through the small nozzles, so it's not suitable for anything that's chunky.

40 Looking at some of the Basel Convention material, we thought it's worth pursuing cement kilns and that's what we did. We have a cement kiln at Gladstone in the middle of Queensland's coast, run by Cement Australia. They already process various alternative fuels, otherwise known as waste oils, into the kiln with various other containments that they're licensed to burn. So we got them to run some trials in 2016/17 and found that compared to standard high-temperature incineration

where you can have reforming of PFAS when the carbon and fluorine get back together when it cools down, you can have that emitted and you can have hydrochloric acid emitted.

5 Cement kilns are a very different story. They not only have the high temperatures and long residence times, the presence of calcium is very important because calcium catalyses the destruction of PFAS from about 350°C for PFOS. That's very interesting because the standard dogma is that we 1,100° and that is difficult to achieve. The other benefit of calcium is that it permanently captures the fluorine so the moment the fluorine is separated from the carbon, the carbon fluorine bonds are broken, then if you have a source of calcium in there it grabs hold of the fluorine pretty much permanently.

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15 The calcium fluoride has a melting point of 1,400°C and a boiling point of 2,500. So once it is captured it stays there because the temperatures in the burners are up to about 1,800. The residence times is enormous. We are not talking about the two seconds needed for PFOS by itself but with calcium we break it down at a lower temperature and we have got minutes in the system, up to about 25 minutes. In key areas it is more than enough time to break it down.

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25 The nice thing about this is there is no additional energy required, so you don't have to pour in more oil, in fact you can save fuel because fluorine catalyses the formation of the clinker, it mineralises it. It has been used in the cement industry for decades as a deliberate additive and for disposal of other waste like spent cell lining from the aluminium industry which is about 15 per cent fluorine. There is no waste of PFAS in the emissions to air and there is no waste to PFAS in the clinker and the calcium fluoride in the clinker is at very low trace levels and it actually helps the cement to be harder in some ways.

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35 We have licensed Cement Australia to burn PFAS since 2018 and they simply mix it into the alternative fuel, the waste oils, at a very low level and that is injected into the system.

That is the Queensland policy in a nutshell. I can open it up for questions.

40 QUESTIONS

CHAIR: Okay, thank you very much, Mr Holmes. First of all I will get the DMC to ask questions. Kerry, you seem to have a long list there. This covers the entire EPA presentation.

45 DR LAING: Thanks, Ngaire. Thanks, Ben, Peter and Nigel. I do have some questions and I guess most of them are at a high level, although some of them get down to detail.

[11.55 am]

5 One of the things that I had thought about as I have read all the material there, is a number of comments about the Fluorine Free Foams and the range of them that there are, their different properties and perhaps a need for them to be applied in different situations and through different delivery systems. I just wonder whether the whole range of fluorinated and Fluorine Free Foams are appropriate to put in the one group standard.

10 CHAIR: Before you answer the question, Peter, Marree, can we get rid of this screen. I don't know if it is at Nigel's end or what. Nigel, if you can stop sharing your screen, that would be good. Thank you.

15 MR HOLMES: Has that gone?

MR DAWSON: Yes. That is a bit of a tricky question first up, Kerry. I would have to say in terms of group standards in general and the scope of group standards in general, most group standards are still enormously wider in terms of what they cover and the types of uses they cover than what we would have within this Fire Fighting Chemicals Group Standard.

20 The requirement in the Act is that, yes, the group standard can be set in place for similar groups of substances that are of a similar type or similar nature and have similar circumstances of use. I think in terms of the type of regulation we do within the group standard, we are not setting specific controls on specific uses and that will really always come down to the operator of any facility to determine that they have a foam that will actually meets their needs.

25 We are just there looking at the regulation of any potential adverse effects to human health or the environment. I probably didn't really answer your question there very much but we think, certainly within the scope of the group standard, that controls we are setting in place are broad enough to cover the whole range of different types of foams and different types of uses.

30 I think Ben mentioned this, the group standard does cover other products, retardants and other fire fighting chemicals other than just the fire fighting foams.

35 DR LAING: Okay, I just wondered whether it would be broad enough. I guess that leads me on to a related question. You have talked about the need now to assess self-assigned products to the group standard. There are two things associated with that. The first one is if you do your assessment of something that has been self-assigned and you think it is inappropriate for it to be covered by the group standard, does that mean

they would need to come back with a specific consent or an application for the specific material?

5 MR DEEBLE: Yes, so at the first point we'd probably go through some sort of compliance step but following that, if it was determined to be inappropriate then, yes, it wouldn't fit the group standard and it would need an individual approval.

10 DR LAING: The next thing I am interested in is a requirement for the manufacturers, rather than suppliers, to provide composition information. I guess there are two parts to that. One, is this retrospective for everything that is already in the country or is this only to be for things that are imported from the date of this revision of the group standard going in place?

15 MR DAWSON: Where is your lawyer when you need them.

DR LAING: You have some time between now and the end of the hearing to get some legal advice.

20 MR DAWSON: It is really generally intended to be going forward. We do have some information on our files for some of the foams, the older foams, that are already in use in New Zealand. So we have gathered that over the years.

25 [12.00 pm]

30 I don't know if you remember back when we used to have the SOS mechanism. Some importers of foams did proactively come to us and ask us to check that the foam fit within the group standard so we did have the records of that but not all of the importers did that. This is really an exercise in wanting to know, because there are concerns that we heard from submitters, and Nigel mentioned it as well, that who is to know that these new Fluorine Free Foams might not contain some components that might be next year's or next decade's POPs.

35 This is really just an exercise in us gathering that information and having it on hand to at least we will know for the future what the full composition of these products are. So if something like siloxanes comes up later we will be able to identify what foams or what products they are in so we can then follow through on that.

40 Because the plan is to phase out the PFAS ones this is really sort of looking forward and more ready to pick a composition of information on the newer Fluorine Free Foams that are coming through.

45 DR LAING: I understand that but we also have a situation where C6 foams can be used and imported for some time and if there is a new C6 foam then

presumably they are going to provide the information. It is not just Fluorine Free Foams that this will cover.

5 My other concern is, and it comes out not only in New Zealand but internationally, that there seems to be almost a dearth of information on the hazard classification, shall we say, in terms of having some intimate knowledge of ecotox or human toxicity data, and this seems to be that there is no mechanism to get a better handle on that. You may get composition information and you may have a look at those list of ingredients and you may be able to source information on those particular ingredients but you never get a picture of the properties of the foam itself. It seems to me that we are not making any progress in clearing what seems to be a great deficiency with respect to foams that has existed for a number of years.

15 MR DAWSON: Are you still referring to the PFAS components?

DR LAING: Yes.

20 MR DAWSON: I think the thing with the PFAS, as Nigel mentioned, yes, there is a dearth of actual detailed toxicological information on a lot of those components but I think it is well established now that large groups of these PFAS clearly do have these properties of persistency. They are absolutely all persistent and a lot of the short-chain ones are now, as well as being persistent, more mobile in their environment. They are actually harder to take out once they get in.

25
30 Definitely, like the long-chains ones, there are plenty of studies, plenty of evidence that these are bioaccumulative and they have had a number of toxic properties. So sometimes they don't have enough toxic property to actually get at JHS classification but there are definitely studies which show very low level chronic effects. A lot of endocrine properties and even one -- I was on a Zoom call overnight. One of the reasons why the European Food Safety Authority has recently just
35 massively lowered the acceptable level of the PFAS components in diet is because of their immunosuppressive characteristics. That is, if you have got a lot of PFAS body burning then your response to diseases and ailments will be suppressed and the effect of any vaccine you might take will not be so effective.

40
45 On this call overnight there was somebody worrying about all this, it would make the COVID-19 vaccines that come along a little bit less effective if people have got a lot of PFAS in their bodies. You are talking at exceedingly low levels. There is plenty of information to justify the international regulation and restriction on PFAS substances.

In terms of the fluorine free, most of the fluorine free products that I have seen compositions for are pretty much just fairly benign

ingredients. I have not yet seen a Fluorine Free Foam that has any worrying component in it from my perspective.

[12.05 pm]

5

MR HOLMES:

Yes, I would agree with that. Could I also just add that the perfluorinated chain links gives you quite a bit of information about its mobility, about its toxicity and its general behaviour in the environment because there are these hundreds and hundreds of compounds but they all have that common element of the perfluorinated chain and so by bioaccumulation and all that sort of thing relates to that. It is impossible to test every one of the compounds and the transformation products. Then you have this four dimensional chessboard where you have combinations in hundreds of different types in all sorts of different situations.

10

15

It does come back to basics like chain links and whether or not it is something like PFOS sulfonate or something like PFOA which is a carboxylate.

20

DR LAING:

Thanks, Nigel. I am also interested in the comments you made, Peter, about providing guidance. This was directed about cleaning up delivery systems and the like. How broad is the guidance that is going to be provided and what is the mechanism for doing that in terms of how is the EPA going to provide that?

25

I note that there is a lot of documentation around providing guidance, whether it be FVI Australia on selection and use of foams and various stuff in Europe, as to just how broad this guidance is going to be and whether there is any scope there for an industry code of practice.

30

MR DAWSON:

Yes, there is always scope for codes of practice to be produced. In terms of how detailed or broad the guidance needs to be, we will clearly discuss that with our regulator stakeholders, our industry people, and find out what it is that they need.

35

There has been a lot of experience already in the country with cleaning out equipment, fire trucks and other equipment from the investigation where they had to clean out the PFOS foam. So the same methodologies that were used to clean out PFOS foams equally will work for all other PFAS foams. There is quite a bit of intellectual property knowledge within some of the consultancy firms that have been doing this work.

40

45

To some extent what they want to see from us is guidance on those numbers, those levels. How much do they have to clean things down to. We will certainly talk to the industry and talk to the likes of Nigel, and there are other experts in Europe that we are in contact with as well

doing the same work to phase out these PFAS foams across whole industries or whole regions. We will just develop it from there.

We do not have a template of a guidance document yet.

5

DR LAING: No. There certainly seems to be a number of parties that are interested in contributing and the more parties that do that the more acceptable the outcome will be.

10

Okay, that is all thanks, Ngaire.

CHAIR: I am disappointed, Kerry, I thought there was a big, long list there. Derek?

15

DR BELTON: Thanks, Ngaire. Thanks, Peter, Ben and Nigel. Overall an excellent presentation. Just a couple of fairly generic questions. The first one, one of you just mentioned that the EU had just massively lowered their acceptable levels. That is presumably a fairly evolving dynamic situation. Where are our levels at now? How will we change them when others change them and what is our mechanism? Do we just follow others or is there an international body that is going to set them or what do we do?

20

25

MR DAWSON: In terms of what I was mentioning there, they are still just proposals from the European Food Safety Authority and what they have done is reduced their tolerable daily intake values that the European population could safely be exposed to. I think they might have gone down by, we heard this just yesterday, about 100-fold something.

30

[12.10 pm]

35

That obviously has to go through quite a torturous process in the EU through the EU Commission and so on. I don't know how long it might take before anything comes of that if anything does come of it.

40

In New Zealand we are linked in with the work that was done in Australia by FSANZ. That set the tolerable daily intake values for PFOA and PFOS and those are the levels that have been put in place here in New Zealand and they are also the levels that were then used by the Ministry of Health to establish interim drinking water values. On my understanding at the moment is there is no request by either the Ministry of Health in New Zealand or the health officials in Australia for FSANZ to relook at those levels. Like I say, it is still quite early days from Europe.

45

The European Food Safety Authority is obviously looking at PFAS in the diet and in water. It could be coming from all uses. Obviously we

can't assume -- of course it does not all just come from fire fighting foam.

5 Very much like not only ourselves but FSANZ and the Ministry of Health, yes, we are always looking at the international trends and developments and we usually follow the patterns that they adopt.

10 DR BELTON: If I have that right, really FSANZ is setting the standard for us that we are picking up?

15 MR DAWSON: A couple of years ago that contamination issue became quite prominent in Australia with all the defence sites, and there are a lot of communities around some of their big defence sites that have been impacted by that ground water contamination. So the Australian Department of Health asked FSANZ to establish some acceptable daily intake values, which they put in place.

20 Again, we heard that just in the next round of the total diet survey on foods in Australia, they are going to look at any levels of PFAS in those. Previously, and the last time that study was done in New Zealand, they did add some PFAS components to the list of analytes and I think they virtually found nothing.

25 Fortunately the contamination issues in New Zealand are tiny in comparison to what has cropped up pretty much everywhere else around the world. Most of the site contamination all around the world has come from the use of fire fighting foams as opposed -- and mainly from the training exercises.

30 DR BELTON: Sure, but regardless of how much contamination we have got, when it comes to clean up of existing systems the levels that we are going to be asking for are going to be driven by those same acceptable levels or derived from them in some way or another?

35 MR DAWSON: Yes, it does become a bit of a balancing act. It is like anything, it becomes increasingly more expensive to go the extra 5 per cent or the extra 1 per cent to get it down another order of magnitude. Then, of course, as you are doing that you are producing more and more waste with lower and lower contamination and then there is the issue of how to dispose of all that.

40 Yes, you do have to be reasonably practical.

45 DR BELTON: How do we avoid the situation that we have got in the housing with methamphetamine residues, where we were demanding householders spend tens of thousands of dollars cleaning up their houses that it took the Chief Scientist's report to reverse and say, "Well, actually you didn't need to go that far"? How do we avoid that here?

MR DAWSON: Like Nigel said, we are proposing clean up levels that are similar to what they have set in Queensland and they are quite generous. What people should perhaps -- they shouldn't be worried about it but what you wouldn't really want would be the regulator like us to set a level and people clean up to that level and then sometime in the future you set another newer lower level and people have to go through the whole exercise again.

[12.15 pm]

We shouldn't underestimate the cost of having to do this, it is very considerable. But we think the levels we have put in place are pretty sound and pretty much based on international practice and good evidence-based, science-based levels. For example, within those Basel technical guidelines that we set, they put in place what they call low POPs content levels, which is like below this level you are not considered to be a POP.

Whatever we do is always going to be consistent with that international best practice.

DR BELTON: Okay, thanks. Following on from that, given this is evolving quite rapidly, what is the expected duration of the new standard, assuming that we get it out? What are the triggers for its review?

MR DAWSON: The way we have written it, it is pretty much futureproof because we have put in place the default position. Clearly we want to send the signals that we want people to phase out of any PFAS and that will be the end of it. But we do recognise that there will be some situations, some particular sites where it will be difficult, or not possible, even, to change over within the five-year period. That could be for a number of reasons. There are some uses where it's probably fair to say that fluorine-free alternatives are not 100 per cent proven to be fully efficacious. So we have got that mechanism for the permission. That will still enable us to allow specific sites, specific operators, to keep using those foams for a period of time. When we issue permissions, they're a time-limited thing as well. We don't give you a permission forever, we might give you a permission for three years.

MR BOLTON: I recognise that permissions are finite.

MR DAWSON: We'll keep monitoring the international developments and the trends and with the permission thing we will be able to adjust that as time goes on. I think as much as you could say with any of these regulatory instruments, it's not future proofed. We've just published the new Hazard Classification Notice, which is based on the 2017 version of the GHS. You could argue that's already going to be two versions of the

GHS out of date by the time it comes into force. So, yes, everything has to be viewed at the time and updated if warranted.

5 MR BOLTON: One more question. Nigel, you mentioned that we should have the same levels of concern with C6 and C8 compounds. We sort of had that in an original proposal but now we've differentiated them again. How do we reconcile Nigel's statement with the modification that we made there?

10 MR HOLMES: I think you have to an extent, in saying that C6s don't need to be phased out right away. That's been the Queensland policy position too, to say continued use is fine provided all reasonable and practical measures are taken for full containment and the wastes are treated as a PFAS waste. It's sort of countering the perception that was raised some years that C6s aren't a problem, we can just get on with life using C6 and you can release it into the environment whenever you like.

15 I think the issue of containment, get rid of the C8s and eventually the C6s will fade away as well. It's the timeline for C6s to phase out that's probably a bit up in the air at the moment.

20 MR BOLTON: Okay, that's it for me, thanks.

25 CHAIR: Peter or Ben, did you want to add anything to that?

MR DAWSON: No, not really. We did take on board the comments from submitters but we're also mindful that we do have some limitations here in New Zealand, some restrictions, which really come down to logistics and capability. I think we started to realise that if we required all PFAS foams to go, as we originally proposed, from uncontained uses within just two years and then contained ones within five, I don't know that we would have the capacity and capabilities within New Zealand to deal with that volume of things so we're now just planning to spread it out a little bit.

30
35 **[12.20 pm]**

40 There are not that many consultants that are expert in this business and not that many disposal facilities and waste management companies that could handle -- they struggled a little bit with what we found when we did the investigation and there was just a few sites that had to get rid on the old PFOS foams. There'll be many times more foams that will be affected by these new proposals. Until such time as hopefully we might be able to develop some type of destruction process in New Zealand, it might overwhelm the system if we tried to do it too fast.

45 CHAIR: Okay, thanks. I had a couple of questions; you may have answered them. I'll ask this one again, because it just struck me with -- I

5 understand why you've got the permissions as an option but I was wondering is that giving enough incentive. The purpose is to transition away from all PFAS, the C6s as well. Is there enough incentive to actually encourage people to transition away from C6 if you've got this permissions process in place? I understand they're time-bound, but how many times can someone apply and get permissions?

10 I guess part of the answer to that question is really about what else are you doing. You've got the standard but you did make some mention about working with industry. I'm wondering about ... it's part of the package, I guess.

15 MR DAWSON: I have to discuss with my colleagues and the management as to how much assistance we're going to get with this but we will have a coms package to get this message out. We'll have compliance activities to help inform people of the changes that they need to put in place and we'll develop that guidance.

20 I think from what we've seen overseas, and like I mentioned, I think in South Australia they put in place something similar, a bit of a backstop, but there was only, I think, eight companies that needed to apply for a permission, or the equivalent to a permission. Nigel might be able to tell us how many sites in Queensland weren't able to transition within his three years and therefore needed to call on the backstop.

25 I think the answer to your question is probably better going to come from some of the other submitters that you'll hear from, for example Rod Rutledge from Caltex Australia.

30 CHAIR: Yes, sure. Thank you. I'm going to open this up now to submitters. Would just ask that you state your name. First of all we'll start with the people we can physically see in the room, and then, Marree, you can advise if there's anyone on Zoom who wishes to ask a question. Just a reminder that these are questions of clarification only and they're also
35 not an opportunity to start making your submission.

Who have we got first up? Use your microphone, please.

40 MR GILLESPIE: I think I'm the only one here in person. This is Dick Gillespie, sometimes called Fire Engineering Solutions. I have a quick couple of clarifications for the questions that you've already asked the EPA.

45 One is fire fighting performance is assessed by fire testing. It is absolutely not dependent on the composition of the foam, whether it is PFAS or F3 or whatever. If it passes the test, the insurance industry and everybody else is quite comfortable for it to be used. However, there are differences. The differences are that the very persistent foams, as might be logical, actually last a lot longer than the Fluorine

Free Foams, so they need to be tested more frequently, they need to be replaced more frequently than the POP-bearing foams because of that lifespan.

5 [12.25 pm]

We've got out of that habit. When I started in the fire fighting industry most of our foams were not PFAS based.

10 CHAIR: Sorry, Dick, I don't mean to interrupt, but the purpose of the session is for you to ask questions of the EPA. It's not for you to answer questions. We can save those for your presentation.

15 MR GILLESPIE: Sorry. I have no questions, thank you.

CHAIR: All right. Just to clarify, he was answering a question that you were asking. Would you like him to continue? No, we'll just leave it. Thank you, and we look forward to your presentation.

20 Do we have any other questions from the floor? No, all right. Marree, do we have any questions from the Zoom?

MS QUINN: No, there are no questions on line.

25 CHAIR: All right, we were running behind and we are now ahead of schedule. Thank you very much to the EPA for your presentation, including Nigel. Thank you very much in sunny Queensland.

30 Marree, is it convenient to take a lunchbreak now? All right, we've allocated 45 minutes for lunch, so we'll stop now and come back at 1.15 pm. Thank you, everyone.

ADJOURNED [12.26 pm]

35 **RESUMED** [1.17 pm]

40 CHAIR: Welcome back, everyone. I realised before, at lunch time, that I hadn't actually invited the online submitters to introduce themselves, so I'd like to give them the opportunity to do so now. Marree, I don't know how we're going to handle this.

MS QUINN: Especially because you can't see them.

45 CHAIR: No, I can't see the submitters.

MS QUINN: We'll go with Rodney first.

CHAIR: All right. Well, Rodney's giving a presentation. I'm just inviting people to introduce themselves, any submitters who would like to.

MS QUINN: There's Mitch and David.

5

MR LE MARQUAND: Hello, I'm --

CHAIR: Okay, that's fine. That obviously isn't going to work so we'll forget about that and go straight into our next presentation, which is Rodney Rutledge from Caltex. Welcome, Rodney.

10

SUBMISSION 30 - CALTEX AUSTRALIA LIMITED

RODNEY RUTLEDGE PRESENTING

15

MR RUTLEDGE: Thank you, Madam Chair. I do not have a presentation but I would just ask, if possible, that you project myself on to the screen.

CHAIR: I understand we can't hear you, Rodney.

20

MR RUTLEDGE: Okay.

MR HOLMES: It's Nigel here. We can hear Rod remotely.

25

CHAIR: Well, that's great for you.

MR LE MARQUAND: Yes, we can hear everybody else, except obviously you guys can't.

CHAIR: Just bear with us while we sort this out.

30

MR LE MARQUAND: How's your sign language, Rodney?

MR RUTLEDGE: How's that? Testing.

35

MR LE MARQUAND: Into the void.

MR RUTLEDGE: Thanks, David.

MR LE MARQUAND: Explains why they couldn't hear me when I put my hand up before, Rod, at the end of the questions.

40

MR RUTLEDGE: Yeah. You can just go on mute, David, and we'll just see.

[1.20 pm]

45

CHAIR: I think we can now see you, Rod.

DR BELTON: He needs to be unmuted.

CHAIR: Yes, you're on mute.

MR RUTLEDGE: Not on my end.

5 CHAIR: Can you just say something to us, Rod, please?

MR RUTLEDGE: Testing, one, two, three.

10 CHAIR: No, unfortunately we can't hear you just yet.

MR RUTLEDGE: Testing, one, two, three. Testing.

CHAIR: Yeah, we can see you.

15 MR RUTLEDGE: Testing, one –

CHAIR: Perhaps we can try -- I know we're getting feedback.

20 MS QUINN: He's coming through, just very faint, so we're just working on that at the moment.

CHAIR: Just bear with us there. Yeah, lot of feedback.

25 MR RUTLEDGE: Testing, one, two, three.

MS QUINN: Oh, there we are.

MR RUTLEDGE: Testing, one, two, three.

30 CHAIR: Perfect.

MR RUTLEDGE: Testing, one, two, three. Testing, one, two, three.

35 CHAIR: Yeah, you're coming through fine.

MR RUTLEDGE: Okay.

MS QUINN: We're working on the feedback.

40 CHAIR: Okay. We're getting major feedback in the room. Stand back. Anyway, go ahead, Rodney.

MR RUTLEDGE: Okay. Good afternoon, Madam Chair, panel members, ladies and gentlemen. Thank you for the opportunity to present today. I'm presenting from home, it's quite a rainy day here in Sydney today, so by all means let me know if I'm not coming through clearly and I'll revert to headset.

45

5 Firstly, let me introduce or address some matters of company name and association that may otherwise prove confusing. In December 2020 I made submission from Caltex Australia Petroleum Ltd in response to the proposed changes to the group standard. Since that time our shareholders have approved a change of company name from Caltex to Ampol Ltd. I apologise in advance if I make reference to both entities in my presentation. They are one and same for the purposes presented here.

10 The context by which I'm motivated to respond on the proposed regulation change is twofold. Firstly, Ampol's ownership of the Gull New Zealand Ltd assets, including the Mt Maunganui fuel terminal. Secondly, and of more relevance, is having chaired since 2014 the foam task force within Ampol Ltd. Our company currently holds more than 15 450,000 litres of foam concentrate stocks within its Australian operations. Of most relevance to the considerations here today is the work that this taskforce has completed in working to meet requirements of the Queensland operational foam policy. In relation to relevant and useable experience in responding to new foam policy, there are some 20 key points I wish to share with the panel today in terms of how Ampol has responded to evolving regulation in the Australian jurisdiction.

25 First and foremost was initial pushback and resistance which predated the 2016 Queensland policy release in Queensland. This was really due to significant unknowns at the time from an end-user perspective. These included unknowns with respect to the effectiveness of replacement foams, to make policy, as well as performance requirements. Also, the cost of engineering modifications that are 30 required and the availability of decontamination and disposal methods, as well as appropriate providers.

35 Secondly was the recognition of the benefits of the co-regulation approach and embracing the need for change. This was absolutely pivotal in terms of how government - in this case, Nigel and the team at the department in Queensland - engaged with industry.

[1.25 pm]

40 We weren't the obvious scientists to challenge the scientific basis by which these chemicals were being labelled as environmentally persistent. There was a body of evidence, enough for us to recognise the need for change. What was important was the ability to overcome the technical and engineering challenges to address that need for 45 change. We also needed (inaudible) foam producers and suppliers to invest in product development and government compliance, as well as industry performance standards.

5 Thirdly, I would like to talk about the need for a framework of end-user technical assessments. This was extremely important for Ampol because really it is what we've used to guide our decision-making on foam transition strategy. We recognise that in transitioning to alternate foam technology, we needed to ensure we did not step off a performance cliff and erode the effectiveness of fire protection capability for our operations.

10 This is extremely important for two reasons, and I am speaking here to why we needed to develop our own technical assessment framework. Firstly was that international fire protection standards are yet to respond to changes in design and tactics required for the introduction of fluorine-free foams. This work is underway at the present time and will shortly result in some outcomes.

15 Secondly is that industry's historical reliance upon internationally accepted small-scale testing standards such as UL 162, EN 1568 and LastFire, to be representative of foam performance on large-scale tank fires has been developed over many years and has included lessons learnt from actual tank fires. The suitability of these small-scale tests being accurate reflection of the performance of non-film-forming Fluorine Free Foam on large-scale tank fires is yet to be fully proven.

25 The last point I'd just like to draw attention to in terms of our response to evolving regulation was that we needed to recognise the potential for two key risks and we needed to communicate that appropriately to government. The first was around regret spend, and this was in relation to undertaking to, for example, transition to a C6 pure compliant foam only to see it subsequently removed. South Australia's subsequent policy, following Queensland, was a validation of this. I am particularly aware of some companies that invested significantly in South Australia to transition to C6, only to see the emergent legislation not allow that.

35 For Ampol, 450,000 litres represents a substantial transition cost of more than \$4.5 million in foam alone, so ensuring that when we push the button in terms of which foam we transition to, we need to have confidence that that is a foam that will remain compliant across the lifespan of that foam.

40 We also recognised an early adopter risk, and this is one that not a lot of people understand. This was in relation to electing to transition early to a foam that may have a shelf life of 10 to 15 years, only to see higher performing Fluorine Free Foams come on to the market. This has been a particular risk that we as an end user have had to manage and, in particular, with Ampol choosing to get on the front of the wave in terms of leadership on this matter it is one that I have certainly had to temper with my senior leadership.

I would now like to just touch for a minute on Ampol's strategy. For Ampol, our strategy is clear. We remain committed to transitioning to non-persistent fluorine free fire fighting foam concentrate for all liquid hydrocarbon spill and fire applications where an equivalent standard of performance can be demonstrated. The uncertainties of fluorochemistry enviroscience for short-chain PFAS foams to us translates to a risk of regret investment that we need to manage as an operator, even where regulatory policy permits retention of short-chain PFAS foams.

[1.30 pm]

Ampol's five gateway technical assessment framework that we developed has served us well in transitioning to a Fluorine Free Foam for spill and shallow pool fire applications, eg foam extinguishers, tank farm foam monitor applications, wharf and tanker truck loading racks. By this I mean that our technical assessment framework has assessed alternate Fluorine Free Foam products for compliance to applicable standards. This is our entry or gateway one. Secondly, environmental and OHS due diligence, so ensuring we understand the properties of the purchased foam. Thirdly, that we undertake our own end user testing. That includes physical properties such as proportioning and expansion performance when operated in our specific Ampol equipment, and then we have taken those shortlisted products to the fire pad. This is where Ampol, certainly in Queensland, have quite a unique situation of being able to undertake our own live fire testing with these shortlisted products at the QFES training facility in Brisbane.

We have been able to test our shortlisted Fluorine Free Foam on refined product scenarios up to 40 square metres, including extinguishment and vapour suppression performance. We have been able to compare those test results with historical performance test results for HFFF and other C8 foams. To date, only one Fluorine Free Foam has met our criteria. This end user acceptance testing has provided confidence for us to proceed with transitioning to fluorine free for these applications utilising this foam, but I do emphasise that care should be exercised in interpreting these results and extrapolating this to other companies, products and specific equipment.

So, where are we at in terms of Ampol? We're currently focused on transitioning our small diameter tank fixed foam assets to fluorine free, supported by end user acceptance testing in collaboration with the LastFire international consortium. Unfortunately, due to the scale of testing required for these scenarios, we were unable to complete them independently in our own fire pad facility. Instead, as an active member of LastFire, Ampol have participated in the planning,

5 execution and assessment of testing on tank farm assets and live fire facilities in Hungary, France and at Dallas-Fort Worth Airport. This large-scale testing has given us the confidence to move forward with our short-listed Fluorine Free Foam for small diameter tankage up to 20 metres.

10 Testing is planned to provide confidence in Fluorine Free Foam performance on larger diameter tankage. This has been significantly impacted due to COVID travel restrictions. Through LastFire we have constructed a live fire test facility at Gesip, just outside of Paris, which is some 50 metres by 7 metres in scale. This is to be used to provide confidence to the industry that these foams that we are testing will perform well on large-scale tank fires.

15 My view on transition risk is that we are hesitant to proceed to transition and will not proceed to transition to Fluorine Free Foam for large diameter tankage until this test work is completed. To date, only a limited set of tests were performed at Dallas-Fort Worth and we assessed that as incomplete. I note that this test work incorporates scope for both fluorine free and short-chain PFAS foam.

20 On the proposed amendments to the regulation, there are a number of points I'd call out. One is I support and Ampol supports an aspirational policy for fluorine free non-environmentally persistent foam concentrates, but it must be tempered by a timeline that provides for two essential requirements. Firstly, the resolution of current technical challenges to ensure that life safety and critical infrastructure is not exposed to elevated risk due to ill-informed decision making. At Ampol we feel quite privileged to be able to have access to the testing capabilities that we do. The completion of performance testing for large-scale tankage and, in particular, crude oil remains outstanding. Crude oil tank extinguishment performance I covered in some detail in my submission because it in particular has responder life safety implications due to the potential for boil-over escalation.

35 **[1.35 pm]**

40 I also believe that the regulation - and I was pleased to hear Peter's comments earlier - must provide a lever that allows for distribution of the intensity of capital investment required for engineering modifications to transition.

45 Queensland foam policy provided this in a suitable manner by permitting short-chain use where such could be contained and a facility to apply for an extension timeframe, where such could be justified. Certainly, as industry, we have undertaken a commitment to keep the department in Queensland well informed through the progress of testing at LastFire.

5 Within the proposed amendment is a five-year timeframe for fixed foam systems to transition. PFAS free foam addresses only the second of these requirements. I advocate for and support a suitable regulatory provision for extension of transition timelines.

10 Just to start to sum up, I commend the New Zealand EPA on their uplift of key learnings from the Queensland jurisdiction and I also see strong evidence of having uplifted relevant lessons from industry's response in that jurisdiction as well. Examples of this include the requirement of the foam concentrate manufacturers and suppliers to demonstrate that their foam products comply with the policy, ie removing this burden from end users. I would, however, recommend that it be strengthened to include assurance that foam formulations did not include other environmentally persistent compounds. Having worked through this with a number of producers, I certainly advocate this improvement.

20 Secondly, allowance for reasonably practical measures to be taken to contain foam in responding to emergencies. Thirdly, allowance for a reasonably practical approach in decontaminating foam equipment prior to transition. There is an increasing scale of cost to delivered benefit in removing legacy PFAS molecules contained within the metallurgy of fixed foam systems. Peter and Nigel commented on this earlier.

30 There must be a commitment to further guidance on requirements, as there is, and I took note of the earlier comment on whether that should be in the form of a code of practice developed jointly with industry.

35 To summarise the key points that I would call out that I believe are of fundamental importance to a successful outcome is one that in adopting an aspirational approach requiring transition to fluorine free fire fighting chemicals, regulation doesn't require an appropriate lever for extension of compliance milestones where such technical matters as I've outlined above in relation to performance on large-scale tank fires is yet to be concluded. In addressing this, there should also be an obligation for interim risk management to fully contain any long or short-chain PFAS foam as a result of either training, maintenance testing and accidental spillage, decontamination and disposal, leveraging appropriate industry knowledge and experience.

45 I thank the New Zealand EPA for this opportunity to present and share end user industry experience. I'm available to answer questions not only today but also post-session as the panel may request. Thank you.

CHAIR: Okay, thank you very much. Excuse me a minute. Sorry, I am just dealing with a slight problem here. Mr Rutledge, are you happy to stay

on? We just need to take a short break to sort out a technical issue. Are you happy to hang around for a wee bit longer and we can ask you questions once we have sorted this technical issue?

5 MR RUTLEDGE: Absolutely, yes.

CHAIR: Okay, thank you very much. We are just going to take a hopefully five-minute break to sort out some issues with Zoom. Thank you, everyone. We will be back soon, Mr Rutledge.

10

ADJOURNED [1.39 pm]

RESUMED [1.46 pm]

15

CHAIR: Rodney, we are hoping ...

MR RUTLEDGE: I can hear you.

20 CHAIR: That's good, there is just a bit of an echo our end. Shall we just proceed and bear with it for the moment. We do need to keep going. Apologies for the echo. Are you getting an echo your end, Rodney?

MR RUTLEDGE: No, I'm not.

25

CHAIR: Okay, well that's something. It is just something we have to bear with there. All right, thank you very much for your presentation. Kerry has some questions.

30

QUESTIONS

DR LAING: Thanks, Ngaire. Thanks very much, Rod. I compliment Caltex on the attitude they have adopted and the actions I have taken.

35 MR RUTLEDGE: Could I just ask that the microphone be brought a little bit closer to the speaker?

CHAIR: It wasn't on, that was the problem.

40 DR LAING: Okay, thanks, Rod. As I say, I compliment Caltex for the attitude they have adopted towards this and the actions that have been taken. I don't really have many questions. I think it is implicit in your reply but to me it appeared that there were too main concerns. One was related to the timing of the transition period and potential exemptions, and also you had concerns about clean up and disposal.

45

The question really is have the amendments that the EPA has made to the draft group standard addressed the concerns that you had in those areas?

5 MR RUTLEDGE: I will take each one of those separately. The first is in relation to the
10 timeline and potential for extension. Certainly my position on this from Australia was in terms of whether to leave C6 purity chemicals on the table. There were two ways to address that. One was to either leave C6 on the table as Queensland did but provide a lever for an extension in dealing with remaining uncertainties or unresolved performance matters, etc, for the industry.

15 This is about preventing us stepping off a cliff. As I have alluded to several times, with Ampol we feel quite privileged to be able to do the testing that we do. I am well aware there are other smaller operators that did not have access to that level of testing and therefore that degree of confidence.

[1.50 pm]

20 So, for us, if C6 is left on the table that is one way to address it and allow industry to do as Ampol has done, which is to deal with this regret spend risk. My view on that would be if C6 purity chemicals were left in the regulation that I would be somewhat expectant of potential future change within the next five to ten year period that may well take it off the table. Therefore my decision-making to avoid regret spend is paramount.

30 The other approach, and this is the approach that I see Peter and the team have taken, is to be aspirational, ie to take C6 off the table and require transition to fluorine free but to have a lever for extension as these matters remain unresolved. So long as it was either one of those two I think I could manage that appropriately.

35 The decision to remove C6 from the table but have a tool or a lever for continuance whilst these unresolved matters are dealt is not an unacceptable outcome.

40 I will take the second point now around decontamination and disposal. Decontamination in particular is a big item here. We are yet to fully experience that in the Queensland jurisdiction. I made mention we are only now really getting to it in our small tank transitions. There are obviously consultancies out there that are offering services in how to decontaminate but to what extent should we chase that last PFAS molecule in those system? There is an increasing scale of cost to benefit in doing so.

I appreciated your comment earlier about a code of practice may well be an appropriate tool to develop here jointly with industry, that can create a framework for managing decontamination in particular.

5 DR LAING: Okay, thanks very much, Rod. That is all, Ngairé.

CHAIR: Thank you, Kerry. I'll ask a question. I just want to clarify in your submission -- I have just noticed we're not having the echo now, which is great. Sorry I just got distracted there, I was a bit excited. Basically
10 in your submission you talk about you have a facility at Mt Maunganui?

MR RUTLEDGE: That's correct.

CHAIR: That is your only facility in New Zealand, is that correct?
15

MR RUTLEDGE: It is our only fuel storage facility. Gull operates retail service stations.

CHAIR: You mentioned a number of, I think, 45,000 and I wasn't sure if that was for Mt Maunganui or for Australia.
20

MR RUTLEDGE: Definitely not, Madam Chair. Mt Maunganui, I believe, although I would need to check my notes, it is of the order of 5,000 litres in semi-bulk containers.

25 CHAIR: Okay.

MR RUTLEDGE: The 450,000 is a concentrate, is for the Australian jurisdiction where we operate our refinery and some 19 terminals as well as regional.
30

CHAIR: Okay, thank you. Derek?

DR BELTON: In summary, my interpretation of you have told us, Rodney, is that you are supportive of the amended proposal but in those areas of concern you want a little more detail?
35

MR RUTLEDGE: That's correct, yes. On the matter of whether C6 should be left in or not, like I said, there are two methodologies that I would support, one is leaving it in there and allow C6 in the regulation but allowing industry to manage its regret spend risk. Or to be aspirational, not include C6 but have a lever by which the industry can seek extension for these unresolved technical challenges.
40

[1.55 pm]

45 The approach that is proposed now is the second. I was very pleased to hear Peter talk to that lever for seeking an extension. But certainly

the matter of decontamination is a not insignificant issue that we really need to get our head around as an industry.

5 DR BELTON: Yes. Great, thank you.

CHAIR: All right, thank you. EPA, do you have any questions for Mr Rutledge. Please use the microphone.

10 MR DAWSON: No questions from us, thanks.

CHAIR: Do any of the submitters in the room, which is just you, Mr Gillespie, do you have any questions for Mr Rutledge?

15 MR GILLESPIE: Is that on? I sympathise and agree with virtually everything that has been said in this presentation.

CHAIR: Okay, thank you. Do any of our online submitters have any questions for this submitter? No. Thank you, Marree. Thank you very much, Mr Rutledge. That's ended your submission, thank you.

20 Our next submitter is Mr Mike Wilson from Wilson Consulting. If you'd like to start your presentation, Mr Wilson.

25 SUBMISSION 24 - WILSON CONSULTING

MIKE WILSON PRESENTING

MR WILSON: Thank you. Can you hear me okay?

30 CHAIR: Yes, we can.

MR WILSON: Thank you, Madam Chair. Good afternoon, everyone. Like Rod, I have no slides but some key points to consider. I'm Mike Wilson, director and internationally recognised technical specialist in fire fighting foams and foam systems. I run a small consultancy business from Tasmania with over 35 years' experience in this complex field. Advising clients is key but also writing topical articles, presenting at international conferences and trying to help regulators understand the complexities of sometimes competing priorities of fire performance versus environmental protection.

40 I'm also an active technical advisory committee member of the Fire Protection Association Australia, a member of NPFA in the USA and JOIFF, the Global Organisation for Industrial Emergency Services Management based in Europe.

45 Having read the revised draft, Fire Fighting Foam group standard, there's much within its proposals worthy of support as valuable

5 additions. This includes areas like distinction between five-year legacy C8 foam use in contained fire systems against two years where not contained; fire fighting training and testing to use Fluorine Free Foams wherever possible unless any PFAS is contained, treated and disposed of safely; high-purity C6 foams meeting EU REACH PFOA restriction levels and requiring practical cleanout, based on Queensland's practical residual PFAS levels. As Rod said, this whole area is contentious and we could end up chasing a very small, minuscule amount at enormous cost, unnecessarily.

10 All fire fighting foam waste, whether from training or emergency use, fluorine free or fluorinated should be contained, collected, treated and disposed of safely, ensuring all reasonable and practical measures are taken to minimise environmental harm. C6 foam is permitted for five years' use where not contained is certainly supported.

15 But I have some issues over the contained use and emergency use of C6 foams. Why are we not allowing continued use of C6 use in contained fire systems in major fire emergency use to protect life safety, at least until viable alternatives are proven similarly effective for major fires, which is not currently the case? Having an aspiration is one thing but actually demonstrating that we were not falling off a cliff, as Rod suggested, is vitally important.

20 Providing adequate containment and all reasonable and practical measures are taken to prevent environmental harm should ensure that the majority of any C6 use doesn't enter the environment and can be collected but we get the benefit of its performance advantages. Without a proven viable C6 alternative, why would we impose an arbitrary five-year cut-off without a known equivalent? There are no design standards providing effective application rates or duration criteria for Fluorine Free Foams, or F3s as they are sometimes called, in fixed-foam systems. Basically, due to substantial performance and behaviour variability between individual products -- as Rod said, he's tested a raft of them and only one is actually meeting his requirements at the moment.

[2.00 pm]

40 NFPA confirms Fluorine Free Foams are not drop-in replacements for AFFF, which potentially compromises system designs protecting life safety and critical assets that could result in harm. Comparative testing shows Fluorine Free Foams generally are less forgiving, less effective, less efficient and less reliable than C6 foams, particularly on flammable liquid fires, even at small scale. No reliable largescale realistic fires have yet been conducted using Fluorine Free Foams. Is everyone supposed to assume F3 effectiveness sight unseen?

5 NFPA Research Foundation testing in January 2020 showed Fluorine Free Foams required three to four times more on gasoline fires, six to seven times more on E10, which is gasoline with 10 per cent ethanol added, a common fuel for cars, than C6 AR-AFFF. Also, two to four times more fluorine free was required on heptane and two to four times more on polar-solvent alcohol fires than C6 AR-AFFF baseline. The report confirmed:

10 "The baseline C6 AR-AFFF included in this assessment demonstrated superior fire fighting capabilities through the entire test programme under all test conditions."

15 AR-AFFF was also least affected by the range in variables included in this assessment. How can foam users accommodate such significant extra requirements in real-life situations? Might over-reliance on small-scale approval test certificates be part of the problem, perhaps suggesting a false sense of security with F3s which really isn't there?

20 In 2019 the US Naval Research Laboratory, or NRL, testing reinforced 2.5 to 6 times more Fluorine Free Foam required on gasoline fires than a straight C6 AFFF. NRL also identified aromatic components in gasoline, which are also found in Jet A1 aviation fuel, which attacked Fluorine Free Foams but not fluorinated foams because of their fuel-shedding additives. EN1568-3, UL162, FM5130, ISO7203-1, LastFire and IMO marine specifications all use heptane as a claimed viable alternative to gasoline, probably among our most commonly used fuels.

30 We take these heptane approvals for granted as reliable indicators of emergency fire performance. They have been and are, historically, for C6 foams but not Fluorine Free Foams. Approval testing under such best-case conditions - ie best-quality foam, low ambient temperatures of 15°C to 20°C - actually helps no one. It ignores more severe conditions frequently experienced in summer and usually faced in emergency fire incidents. Shouldn't this be our focus?

35 NFPA Research Foundation confirmed lower foam expansion ratios of 3:4:1, more typical of widely used foam equipment in the field, required 25 per cent to 50 per cent more Fluorine Free Foam than application at higher 7:8:1 expansion ratios. But 7:8:1 Fluorine Free application rate, typical of test nozzles, were still double C6 AFFF rates on gasoline. Overall, Fluorine Free Foams also failed 76 per cent of these fire burn-back tests.

45 Such factors explain why some major fire incidents are becoming environmental disasters, potentially contributed to by Fluorine Free Foams use without fuel-shedding additives, generally poorer vapour ceiling on flammable fuels, gentler application requirements and greater vulnerability to flashbacks and re-involvement when compared

5 to C6 foams. Witness Melbourne's 2018 Footscray major chemical factory fire, taking 17 hours to control, forcing 50 school closures because of toxic smoke and taking 5 days to extinguish all hotspots, although some areas were very difficult to access. BPA Victoria confirmed only PFAS-free foams were used.

10 A November 2019 report confirmed 30 out of 750 emergency service personnel involved at Footscray were still battling distressing symptoms from illnesses that defied diagnosis or effective treatment. These symptoms were disparate, puzzling and extreme, including breathing problems, constant headaches, dizziness, vertigo, fainting, memory loss, extreme insomnia or fatigue, pneumonia, coughing up blood. One firefighter recounted having up to six nosebleeds a day. Could this perhaps be linked to over-exposure of toxins from this fire?

15 **[2.05 pm]**

20 BPA Victoria's chief environmental scientist confirmed this incident was probably as bad as it could be:

"The chemicals from the fire had a 'massive impact' on the system. We've had more than 2,000 fish killed."

25 Melbourne Water pumped 55 million litres of contaminated runoff from the creek by day 3. 170 million cubic litres of contaminated sediment were removed within 3 weeks, dispelling the suggestions that Fluorine Free Foam use prevents any costly incident clean-up. PFAS were detected in the creek at 16 times above permitted recreational water-quality guidelines immediately downstream of the fire site, presumably emanating from materials containing PFAS consumed in the fire on site, as Fluorine Free Foam was used. A similar 2019 fire in Melbourne's Campbellfield also took four days to extinguish, so this was not an aberration.

35 In contrast a similar major UK chemical fire in 1996 involving a 2,400 square metre fire area was extinguished in just 4 hours using fluorinated foams. Fast action prevented possible escalation to another adjacent chemical complex, fuel storage depots, a major port, industrial units, two villages and congested residential areas all within a 2.5 km radius of this fire. No evacuations due to smoke, no severe illnesses and no environmental harm reported.

40
45 Similar contrast was evident after a major 2016 Boeing 777 engine detachment fire in Dubai under severe 48°C wind-shear conditions. The air crash investigation report confirmed Fluorine Free Foam was used but gave no explanation why the plane burned for 16 hours. Remarkably all 282 passengers were evacuated 6 minutes after the crash. Three minutes later a fuel tank exploded, tragically killing a

5 brave firefighter. Seconds count to save a life. This could so easily have been a much greater tragedy. Might faster C6 fluorinated foams have saved this precious life? Absence of PFAS in the foam also seems to have failed to prevent aircraft destruction and significant PFAS escaping to the environment from seating, carpets, screens, computer systems, et cetera, as the plane burnt out.

10 In Singapore six weeks earlier a Boeing 777 with major engine and wing fire crashed in typical 32°C heat and was fully extinguished within 5 minutes using fluorinated foams. All 241 passengers and crew disembarked the aircraft 15 minutes later and the plane was repairable. Isn't that more sustainable and environmentally acceptable?

15 It's misleading to focus on foam concentrates in isolation without considering the impacts of the whole incident. Smoke, fire, water runoff and potential overflowing designed containment areas due to higher application rates potentially leads to more not less environmental harm. Footscray and Dubai are fast becoming classic examples. Tight regulation and remediation of PFAS and many other undesirable contaminants from our waste water treatment plant outfalls, biosolids and landfill leachate could be prevented from daily discharging into our environment day after day of every year. It would probably be far more effective than preventing essential use of C6 foams on occasional major fires.

25 Should we review our priorities? Just because Fluorine Free Foams are being used does not mean that PFAS is absent from fire water runoff, again proven at both Footscray and Dubai. We probably need to accept PFAS are ubiquitous in facilitating modern living and business systems from computers, medicines and medical equipment, digital and processing equipment, valve coatings and seals to glossy manuals, office furnishings and mobile phones. Any commercial, industrial, vehicle, marine or residential fire is likely to produce PFAS and other noxious breakdown products in the fire water runoff and smoke, even when only Fluorine Free Foams are used.

40 It is misleading to treat all PFAS as a single class and it is to be commended that EPA New Zealand have separated C8 and C6 because it can be convenient for regulators but not scientifically adjusted viable in such a diverse group which engages liquid and solid phases for a wide range of specific properties to vary greatly. Legacy C8s and short-chain C6 deserve different characterisations. C8s and C6 foams have similar fire performance functionality but have very different environmental impacts, justifying different regulatory treatment.

45 **[2.10 pm]**

5 Persistence and mobility are intrinsic properties but not intrinsic hazards and do not by themselves imply adverse effects. Fire accumulation and toxins in fuel pickup are intrinsic hazards which can and do create adverse effects. There is a fundamental distinction, a basis upon which restriction is or is not justified. C8s are persistent, mobile, bioaccumulative and toxic with half-life in humans of many years and therefore able to create adverse effects, in some cases severe, therefore worthy of severe restriction and phaseout because there is a viable alternative, C6 foams. C6s are persistent and mobile without significant bioaccumulation or toxicity and a human-half life averaging 10 32 days, excreted by urine without build-up in the body, so has limited ability to create adverse effects, therefore a much lower concern but without any drop-in or viable alternatives.

15 The essential use concept derives from products with unique and specific functionality delivering performance benefits often becoming practically essential in specific applications because of their value in use and often irreplaceable characteristics and abilities. Restriction to essential use for C6 is justified where alternatives can be effective for training, testing and smaller fires but surely not phase-out when there are no proven viable alternatives to protect lives, society's value and the environment achieved because of fast, effective and reliable C6 20 action. Fast C6 action also limits fire incident growth, minimises smoke and noxious breakdown products, preventing more environmental harm that would otherwise result from slower fire control and delayed extinction, as evidenced at Footscray and Dubai.

30 Is this the future we want to embrace for New Zealand or do we see speed as a continuing essential intervention to minimising adverse impacts from major fire events as the UK Environment Agency recommended in 2017? The continued responsible use of high purity, short-chain C6 foams on large fires and major hazard facilities with all reasonable and practical measures taken to prevent environmental harm would seem to be a good answer. In fact, it is probably essential 35 to achieving society's goals and moving towards safer foam choices while decreasing environmental harm and reducing public health risks due to fire fighting foam use, surely also the key objective of this Fire Fighting Foam Group Standard. Thank you for this opportunity to contribute to the hearing.

40 QUESTIONS

CHAIR: Thank you very much, Mr Wilson. Derek, do you have any questions?

45 DR BELTON: No questions from me, thanks.

CHAIR: Okay. Kerry, do you have any questions?

DR LAING: Thank you, Ngaire. Thank you, Mike. I guess I have some concerns that I will express first rather than questions. I think we've heard enough information about the relative performance of C6 foams or PFAS foams compared to Fluorine Free Foams to accept the things that you have said there.

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The difficulty I find with some of the examples you have quoted there is a bit like how do we know Fluorine Free Foams would work on major fires until they tested and see how poorly they perform. You made comparisons between Footscray and Dubai and other places but they are not identical situations and they don't necessarily involve the same chemicals, so although there may have been a shorter-term fire, we are not able to quantify what the actual differences are. I just take it from some of your examples that you're perhaps coming from an extreme angle on those and then you come back to some of the things like your comments on persistence and mobility and they are not really hazard properties but they can contribute to hazard properties because they persist and they move and they can later cause problems. So they are just comments on what you have said.

25
I guess my questions were that you come to the end of your latest submission, and I am really looking at that rather than your earlier submissions, your key points of consideration and some things that you say that the revised draft standards don't really deal with. Let me just have a look through there.

[2.15 pm]

30
35
There is one there that I don't really follow. You've talked about tight regulation and remediation of PFAS from daily discharges from wastewater treatment plants or biosolids or landfill leachate likely to do more than prevent the essential use of C6 foams for occasional large fires. I don't make the same connection as you do and it seems that the draft standard has provided for C6 foams to have an exemption or a permission particularly related to major hazard facilities. I just don't follow where you find that the draft standard has not addressed that.

MR WILSON: Sorry, I might have caused a confusion there. I don't think it is in the scope of this group standard to address that. It was more an observation that PFAS is entering the environment on a daily basis from other routes and yet we are kind of focusing on miniscule amounts of PBB levels and things for fire fighting foams when similar quantities are not being regulated from other sources.

45
Just going back to the question that you mentioned on persistence and mobility, look, they are concerns. I'm not saying that they're not concerns but what I'm suggesting is that on their own they're not specific hazards. They need to be accompanied by bioaccumulation

5 and toxicity to have the significance which they have in C8s but I don't believe it is quite the case in C6. So I was trying to make that a distinction that persistence and mobility on their own, yes, they might be a concern but they are not necessarily a major hazard that requires major restriction. I think it's good that there is a distinction between C8, which is being phased out completely, and C6, which is being allowed for longer, uncontained use but I'm suggesting could be allowed for longer in contained use because the majority of that can be collected unless it is a major emergency when every effort would be made to contain it and minimise leakage. But you would get leakage from PFAS anyway whatever foam was happening from breakdown products at most fires.

15 DR LAINING: Okay, thanks, Mike. The comments about PFAS relate back to a couple of things that Peter said this morning and one of them was to look at other sources of PFAS and whether there was any means of diminishing those or removing them from the environment and also the little bit from the European Food Safety Authority and their changes of standard. That was also recognising that PFAS comes from a number of sources other than fire fighting foams. Thank you.

20 CHAIR: Thank you very much. I don't have any questions. Does the EPA have any questions for Mike?

25 MR WILSON: Could I just make one point going back to the concerns that were just raised about the Footscray and Dubai fires? Nigel used two interesting examples, which were really quite small-scale fires where 600 or 800 litres of concentrate were used in vehicle rollovers. Look, there is plenty of evidence that Fluorine Free Foams can work really well at a small scale because you can apply higher application rates without major implications and where fixed systems aren't involved quite easily. So it can be effective in those fires. The difficulty I think for larger fires and major fixed systems is that they are prescribed for a certain application rate. Now, it is very difficult to add to that unless it is part of the design, the initial design. Adding afterwards is hard without completely pulling out the system and having revised pipework and pumping and flow capabilities. I have used those as examples because there are very few examples where Fluorine Free Foam has yet been used in major fires. Now, I accept the chemical makeup may have been different but they were basically two chemical fires, significant major chemical fires, with very different outcomes in terms of fire performance and environmental performance.

45 [2.20 pm]

Now, my point is that you could use a Fluorine Free Foam with all the good intentions of trying to minimise PFAS and environmental damage but because of the different performance characteristics of those

5 Fluorine Free Foams you may not achieve that objective and you may find that the smoke, the breakdown products, override any benefit that you might get to the environment from using the fluorine-free foam because of all those other environmental toxins that have been pumped out by the delayed response.

DR LAING: Okay, I understand that, thanks, Mike.

10 MR DAWSON: I just wanted to pick up on a point that Dr Laing raised there. So in the revised group standard we have allowed for a mechanism for the continued long-term use of C6 foams but we've allowed it via the permissions mechanism, so rather than a blanket endless time period for C6 foams it will have to be done on application to the EPA on a site-by-site basis. That is going to be particularly applicable for major hazard facilities and bulk fuel tanks where they do find they still have 15 a need for the C6 foam past the five-year period. The question is: does that provision that we have got in there to allow the continued use, in a similar way to the exemptions that operate, say, in South Australia and in Washington State and California, does that satisfy your concerns, 20 that we are phasing out C6 too soon?

MR WILSON: Not really because the problem is people who have C6 or are getting 25 rid of C8, as Rod says, there is this regret spend that they are in cleft stick. They don't know whether to invest in C6 because that has the reliability of performance for them in the 5-year period but has a lifetime of probably 15 years, and then after 5 years they could find that all that expenditure is wasted and they have to repeat with a fluorine-free foam and all the cleanout costs and everything that go with that.

30 My suggestion was to make it actually clearer for them and have either a defined cut-off or at least a ten-year period where C6 can be used in contained foam systems because it gives them some more certainty that it's probably not going to be used, it's only going to be used in an 35 emergency and, if it is, will make every effort to contain it. So the amount that would escape is probably relatively small. Because the design application rates are lower you're much less likely to exceed or overflow your containment areas so you've got a much greater confidence that you will contain it than had you used a fluorine-free foam.

40 Now there are no Fluorine Free Foams currently available that are proven to work in a lot of large situations. We haven't had very many large fires but I've pulled out some examples, there are more in the submission, where that has been used. It hasn't really given very good 45 results with fluorine-free foam compared to C6 or fluorinated foams. Historically we've had major tragedies before AFFFs were introduced with the American military on naval vessels where hundreds of seamen basically died or were very seriously injured because the foams weren't

working quickly enough. When AFFFs were developed that changed and a major incident on the Nimitz in 1988 resulted in only 2 lives lost instead of something like 134 on the USS Forestal earlier in the '60s.

5 A major concern also is that we don't put that clock back to a situation before AFFFs arrived because a lot of the Fluorine Free Foams do have quite similar characteristics to basic protein-type foams and high expansion-type foams where they have none of these fuel-shedding capabilities that can resist pick up of the fuel into the foam blanket and attack it and degrade it and allow reignition and reinvolvement to occur.

CHAIR: Thank you, Mr Wilson. EPA, Ben, did you have any more questions? No, all right? No further questions, all right, thank you. Mr Gillespie, I think you're the only submitter in the room. Did you have any questions?

[2.25 pm]

20 MR GILLESPIE: No, certainly not. Very interesting presentation, thank you.

CHAIR: Okay, thank you very much. Do we have any questions from submitters who are zooming in? No. Thank you very much. Thank you very much for your presentation, Mr Wilson. That brings you to a conclusion.

Next on the list we have Mr Gillespie. If you'd like to come up to the lectern, that would be great. Thank you.

30 SUBMISSION 6 - FIRE ENGINEERING SOLUTIONS

R.P. (DICK) GILLESPIE PRESENTING

MR GILLESPIE: My name is Richard Gillespie, most people call me Dick. I have been, like some of our earlier speakers, involved in foam fire fighting design for over 30 years and I have been instrumental in doing some of the earliest cleans in Queensland, and my company that used to be in Queensland is now still doing that kind of work.

40 My presentation is going to be directly addressing the code of practice that is recommended, and I'm only going to deal with practical long-term issues only. I'm going to assume that the drive is to replace the PFAS containing foams with F3. I recognise that there are outstanding problems to be resolved but I believe they can all be resolved. I also want to echo the view of Nigel Holmes that the cement kilns are the ideal disposal option and it is from experience in Queensland quite obvious that any cement kiln can easily be adapted quite economically

to do this. That includes the three cement kilns that are in New Zealand. In practical terms, in legal terms it may be something else.

5 Cleaning PFAS involves many different types of polluted services and requires different cleaning methods for each and may, in the extreme, involve replacing various surfaces such as rubber or plastic sealants and things like that. The other approach offered by the code is necessary to ensure that difficult to reach surfaces that are exposed to solution are not treated the same as concentrate in bulk. I agree with that concept and that comes back to the Ampol suggestion that the cost benefit study of saving the last few drops of PFAS is almost irrelevant because it is so difficult to do and you are, in fact, disrupting production as you make these changes.

10
15 I agree, by in large, with the whole of this document but I have one concern and that is that clause P4, section 8(1) requires the manufacturers to divulge their commercial secrets to the importer. I think the words need to be changed but exactly how; I have made a suggestion, which is what I think is realistic but may not satisfy and I'm quite happy to negotiate and help and do what I can to make that all work.

20
25 In terms of F3 performance, and this is just some notes I've scribbled over the last hour or so as I've been listening to other people, large fire testing is needed. The last fire Dallas tests were full-scale tests simulating 80-metre diameter tank and it proved that F3 could in fact be superior to AFFF but it was using compressed air foam, which has a much higher expansion rate than would be necessary for AFFF.

30 [2.30 pm]

35 I think it should be remembered that when AFFF came in, in the latter part of the last century, that the fluorine-free, the protein-based foams that preceded it, always used much higher expansion ratios than was necessary with AFFF because of its ability to spread and seal the fires from burn back, which was what 3M did for the US Navy that resulted in that remarkable success of aircraft carrier fire protection.

40 Other than that, I have no real further comments to make. No drums to beat either. Thank you.

CHAIR: Thank you very much, Mr Gillespie. Kerry?

QUESTIONS

45 DR LAING: Thank you, Ngaire. One sort of comment/question, you referred on the way through about confidential information from the suppliers and you would perhaps like to help in that area. Taking into account what Peter

had to say this morning about the EPA's proposals and a regular practice of receiving confidential information, do you really see that this is an issue?

5 MR GILLESPIE: I believe it can be seen as a minor issue because it's simply a wording
thing. I believe it's just simply phraseology. We've just got to rephrase
that a little so it doesn't force the importer to supply this information
because what was done previously is that the manufacturer was
10 approached and was quite happy to provide the New Zealand
Government that information but not agents with possibly leaky secret-
keeping capability.

DR LAING: Okay, thank you. That's all, Ngaire.

15 CHAIR: Derek, do you have any questions?

DR BELTON: Thanks, Ngaire. Just one minor question. You said you think large fire
testing is needed in New Zealand. Who do you think is going to do
that?

20 MR GILLESPIE: If I said in New Zealand I didn't mean that. The LastFire test in Dallas
was actually funded by New Zealanders. It is one of the first really big
LastFire tests of F3. It used compressed air foam, which has quite a
high expansion ratio but it outperform AFFF by a factor of something,
25 of some whole number.

The results show that we need to go back to the higher expansion ratios
of the foams before AFFF in order to get the best out of the F3 foams.
This is simply a fire engineering technique issue and a lot of that is
30 based on what we were doing 30 and 40 years ago when I was a lad. It
is hard to remember some of it.

DR BELTON: Okay, but the question was who do you see as accountable?

35 MR GILLESPIE: The test that was conducted under the auspices of LastFire, which is an
international industry funded organisation to look at Fluorine Free
Foams, that was actually funded by Shell Taranaki Limited, I think they
were called at the time before they were purchased by OMV, the
40 Australian company.

I went to Dallas as an observer for Shell to see that test, and was truly
impressed because I didn't think F3 was that good either but I am saying
it can be that good but we are going to need to change the delivery
45 techniques.

DR BELTON: Okay, thank you.

CHAIR: I have a question. In your submission you talk about the need for dealing with waste in New Zealand, rather than exporting it, and you mention there being two cement kilns in New Zealand. You will notice in the revised standard that that is an option. They don't specifically say in New Zealand but they say that. With your knowledge, do you know whether those two particular kilns would have any capacity to take on waste?

[2.35 pm]

MR GILLESPIE: At the time I was under the impression that it was not possible to incinerate waste in New Zealand. I am not quite sure whether that was legally enforceable or just a policy decision, or how that worked. But I have approached two of the three cement kilns in New Zealand and they are all the same, not touching it with a barge pole because it is too difficult to get it through the government organisation.

It is clearly, technically, the right way to go. There is absolutely no reason why we can't use any one of those three kilns and it is obviously going to save an awful lot of money because, first of all, the Australians do not want to import our waste. Following all of the Basel protocols for exporting and moving internationally hazardous waste can be avoided. That is very expensive. We found that out a few months ago when we were looking at cleaning up some AFFF C8 material from airports.

It is an extremely expensive way of going.

CHAIR: Okay, all right. Based on what Nigel had presented, it seems to be quite a successful way of dealing with the waste as well.

MR GILLESPIE: I applaud Nigel. Well done, Nigel. Intellectually it is a very elegant way forward. You are taking something that was taken out of a mineral, making fluorine out of it, making all sorts of long-chain chemicals out of it but what we are going to do, with virtually no quality control at all, is take that stuff and turn it straight back into the mineral that it was when it was first dug out of the ground.

CHAIR: Thank you for that very simplistic analogy. I like that. All right, Kerry wants to make a comment.

DR LAING: Just to comment on that. Over the years it has been suggested that cement kilns are the ideal way of dealing with a number of different waste streams. Technically they have been feasible and some may have led to problems, but I think it is the historical approach of trying to do some of those things that has probably resulted in considerations related to air discharge consents and things that are controlled by

regional councils rather than central government authorities that have perhaps made the cement kiln operators wary of going down that route again for anything.

5 It may be in this instance that perhaps if there is some encouragement from government agencies such as EPA and MFE they could be persuaded that cement kilns are a good option for dealing with this. That will then lead very readily into whether cement kilns are the answer to all our POPs problems.

10 MR GILLESPIE: I have to agree with just about everything you said. The issue should probably be that there is profit for them to make in burning the stuff, rather than an opportunity.

15 It is an opportunity which is good for the environment and it is also profitable for the cement kiln. In Queensland, about three years ago now, they were doing tests at the Gladstone facility that actually sorted out all of the technical problems of doing it. Not that there were great technical problems but it is there and I believe it is in the public domain.

20 CHAIR: Thank you very much. EPA, do you have any questions?

MR DEEBLE: Nothing from us, thanks.

25 CHAIR: All right. Are there any submitters that have any questions?

MS QUINN: Yes, there is. There is Rodney.

30 CHAIR: Rodney, would you like to go ahead with your question?

MR RUTLEDGE: Thank you, Madam Chair. Dick, thank you very much for sharing of your knowledge and experience. Certainly from my perspective, highly respected.

35 Dick, in thinking through how much detail around decontamination and clean out should be contained in the reg versus deferring to a code of practice or guidance document, I am interested in your views and want to just test on how best to deal with this unknown of continued evolution of PFAS chemical metallurgy and other components of a system that may not become evident for several years .

[2.40 pm]

45 That is a concern in terms of going forward and investing in clean out methodology only to see our fluorine free subsequently contaminated.

Is it a case, Dick, of needing, in any code of practice, to describe methodology for cleaning as well as limits that if exceeded in the future

would need to result in an operator changing out their Fluorine Free Foam? I guess the concern is if that is micrograms per litre it is a difficult ask.

5 MR GILLESPIE: The answer is both yes and no unfortunately. In terms of cleaning, my
drive is the (inaudible) approach. In order to do the environment the
best good we can we need to make sure we get all of the concentrate,
keep it as concentrate and then destroy it. The solution that gets into a
10 sprinkler is going to contain a minute quantity in comparison. So from
the overall environmental aspect my motivation is to clean as well as it
is economically possible to do before it becomes what you have
identified as being a cost benefit study in terms of chasing down the
last -- you just said it, when you use micrograms per kilogram in our
document it is no match.

15
I am very pleased to see that in fact this document recognises that those
very small figures really are almost against the cost benefit argument.
So from that point of view we should in fact, based on the Queensland
experience we have had, be able to achieve those numbers quite
20 routinely using the techniques we developed in Queensland.

MR RUTLEDGE: Thank you.

CHAIR: Thank you, any more questions?

25 MS QUINN: Yes, we do, from Mike.

CHAIR: Mike, you have a question?

30 MR WILSON: Yes. A couple of things. When Dick was talking about the Dallas fire
test by LastFire, the reports I'd seen suggested that it's actually quite a
very short pre-burn time of something like around two minutes. The
test that was conducted originally had metal sides that were submerged
35 in a water base, which is really not representative of a major storage
tank, either in terms of the water taking out a lot of heat or in fact the
short pre-burn, because normally it would continue burning for
probably 20 minutes to several hours before foam application was able
to be delivered. That would have a very significant effect on the ability
of the foam to seal against the metal edges.

40
On the cement kilns --

CHAIR: Mike, sorry, excuse me. The point of this is for you to ask a question,
not to --

45 MR WILSON: The question is, Dick, how long was the pre-burn time for that LastFire
test and how representative was it of a real storage tank?

MR GILLESPIE: The pre-burn time, as you say, was planned to be five minutes but I know it was shortened because in fact the rig caught fire. The rig was 40 metres long by 12.2 metres wide. It had a foam-covered blanket outside but in fact the heat from the fire -- by the way, the fuel was Jet A1. It was not anything that is as volatile as gasoline. I felt that it was quite an appropriate thing. The fact that a single foam pourer at one end of a long rectangular tank managed to push a blanket of foam, even with a short pre-burn, and extinguish all of that fire in less than 3½ minutes was really quite remarkable.

[2.45 pm]

All it told me, which I think I interpret, was that there are different techniques needed to use F3 foam efficiently. We've got to go back to the 1960s, where we used F3 at a higher expansion ratio than was necessary with AFFF and probably -- having said all that, the whole research programme needs to be going on, as Rod suggested. We need more time to get more research done and I'm pleased to see that LastFire has opened that facility in France, which is designed to do big, full-scale fire tests and primarily LastFire is working with F3s. The target is moving and the answers are moving all at once.

CHAIR: Okay. You had a second question there, Mike?

MR WILSON: Yes, thank you. The second question was around the cement kilns. My understanding was the concentrations of PFAS it can deal with are quite low. Do you have any details of exactly what sort of PPM or PPB levels it can cope with, Dick?

MR GILLESPIE: Not being a chemist I'm not sure I'm qualified to answer that question. The person I would say is, is Nigel Holmes. Based on what I've been told and what I understand, I think that the speed with which the waste is put through a cement kiln over a minute or so is sufficient to deal with virtually any concentration. Certainly it's able to burn foam concentrate quite happily.

MR WILSON: Okay, that's interesting, because when I last spoke with Geocycle, they were saying they couldn't hand concentrate, they could only handle really quite dilute solutions. I'll talk to them again about that.

MR GILLESPIE: I think that needs to be clarified but I understand that it does need to be down to a certain viscosity.

CHAIR: I think we'll leave that there. It is interesting stuff but perhaps a little bit behind what this Decision-making Committee needs at this point in time, but it's much appreciated.

Any other questions from submitters? Okay, thank you very much. We are a wee bit ahead of time so I'm just wondering if we might solidify on. 4Sight Consulting, if you are perhaps ready, would you be willing to give your presentation now?

5

MR LE MARQUAND: Yes, certainly.

CHAIR: All right, that would be great, thank you.

10

SUBMISSION 28 - 4SIGHT CONSULTING LTD

DAVID LE MARQUAND PRESENTING

15

MR LE MARQUAND: I'm David le Marquand, 4Sight Consulting. We work with the oil industry with the environmental working group, which is a collection of the three majors. With me as well is James Court from BP, who's a remediation manager. He's not with me in the room but he's on another remote link. We're making this statement in relation to Mobil, Z Energy and BP.

20

I can confirm there's no further update or changes sought to the oil companies' original submission. We've reviewed the staff report and the recommended amendments to the standard and are generally supportive of the proposed staff amendments. We've just got a number of comments that I think we want to throw in. Some of the things we heard earlier on are really helpful and we may have a couple of things that are complementary in relation to those as well.

25

30

The oil companies support the proposed amendments to allow an application to be made to the EPA in terms of the schedule 1, clause 21 process. It's a case-by-case application and assessment for this extension of C6 foams. I think that is really good. It's clearly an early signal of where things need to go but if you can't get there, then you have to go through a process, which isn't necessarily going to be a walk in the park but there is an avenue there if you need to do it. So we're supportive of that.

35

[2.50 pm]

40

The oil companies support the reasonable care requirements to contain fire fighting foams in emergency situations, as set out in clause 10 of schedule 1. The oil companies would also welcome the EPA developing some guidance of what procedures and methods would meet that reasonable care test.

45

The oil companies also wish to bring to the attention of the hearing panel the very limited option for incineration in New Zealand. I was just listening to Dick there in terms of that. The principal method

5 recommended is obviously high-temperature incineration. I think the
hearing panel should understand that under the NES air quality
regulations 2004, under regulation 12, it makes the operation of high-
temperature hazardous waste incinerator a prohibited activity. That's a
very significant regulatory impediment to overcome. You're going to
10 have to change the NES. I heard Peter mentioning that they're going to
have discussions with MFE in relation to that process. It will obviously
need to be amended in to be able to facilitate that, especially if you're
going to go down to the use of cement kilns, which sounds quite an
opportunity. The regulation, regulation 12, gave up three exceptions,
two of which are now closed and I think the final one, Paritutu is about
to close.

15 Then obviously the other options of landfill and trade waste -- and we
also heard Nigel's view this morning in relation to those, so we're
between a bit of a rock and a hard place in terms of how we go about
it, apart from, I guess, sending it off to France, but that has its own set
of appeals.

20 Anyway, the companies support the additional disposal options in
relation to trade waste and land disposal that's there. They also support
the retaining the as far as reasonably practical approach to allow a risk-
based flexibility towards the risks and costs of removing the residual
PFAS in various different scenarios and support the EPA's proposals to
25 develop guidance on those residual levels.

30 It's noted that some indicative threshold levels that are given in
paragraph 7(20) are discussed in appendix 2. The oil companies would
be interested in being involved in the development of the guidance on
this matter and in sharing the oil industry transition methods and
experiences they've had to date in relation to the success or otherwise
in getting to those levels.

35 The oil companies support the need to ensure releases of foam to the
environment are avoided but retain a concern over what constitutes a
contained fire fighting system. Obviously the sound wasn't quite
working this morning. I did try to get a question going in relation to
Nigel's presentation. I put the question in the chat this morning and it's
40 still there. It was basically to ask Nigel whether Queensland has any
guidance in terms of what constitutes a contained fire fighting system.

It's defined obviously there in a way in the regulation as being
something that sets a zero-tolerance threshold. It says:

45 "Structures or mechanisms that collect or contain fire fighting foam
when it is discharged so that foam is prevented from being released to
the environment."

5 That is like a zero-based approach, which is a particular concern. We heard Nigel this morning even talking about risks around overtopping of bungs and so on, which can happen when you're in the middle of a fire fighting scenario, so nothing is 100 per cent. While the point is identified in the staff update report in appendix, table 7, in relation to the oil companies submissions, no specific response was actually made to that point in terms of what does it really mean.

10 [2.55 pm]

10 The oil companies' submission gave some examples in its submission if where, in an emergency situation, it may not be possible to contain everything in ever circumstance. You can imagine things like high-wind situations where the wind gets hold of foam and so on, as well as other scenarios like the overtopping.

15 In the submission we did propose a change to the definition. That was really focused on, if you like, trying to ensure that there was some level of containment by having reference to impervious surfaces. We looked at it a bit closer and though maybe an alternative option would be to make a clearer link to the reasonable care test in clause 10 of schedule 1 of the group standards. The definition could read as -- I might share the screen in relation to this.

20 "[It] means a system made up of a fire fighting system and equipment, structure or mechanisms that collect or contain fire fighting foam when it is discharged so that reasonable care can be taken to avoid it from being release to the environment."

25 I wonder if I can share that. Did that come up? What have I got there?

30 CHAIR: Can you make it a bit bigger?

35 MR LE MARQUAND: All right. Okay.

CHAIR: That's perfect. Thank you.

40 MR LE MARQUAND: I certainly can't see it on the screen from --

CHAIR: No, you need to make it a little smaller or move your screen thing on the side.

45 MR LE MARQUAND: See that?

CHAIR: Yes, that's great.

MR LE MARQUAND: So that's basically what we're looking at is really trying to build that reasonable care thing into that definition. From my understanding of it, it will really only kick in after the five years when we're looking at those areas that might be wanting to hold on to those other foams and that would obviously be picked up through the assessment process, but it would be very useful to have, I guess, some guidance in relation to that earlier on to know what areas need to be looked as a priority because there will be various places and different scenarios where there will be more containment than others potentially. So, James, is there anything else you would like to add what we've just said?

MR COURT: No, I think you've covered it reasonably well, David.

MR LE MARQUAND: Okay.

QUESTIONS

CHAIR: Thank you very much. Maybe if you can stop sharing your screen. Any questions, Derek?

DR BELTON: Thanks, Ngaire. No questions from me.

CHAIR: Kerry, any questions?

DR LAING: Thanks very much, Dave. I guess you have been listening in this morning because I see your name there and you have made reference to some of the presentations. One of the things I have raised with the EPA and Peter is perhaps dealing with guidance related to some of the things you've talked about about clean-up procedures and the rest may be better done through an industry code of practice. I realise the oil companies are not the only ones involved in this. It will be all parties that use fire fighting foams and presumably some of the fire fighting foam suppliers as well.

[3.00 pm]

Do you see that as a route where you might be able to address some of these things that deal with the nitty-gritty at the level you want to?

MR LE MARQUAND: Certainly I think it could be for some elements. I guess the question is how long will that take to develop. So certainly some areas of guidance would be useful for the cleaning aspect of it, whether it works its ways through into a code. If you start putting too many elements into the code you're working to the one that is taking the most time. So I'd have some caution in terms of the nature and scope of it if you were going to go down that route, not necessarily opposed, and obviously the industry would be interested, if there was going to be one developed, in being involved in that process.

- DR LAING: Well, it is obviously something that is worth further discussion, which I guess the EPA will initiate. Thank you.
- 5 CHAIR: Thank you, Kerry. David, I don't have any questions but you made a comment, you mentioned that you weren't able to ask a question to Nigel earlier on today and I wondered if you wanted the opportunity to put that to him now, just assuming that Nigel is still on.
- 10 MR LE MARQUAND: I put it on the chat. No, he is not. I did sort of reiterate it there and it may be something that Peter and his fellow staff can follow up with Queenslanders in terms of what guidance they may have in relation to what constitutes a contained fire fighting system.
- 15 CHAIR: All right. Have you got that, EPA? Any questions for David?
- MR DAWSON: Not really a question but just to follow up on what Dr Laing said. Certainly the HSNO Act does allow for the EPA to approve codes of practice and from our perspective the ideal codes of practice are always
20 those ones that are developed by the industry who best know how to manage the hazardous substances that they are responsible for and then they bring those codes of practice to use and if we think the code deals with the issues that are in our regulatory framework then we will approve it. We have in the past facilitated industry groups to develop
25 codes of practice. The one I immediately think of is the code of practice that was developed for the management of waste oil that is still in place, even though it needs a bit of updating. So, yes, we would look to facilitate that type of operation but we would certainly want the industry to bring the information and bring the proposals to us and
30 essentially do the hard work.
- CHAIR: Any other questions from the EPA?
- MR DEEBLE: No other questions from us.
- 35 CHAIR: Mr Gillespie, any questions from yourself?
- MR GILLESPIE: Yes, I have one question. The definition of an incinerator, does that
40 include a cement kiln? I would have called a cement kiln a contained chemical process vessel. I don't believe the word "incineration" is actually legally applicable to a cement kiln because although they have all sorts of environmental limits I don't think you'd call them an incinerator.
- 45 CHAIR: Sorry, was that a question for Mr --

MR GILLESPIE: When I was making my presentation he asked that question and in an attempt to rationalise I said, "Hold on, is a cement kiln an incinerator that applies to that other legislation?"

5 CHAIR: Can you answer that question? This is in relation to the NES.

MR LE MARQUAND: I think it is something that has obviously got to go back to MFE but my response would be that if you're effectively disposing PFOS-related materials it is hard to think and argue that it is just a fuel. It can be combined with it and as a consequence you are potentially undertaking that function, but I am not the oracle on the application of the standard.

MR COURT: It's James Court from BP. In a previous life I worked with the Ministry for the Environment developing national environmental standards, so I might be able to shed a little bit of insight into the air quality standards. The air quality standards they specifically prohibit the incineration of hazardous ... or facilities.

[3.05 pm]

20 Its primary purpose is to incinerate hazardous waste and they don't include -- it is specifically said in their guidance document they don't include cement kilns plus other high temperature kind of processes involved with producing goods or products.

25 The question would be is whether the use of -- whether putting PFAS into those kilns may contravene the NES in some way or an interpretation of the NES and I guess that is what it would be useful to talk to MSE about.

30 CHAIR: Thank you for that. Are you happy with that Mr Gillespie?

MR GILLESPIE: 100 per cent.

35 CHAIR: Excellent. Do you want to add something further?

MR DAWSON: No, I think James pretty much did answer that. From my memory, NES air quality prohibits high temperature incinerators and there is a definition of high temperature incinerator which is as James just described, which is primarily intended for the destruction of hazardous waste. My interpretation of that, some people at work remind me now and then that I'm not actually a real lawyer, is that if you are just feeding some PFAS solutions in with your fuel oil into a cement kiln that is not in fact operating as a hazardous waste incinerator. So it is a bit questionable whether that NES air quality does affect things like the operation of a cement kiln but, having said that, there are still the issues of having to get an air discharge consent for that operation that would require a new air discharge consent.

MR LE MARQUAND: Certainly an operator is not going to go anywhere near that if there is any doubt.

5 CHAIR: It certainly sounds like a job for a lawyer as well. Okay, do we have any other questions from Zoom submitters? Excellent. Okay, thank you very much. So we will take a short break for afternoon tea, 15 minutes. So we will be back here at 3.20. Thank you, everyone.

10 **ADJOURNED** [3.07 pm]

RESUMED [3.21 pm]

15 CHAIR: Okay, welcome back, everyone. We are now ready for our final presentation for today. We have the Port of Taranaki Limited. We have Guy and John, is that right? And Kevin. Thank you for bringing your session forward a wee bit so we can finish a little earlier. Go ahead, make your presentation. Thank you

20 SUBMISSION 22 - PORT TARANAKI LIMITED

GUY ROPER PRESENTING

25 MR ROPER: I am Guy Roper, the Chief of Executive of Port Taranaki and we welcome the opportunity to reinforce our submissions as the port authority, which extends on behalf of our customers and the region at large.

30 Port of Taranaki is the only major port on the West Coast and is recognised in recent coastal and district planning reviews as being regionally and nationally important. We are central to New Zealand's oil and gas and petrochemical industries and service both the on and off shore production facilities.

35 We are principally an export port for those industries and this is now extending to growing forestry log export. In the year to June 2020 the export value from Port Taranaki was 2.3 billion and that ranked sixth in the country. In addition we are a critical part of the domestic supply chain for LPG, distributed from our port to the South Island.

40 Just briefly, we are required to deliver service of a safety, health and environmental performance standard that is particular high. Our day-to-day activities interface with the operation of major hazard facilities that exist on our site. Accordingly, our emergency response procedures are extensive and we have a proven track record of risk management.

45 Kevin, my Technical Environmental Manager will cover off the specifics of the port's export cargoes that we handle and the issues of

alcohol resistant foam whilst balancing the risk of harm to people, the environment, our assets that have to achieved, in our view, in a pragmatic and economic way.

5 I trust you can gain clarity through this update. I will hand over to Kevin and will summarise at the end.

KEVIN LEHRKE PRESENTING

10 MR LEHRKE: Thank you. Our concerns about the EPA's proposal to amend the HSNO fire fighting chemical good standard is detailed in our submission. I would just like to take the opportunity to correct an error in that submission where we said that if it was necessary to discharge
15 foam to suppress a fire the mass of the fire related compounds that would be discharged would be in the order of tens of grams. That is incorrect, the correct figure is around 3 kilograms.

20 Our submission highlighted that PTL, Port Taranaki, is unique in that it has a diverse range of products we handle, including methanol, LPG, liquid hydrocarbons, such as crude oil, condensate, Naphtha, diesel and petrol. This requires a unique type of foam that is appropriate for the full range of products that are handled at the Port.

[3.25 pm]

25 The two keys points we made in our submission were that we are not aware of Fluorine Free Foam that is currently available that matches the capability of the alcohol-resistant fluorinated foam that is currently used for fighting fires that are fuelled by both alcohol and hydrocarbon.
30 That was one point.

35 The other point was that the proposed capture of foam is not practicable for fire fighting at a main tanker terminal. It may be for a land based situation but not for a main situation. In question 15 the EPA provided submitters with opportunity to make any other comments on the proposed amendments. We strongly recommended that the EPA considers the Port in a different manner from the land based scenarios because of the very different issues we have around containment,
40 capture and the mixture of products handled at the Port means that a specialised effective fire fighting foam is required.

45 Just in terms of the impact of foam discharge, if we have had to discharge foam in an emergency - and we haven't had to do that as yet - the entire contents of the Newton King Tank Terminal foam tank, if they were discharged, that would be around 3 kilograms of fluorotelomer. The concentration of the foam in the harbour after reasonable mixing would be expected to be below the EPAs 1,824 micrograms per litre marine water guideline value for highly disturbed

systems. That figures comes out of the EPA's National Environmental Plan for PFAS.

5 Just in terms of the EPA staff report, in section 3.1(2) the staff report states that the risk of fire fighting chemicals can effectively be managed by one set of conditions, because the substances in the group have a similar nature or are of a similar type or have similar circumstances for use.

10 We consider that the information we provided in our submission challenges that assumption. Many other facilities in New Zealand require the use of an alcohol resistant foam at a marine petrochemical and/or on tug vessels.

15 So whilst the staff report identifies common themes that emerge from the submissions, it doesn't acknowledge Port Taranaki's unique situation. There is not mention of PTL's requirement for a foam that performs adequately on fires at a marine terminal that are fuelled by polar solvents and a fire that is fuelled by hydrocarbons, or in fact a fire
20 that is fuelled by both.

In the amended proposal, which the EPA has now released, the extension of the proposed C6 foam phase out from two years to five years and the permissions process to continue using the C6 foam
25 beyond five years may address many of the submitters' concerns but it doesn't address the concerns in PTL's submission.

The proposed permissions process only applies to C6 foams that contain less than 1 milligram per kilogram of PFOA related compounds and that are used in contained fire fighting systems. So contained fire fighting systems are defined as equipment, structure and mechanism that collect or contain fire fighting foam when it is discharged so that the foam is prevented from being released to the environment.

30
35 So Port Taranaki's current foam contains in the order of 150 to 175 milligrams per kilogram of the fluorotelomer, the C6 fluorotelomer, and if a ship catches fire the release of it into the environment cannot be prevented. This means that PTL's operation would not qualify for an EPA permission and the EPA would not have the ability to grant one using its discretion because any consistency between the permission and the group standard would be trumped by clause 21(5) in the group
40 standard.

45 As there is no plan B this puts the future of Port Taranaki and a good proportion of the Taranaki economy in the hands of foreign fire fighting chemical developers to develop and commercialise a suitable alcohol resistant Fluorine Free Foam. This creates enormous uncertainty for us because the manufacturer's commercial interests are

unlikely to be prioritise the needs of a small New Zealand port on a worldwide scale.

5 Just in terms of the EPA process, I would like the Decision-making Committee to note that on page 4 of the consultation document the EPA said that an analysis of the submissions would be made available on the EPA website. Submissions closed late in 2019 but the EPA staff report was only made available on the website on 22 October, and that was only after we requested it.

10 [3.30 pm]

15 For submitters this report came after months of hearing nothing and only after the date of the hearing had been set. It has provided very limited time for ourselves and probably other submitters to understand the EPA's intentions and to prepare for this hearing.

20 Finally, the decision that we seek from the Decision-making Committee is to ensure that provision continues to be made within the regulatory regime for the safe and prompt extinguishment of fires at Port Taranaki's main tanker terminal where the fires may be fuelled by polar solvents, hydrocarbons or both. We do not have a view on how that can best be achieved but we would note that there are precedents in the regulatory system for case-by-case exemptions and this may be an option.

25 So one example of that is regulation 12 of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004, which prohibited the operation of high temperature hazard waste incinerators nationwide, except for crematoriums and its very specific sites.

30 Another option may be the development of a second fire fighting chemical group standard that is designed to be applicable for marine fire fighting appliances, such as tugs, and at marine petroleum and petrochemical terminals.

35 Within the HSNO regime most of the groups of hazardous substances are approved under different standards depending on their classification and/or intended use. In the case of the fire fighting chemical group standard we note that there is currently only one single group standard and it is clear to us that one size does not fit all. Thank you.

40 I have a copy of that submission that is written up that I am happy to submit if you require it.

CHAIR: Okay, thank you. So does that end your submission?

MR LEHRKE: Yes, it does.

5 QUESTIONS

CHAIR: Okay, all right. Thank you very much. I will ask the first question because it is the first time I have done this today. My question really is, is Port Taranaki that unique? There are other ports around. Is this something that all ports will face?
10

MR LEHRKE: Are you talking about New Zealand ports?

CHAIR: Yes, I am just talking about New Zealand ports.
15

MR LEHRKE: I'm not aware of another port in New Zealand that has a chemical terminal that handles petrochemicals and alcohol like we do.

CHAIR: Okay.
20

MR LEHRKE: That is an old component. That is the significant difference, so diesel and petrol but it's compensating that for -- and the combination. It's unique in New Zealand.

CHAIR: Okay. That's all I have. Kerry?
25

DR LAING: Thanks, Ngaire. Thanks, John and Kevin. Just something you mentioned there at the end, Kevin, on a separate group standard for use in the marine environment. Is that something that you put in the original submission or is that just something that you added after you had seen the amended group standard?
30

MR LEHRKE: It wasn't in the original submission. We had more general requests in the original submission, which was that we strongly recommended the EPA considers the port in a different manner from land-based scenarios because of the different issues that we have. So that specific suggestion was not in the original submission, no.
35

DR LAING: Okay. I'll refer that on to EPA at some stage. I understand that Port Taranaki does have a fairly unique environment there in what it is trying to deal with and obviously may require the use of several foams for different situations, although you may have one fix-all that uses or covers them at the moment. In terms of the revised group standard, I just wonder whether it has addressed the majority of your concerns about what is reasonably practicable and clean-up standards and the timeframe for phasing out or getting permissions.
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[3.35 pm]

5 I'd have to think about what you said about the alternatives for exemptions and whether Port Taranaki would qualify or not. Can you just give us an overview on your response to the amendments and then perhaps specifically give us some more detail on why you don't think Port Taranaki would qualify for exemptions and permission?

10 MR LEHRKE: Sure. Perhaps if I could just do that in reverse order. The reason that we would not qualify for a permission beyond the five years, one of the key -- there's two criteria there that I don't see we would meet. A key one is that that permission only applies if the fire fighting foam can be contained, so if it can be prevented from being discharged to the environment. Now, that doesn't happen in a marine port situation. It may be practicable on land but John may talk a little bit more about why that is not practicable. So that is one criterion. The other one was that the foam had to contain less than one milligram per kilogram of a PFOA-related compound and our current foam contains around 150 to 175 milligrams per kilogram of the fluorotelomer 6 to 2 ETS. John, do you want to talk a bit more about that containment?

20 MR MAXWELL: Obviously if we are using our fire fighting system in anger it is going to be out along the wharf finger and therefore the design of the wharf is to have, I guess, rain water and stormwater and stuff like that to flow up. So when we're protecting the assets and the people then that will be the same thing with anything that we put out through the fire fighting systems.

30 The second part of what we do and is particularly probably related to the tugs is they would require -- they would be used to help with boundary cooling on a fire fighting response and, therefore, they are going to directly go -- just about directly go into the water. They could be aimed at the sides of a ship to help that. The ship will also have its own fire fighting system and that is actually expected as part of the safety case, so they will look after the on-ship stuff. What we'll look after is the assets that are related to the pipelines, the loading arms and also any associated systems nearby. All of those are basically sitting on or adjacent to the waterway.

40 MR LEHRKE: Sorry, that was answering the second part of your question and I've forgotten what the first part of your question was.

45 DR LAING: It was related to the criteria around what is reasonably practicable and cleaner as far as dealing with what is in the existing systems. Does the revised standard address the concerns you have there?

MR LEHRKE: I'm not sure I've had an opportunity to assess that. Sorry, we've really had limited opportunity to have a look at and understand what the new proposal is.

5 DR LAING: I appreciate the comment you made earlier about how long it was before you actually saw a summary of all the submissions and where things had got to. It has become a bit of a squeezed-up process right at the end of this, having been so long in the making. Thanks.

10 MR ROPER: I will just add that our berths, which I think was contained in the original submission, we have two sides. So we have two vessels berthed at any one time and that can be a combination of a vessel carrying crude and a vessel carrying methanol or a methanol and an LPG tanker. So our system needs to be designed to be versatile. So I think there is an earlier inference that could we design specific foams for a specific purpose. It has to be quite generic and to be able to perform a variety of functions.

15 MR LEHRKE: There is a photograph in our original submission of the tanker terminal with a methanol ship one side and I think it is LPG on the other side.

20 CHAIR: Yes, we can see that. Thank you. All right. Derek, any questions?

25 MR MAXWELL: That's probably a good point. The structure here is that the wharfs go out into the harbour. We're not having a whole lot of land-based activity right beside where the ship is, so the ship is berthed and both sides of it is in the water, as it were.

[3.40 pm]

30 DR BELTON: Thanks, Ngaire. So just one follow-up on all of those. So at the moment you have one foam to do all the risk that you are managing at the port; is that correct?

35 MR LEHRKE; Yes, we've had one foam since the 1980s, was it built? For about 35 years I think when the tanker terminal was built. Is that right? We've never had a fire in that time. We've never had to have a discharge of the system in anger.

40 DR BELTON: Sure. And the ... what am I trying to say? Geography isn't quite the right word but the layout of the port is such that you really -- you need to be able to -- you can really only have one foam to deal with multiple hazards that may be on either side of the wharf in that picture there.

MR LEHRKE: That's correct, yes.

45 DR BELTON: Okay, thanks.

CHAIR: Actually I just have one follow-up question on that. Are you aware of any developments in that area where anyone is actually developing a

foam that could provide you with what you need? I know you said at the beginning that you are only a small port in Taranaki but, still ...

- 5 MR LEHRKE: I understand there is some work going on in that space but we have been looking and engaging consultants and we have not found one that is suitable for our needs yet.
- 10 CHAIR: Of course you are not a small port. You are quite a large port, I appreciate that. I meant on the world scale.
- MR LEHRKE: On a worldwide basis we are a small port.
- CHAIR: Yes. I am familiar with the port. All right. Okay, EPA any questions?
- 15 MR DAWSON: Yes, just one.
- CHAIR: Can you identify yourself, Peter, please?
- MR DAWSON: I was just interested in the age of the foam that you said that you have installed at present.
- 20 MR LEHRKE: It is around 20 years. I don't know exactly when it was installed but it is around 20 years.
- 25 MR DAWSON: Well, that would certainly almost be one of the older C8 type foams, would it not?
- MR LEHRKE: Well, the analysis we have had shows that it is not the case. EPA has that data. We submitted it as part of our tug decontamination plan.
- 30 MR DAWSON: Yes, I think I do recall seeing some information but just be mindful that the C8 foams must be phased out within five years in order for New Zealand to meet our international obligations. So that is pretty much out of our hands on the EPA to extend that if it is a C8.
- 35 MR LEHRKE: My understanding from the definition of a C6 foam is that the foam that we currently have is in the C6 category. As I say, it contains around 150 to 175 milligrams per kilogram of the 6:2 fluorotelomer.
- 40 CHAIR: Thank you. Anything else from EPA?
- MR DEEBLE: Nothing further.
- CHAIR: Mr Gillespie, anything from you, questions, I mean?
- 45 MR GILLESPIE: No, I don't think so.

CHAIR: Thank you. Any questions from any submitters? All right. Well, thank you, everyone, for your submissions. It has been a very interesting start to this hearing. So we will finish up for the day and we will see all of you back here - or some of you anyway - tomorrow morning. We start at 9.30 am. Thank you.

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**MATTER ADJOURNED AT 3.45 PM UNTIL
FRIDAY, 6 NOVEMBER 2020**

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