Australian Institute of Petroleum

Amendment to

Ban use of certain firefighting foams

Environment Protection (Water Quality) Policy 2015

AIP SUBMISSION

South Australia's Environment Protection Authority

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1. BACKGROUND

About AIP

The Australian Institute of Petroleum (AIP) was established in 1976 as a non-profit making industry association. AIP's mission is to promote and assist in the development of a sustainable, internationally competitive petroleum products industry, operating efficiently, economically and safely, and in harmony with the environment and community standards. AIP provides a wide range of factual information and industry data to assist policy makers, analysts and the community in understanding the key market and industry factors influencing Australia's downstream petroleum sector. AIP is represented on key advisory bodies including the ATO Petroleum Corporate Consultation Forum (PCCF), the Fuel Standards Consultative Committee (FSCC), the National Oil Supplies Emergency Committee (NOSEC) and National Plan Strategic Industry Advisory Forum (NPSIAF) and AIP sponsors or manages important industry environmental and health programs. The Australian Marine Oil Spill Centre (AMOSC) is a wholly owned AIP subsidiary.

AIP presents this Submission to the Department on behalf of AIP's core member companies:

- BP Australia Pty Ltd
- Caltex Australia Limited
- Mobil Oil Australia Pty Ltd
- Viva Energy Australia Pty Ltd.

About AIP Member Companies

AIP Member Companies operate across all or some of the liquid fuels supply chain including crude and petroleum product imports, refinery operations, fuel storage, terminal and distribution networks, marketing and retail. Underpinning this supply chain is considerable industry investment in supply infrastructure, and a requirement for significant ongoing investment in maintaining existing capacity. Over the last decade, AIP Member Companies have invested over $10 billion to maintain the reliability and efficiency of fuel supply meeting Australian quality standards.

Moreover, AIP Member Companies deliver the majority of bulk fuel supply to the Australian market.

- In relation to conventional petroleum fuels, AIP Member Companies operate all major petroleum refineries in Australia and supply around 90 percent of the transport fuel market with bulk petroleum fuels.
- In relation to gaseous fuels, AIP Member Companies are the major suppliers of bulk LPG to the domestic market, representing around two thirds of the market.
- In relation to biofuels, AIP Member Companies are the largest suppliers of ethanol and biodiesel blend fuels to the Australian market.

The Australian petroleum industry is also a significant contributor to the domestic economy providing direct and indirect economic benefits from its own activities and underpins the competitiveness of key export industries like mining, agriculture and manufacturing. In addition, as a technologically advanced industry, the refining industry employs and trains many highly skilled technical staff and international expertise flows readily into the Australian workforce.

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2. INTRODUCTION

AIP and its Member companies welcome the opportunity to contribute to the development of the South Australian Government's PFAS firefighting foams policy.

AIP Member Companies have a strong interest in the development of policies relating to PFAS firefighting foams both because of the crucial role PFAS firefighting foams currently have in petroleum storage facility spill and fire risk mitigation, and because of the potentially considerable costs associated with various policy approaches.

AIP and its Member Companies strongly support measures to protect human health and the environment, and recognise the potential risk of fluorinated aqueous film forming foams (AFFF). The recognition of PFOS as a persistent organic pollutant listed under the Stockholm Convention has seen the industry cease the purchase of these compounds over a decade ago. Information relating to the environmental impacts of PFOA is less clear. However, it has become apparent that PFOA is also persistent and toxic and release to the environment should be avoided. Short chain C6 high purity foams (as defined under the Queensland policy) have become available only in the last two to three years and, as such most industry foam stocks are the older long chain telomer-type that replaced PFOS foams, and that may contain PFOA or PFOA precursors. Policy to address the management of firefighting foams should take into account that industry has relatively recently changed foam stocks from PFOS-based to telomer-based foams. These foams generally have an operational life of a decade or more.

AIP also actively supports measures to facilitate the management and remediation of AFFF as a foundation shareholder in the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE). CRC CARE has developed world best practice approaches to AFFF remediation and strongly emphasises prevention and risk-based approaches to the management of these compounds.

AIP and Member Companies support best practice policy development where policy propositions are based on sound science, thorough ongoing economic analysis, open stakeholder engagement and acceptability to community and industry.

AIP and Member Companies are committed to working with the Government to address community concern with PFAS within achievable timeframes that recognise and accommodate the considerable challenges confronting the industry. AIP's objective is to ensure that compliance can be achieved at least cost and without compromise to the principle of protection of human life as a first priority and with due regard to protection of critical fuel supply chain assets and the environment.

This submission outlines:

- industry use of firefighting foams
- the operational challenges and barriers for industry in achieving compliance with a complete PFAS Ban
- AIP's response to the South Australian proposal to ban PFOS and PFOA in firefighting foams
- AIP and Member Company interim actions for managing operational, health and environmental risks.

3. DOWNSTREAM PETROLEUM INDUSTRY USE OF FIREFIGHTING FOAMS

A fire at a petroleum refinery or terminal can have catastrophic consequences due to the nature of the products being stored and the large storage capacity. This risk is particularly heightened where there are multiple large atmospheric storage tanks within close proximity. Due to this risk, the petroleum industry has an intense focus and obligation to maintain fire mitigation and effective firefighting capabilities. Firefighting foam is a crucial element in this defence – both in blanketing hydrocarbon to mitigate vapour emissions and in extinguishing actual fires. This is a very demanding application and experience in the industry is that there exists significant variation in the effectiveness of various foams to mitigate spills and fires. Large hydrocarbon tank fires and deep-seated pool fires are particularly demanding and require outstanding burn back resistance. Foam that may have adequate performance in shallow pool fires, may be unacceptable in a large tank fire.

The downstream petroleum industry has typically utilised aqueous film forming foams (AFFF) and film-forming fluoroprotein (FFFP) foam containing per- and poly fluoro alkyl substances (PFAS) at their facilities to most effectively manage fire risk from accidental petroleum product release and/or for active fire suppression. PFAS provide these foams with their unique properties to efficiently and effectively create a film over the hydrocarbon. Simply put, these foams have provided enhanced performance characteristics for responding to large bulk fuel fires.

3.1. Legacy PFOS Foams

Historically these foams were formulated using C8 and longer PFAS. 3M used a unique process to manufacture fluorochemical surfactants called electrochemical fluorination (ECF). Fluorochemicals produced by this process both contain and degrade into PFOS.

The petroleum industry in Australia largely ceased use of these PFOS foams by 2010.

3.2. Long-chain C8 and Short-Chain C6 foams

Foam manufacturers/suppliers have developed and supplied alternative foams using telomerisation as the manufacturing process. Advice from manufacturers has been that these foams contain no PFOS, but are likely to contain trace levels of PFOA or other impurities. These foams remain the primary foams used in the petroleum industry.

Over the past few years, manufacturers have developed shorter chain foams, and in accordance with the US EPA PFOA Stewardship Program, the eight major manufacturers committed to work towards the elimination of PFOA, PFOA precursors, and related higher homologue (i.e., C8 or greater) poly and perfluorinated chemicals by December 31, 2015.

There continues to be debate as to whether the short chain C6 high purity foams have an acceptable human health and environmental profile. However, it is important to distinguish between C8 and C6 foams from an environmental and health perspective, and how they are treated in the development of policy to address community PFAS concerns. Although the science continues to evolve, it is clear that the short-chain foams pose less risk than long-chain foams. This is especially the case in the context of the limited use of foams at refineries and terminals.

3.3. Further Environmental Risk Reductions

In addition to ceasing use of legacy foams containing PFOS as active ingredients, the petroleum industry in Australia no longer uses PFAS-containing firefighting foams for firefighting training and has generally taken other steps to minimise releases of PFAS-foam to the environment during non-

emergency situations (e.g. minimising foam use for fire equipment testing and a contain/collect/dispose strategy).

3.4. Fluorine Free Foams

Foam manufacturers have developed fluorine free foams (F3) to respond to Class-B (hydrocarbon) fires. These are already used for flat spills of fuel such as at airports. However, their effectiveness is not demonstrated for some other applications such as tank fires. Although there have been reports that an effective F3 will soon be available, there remains considerable uncertainty when or if they can be delivered within a timeframe that is in keeping with the development of policies proposing restrictions on foams including PFOS and PFOA which could lead to a gap in the ability to effectively respond to tank fires.

As such, foam users, including the downstream petroleum industry, are now confronted with the dilemma of needing to respond to community concern in an operating environment where the current replacement foams have significant potential to be less effective or may contain PFOA and PFOA precursor impurities. Unsurprisingly, industry is reluctant to invest significant capital on foam replacements, including modifications to foam distribution infrastructure, if the policy environment is likely to change within the effective life of the replacement foam.

3.5. Assessing Foam Performance

The global oil industry works collaboratively with firefighting organizations and foam manufacturers and invests significant resources into assessing the performance of foams. Most notable in this regard is the LASTFIRE (Large Atmospheric Storage Tank Fire) Project, initiated in the early 1990s.

The LASTFIRE project was initiated due to the oil and petrochemical industries' recognition that the fire hazards associated with large diameter, open top floating roof tanks were insufficiently understood to be able to develop fully justified site-specific fire response and risk reduction policies. The LASTFIRE Project provided an independent and comprehensive assessment of fire related risk in large, open top floating roof storage tanks resulting in a methodology by which site specific Fire Hazard Management policies can be developed and implemented. Follow up work has included the development of the LASTFIRE Risk Workbook into a fully computerised analysis tool, the delivery of Storage Tank Firefighting Workshops worldwide, the development of a foam performance test exclusively aimed at the special requirements of a storage tank fire application and comprehensive research programmes on issues such as crude oil boilovers and cooling water efficiency. With the current emphasis on balancing fire performance with minimising environmental effects, work continues on assessing new foams, including C6 and fluorine free foams, to ensure they meet the performance claims of manufacturers and actually achieve industry performance requirements.

The LASTFIRE organization historically developed a small-scale testing protocol for foam concentrates that provides a batch acceptance test based on the procurement specification of a particular foam formulation tested and not a generic approval test for a foam brand.

Because there has been testing that has questioned the effectiveness of the newer formulated foam concentrates, Industry is aggressively working with the LASTFIRE organization to validate these newer formulated foams – both C6 and Fluorine Free – utilizing the past LASTFIRE small scale and additional larger scale testing protocols to assess the efficacy of these foam concentrates. Phases completed have identified various issues which will be taken forward to the next phase involving forceful application of the new foams to a 10m diameter test tank. This protocol will test additional parameters such as foam flow over a burning surface. Until these tests are completed, the efficacy of the newer formulated foam concentrate is incomplete.

Additional tests are also being carried out related to different application techniques, and the environmental behaviour and physical properties of new foams to see if they can be used in conventional equipment.

True "drop in" replacement does not just mean equivalent fire performance but also the capability of being used efficiently and effectively in current conventional foam systems and equipment. To date, it is LASTFIRE's opinion that there is no proven "drop-in" alternative for the foam types previously used. This is certainty true for Fluorine Free foams and to some extent to many aspects of C6 based foams. It is recognised though that Fluorine Free technology is improving at a rapid rate, partly due to pressure on suppliers from LASTFIRE testing and LASTFIRE is being very proactive in ensuring that this development continues and is monitored.

3.6. Firefighting Foam Selection

Given the considerable uncertainty, the downstream petroleum industry is mindful of environmental concerns relating to PFAS, however, this must be balanced against selecting the most effective foam for the firefighting task.

The particular arrangements for storage, delivery system and use of foams may differ for each facility. Any required change to foams that have different performance characteristics are likely to require substantial investment in revised firefighting infrastructure. In this regard, F3 foams in particular may have very different viscosity and application rates from PFAS-foams and may require revised proportioning/mixing systems and other infrastructure. Further, the required application rates may be considerably higher which will require increased foam storage.

As such, the potential environmental impact of the foam cannot be the sole factor for determining foam selection and for use at petroleum facilities due to the need to manage a broad array of potential risks. Any government policy must therefore accommodate and reflect this operational imperative.

The Fire Protection Association of Australia[1] support this approach, noting:

- that a holistic approach to foam selection is critical
- that AFFF foams are the most effective for fighting Class B fires
- the firefighting performance shortcomings of fluorine free foams.

There therefore currently exists a number of challenges and barriers to the complete removal of PFAS-foams on purely environmental grounds.

Given the active work underway to develop effective F3 foams and the large costs and complexity associated with changing foams, the petroleum industry is reluctant to change foam types now as new-technology foams are likely to be available within the effective life of the replacement foam.

[1] FPAA, Information Bulletin – Selection of Fire Fighting Foams, http://www.fpaa.com.au/media/139872/fpa_australia_-_ib_06_v1.1_selection_and_use_of_firefighting_foams.pdf

4. OPERATIONAL CHALLENGES AND BARRIERS

AIP and Member Companies have recognised community concerns relating to PFOS and PFOA and are working to respond. AIP Member Companies are investigating opportunities to further reduce the environmental impacts of their firefighting. These investigations aim to enable well informed objective decision making that give due consideration to a well-reasoned position that effectively calibrates life safety, environmental and asset related risks.

However, the experience with the revised Queensland Operational Policy on the Environmental Management of Firefighting Foams released in mid-2016 has revealed a number of key challenges and barriers to achieving compliance with that particular policy. These learnings, discussed below, need to be recognised and factored into the South Australian policy and legislative response.

4.1. Compliance of existing stocks

AIP Member Companies are undertaking a comprehensive stocktake of their foam inventories across Australia. To date, the particular focus has been in Queensland given the recent policy developments in that state. This inventory exercise has revealed that in many circumstances, it is not clear whether existing stocks would be compliant with the Queensland Operational Policy for a number of reasons, including but not limited to:

- what specific foams have been historically used in equipment at facilities, and therefore what foam residues may still be present in foam storage tanks
- certification of current stocks, and sampling methodology to verify compliance
- what processes have been used during historical foam changeouts, such as whether systems and storage vessels have been appropriately cleaned and flushed to remove PFAS compounds or precursors
- uncertainty relating to foam composition claims by manufacturers as manufacturers claim that foam composition is proprietary technology/IP.

These uncertainties have therefore required industry to undertake its own sampling, laboratory testings and assessment of a large number of foam storage containers. The requirement for industry to adopt a 'non-compliant unless proven compliant' approach is principally due to the absence of relevant PFAS component information for historical foam batches stored in original storage containers as well as the unknown history of fixed storages where foam concentrates have been removed from original storage containers.

This is a significant undertaking, both in terms of time and cost, and is continuing.

4.2. Availability of effective alternative compliant foams and compliance/performance claims by foam manufacturers

It is critical that alternative foam products considered for change-out meet minimum performance standards in order to protect first response personnel and surrounding community. Foams must be effective in protecting human life as the primary priority, have sufficient knock down and suppression capability, minimize the risk of any fire spreading to surrounding infrastructure and property, limit the risk to human health and provide a demonstrable net environmental benefit. In short, foams must meet specific performance requirements for Class B bulk liquid fuel fires.

In seeking to identify alternative compliant foams, AIP Member Companies have found that there is considerable uncertainty arising from:

- the veracity and at times unavailability of data to support the performance claims by manufacturers of alternative foams

- the unwillingness of manufacturers and third-party providers to supply sufficient data to support claims of performance and contents of formulations, and
- the process and findings of third party purity tests.

Investigations continue into identifying suitable alternative foams and testing the veracity of claims by manufacturers. Preliminary advice from manufacturers/fire system contractors suggests that alternative foams that meet industry and government objectives may be available for scenarios other than large atmospheric storage tank extinguishment. However:

- confidence on the testing and protocols are yet to be confirmed (a recent test of F3 foams in Singapore found that the foam did not perform as claimed)
- existing stocks of these recommended foams (supplied before this year) may in fact contain PFOA precursors and therefore would also need to be tested and possibly replaced.

In assessing whether to move to an alternative foam that has been identified as compliant, companies must assure themselves that the purity claims of manufacturers are deemed by Government to be compliant with the policy or whether further independent analysis would be required. If further independent analysis is required, it is not clear whether this would need to be undertaken for each formulation, batch, or stock line and whether it needed to be done on a "continuous" basis.

Ultimately, the downstream petroleum industry's capacity to be compliant with any policy to ban PFOS and PFOA will be determined by the capacity of foam manufacturers to produce and provide assurance that their foam products meet the required government specifications while simultaneously meeting the required industry performance standards.

4.3. Disposal options

A critical element of any policy to remove PFOS and PFOA foams is the ability of industry users to dispose of those foams once alternative efficacious foams have been identified. Simply put, offsite disposal of foams cannot proceed until the industry has satisfied itself that there is an adequate and effective replacement foam available. Once this is achieved, then disposal of non-compliant waste foam solutions can proceed.

Current disposal options are both costly and limited. AIP understand that there are currently two potential technologies available for disposal that would result in the complete destruction of the PFAS compounds, namely plasma arc destruction and high temperature incineration in a cement kiln. These technologies are either high cost or under development at commercial scale.

It is also not clear whether there is the appropriate environmental legislation in place to support these technologies (particularly for cement kilns), or that allow for the safe and secure transport of non-compliant foams.

5. AIP Response to the South Australian proposal

Fundamentally, AIP is not opposed to rationale behind the South Australian Government's overarching objective to remove firefighting foams containing PFOS or PFOA. However, in designing and implementing the policy, the Government must be conscious that a blanket ban involving the immediate removal of such foams will have serious implications for the downstream petroleum industry's ability to most effectively and efficiently respond to spills or extinguish large bulk fuel fires at their facilities in order to protect life and property and minimise atmospheric pollution.

Given the unique firefighting foam performance requirements for Large Petroleum Tanks, AIP and its member companies ask that special consideration be given to these requirements in any regulations to restrict firefighting foams containing PFAS.

5.1. Managed migration to short chain foams

As previously noted, the industry is progressively moving towards the use of shorter chain C6 foams which exhibit similar firefighting performance characteristics as the longer chain C8 foams, but with less health and environmental impacts. C6 foams can also typically be used with the same distribution systems and therefore may not require potentially expensive infrastructure upgrades or augmentation. In short, C6 foams appeared to be an appropriate balance between managing performance requirements for most effectively protecting life and property with the need to also manage detrimental environmental impacts.

5.2. Managing contaminants (Foam purity)

AIP understands that many current C6 foams typically contain some amount of PFOS/PFOA and precursor contaminants. However, this understanding has been contradicted by foam manufacturers through claims that newer C6 foams do not contain PFOS, PFOA or their precursors to levels that would be of concern. Foam users have no way to verify the claims of manufacturers, short of the impracticality of requiring individual batch testing, as manufacturers state that foam content is essentially proprietary technology.

The Government policy will need to define an acceptable "purity" and AIP is keen to work with the Government to establish what this purity limit should be.

The downstream petroleum industry has not yet confirmed any fluorine free foams that will meet the same necessary firefighting performance requirements as the current fluorinated foams. Any requirement to move to less effective foams would increase the risk to life and property.

While the downstream petroleum industry does have the ability to test the performance claims of particular foams through projects such as LASTFIRE, AIP Member Companies are wholly reliant on foam manufacturers to not only develop foams that meet the necessary firefighting performance requirements, but also to provide assurance that batch formulations will meet any governmental environmental policy requirements.

To date, there has been no transparency, or indeed validation, on the claims made by manufacturers of the contents of their foams. Yet the obligations for meeting Government policy objectives have generally fallen at the feet of foam users. This approach is manifestly unjust given that foam users have no alternative but to use the most effective foam for the firefighting task as provided by the manufacturer. AIP therefore recommends that the Government develop associated policies that place the onus and legal liability on the foam manufacturers to support their claims as to the composition of their foams.

Above all, AIP is keen to ensure that companies are not required to move from existing foams to a C6 (or equivalent) foam, and then again to a fluorine free foam sometime in the short to medium term (i.e. within the effective operating life of the replacement foam). The foams utilised by the industry have an approximate estimated operational life of ten years or more, and a multi staged compliance approach would impose significant financial burden both in terms of foam inventory and potential infrastructure change.

If Government policy is ultimately to require fluorine free foams, then industry should not be required to make an investment in interim C6 foams. Rather Government policy should allow for transitional arrangements to utilise existing foams until the fluorine free foams are proven. Any policy implemented by the Government must provide this clear policy stability and certainty and recognise all the costs and benefits of changing to alternative foams under these various scenarios.

5.3. AIP Principles for the containment, collection, storage and disposal of fluorinated foams

For its part, AIP and Member Companies recognise that there may be ongoing risks associated with using existing foam stocks and/or newer C6 foams. Although alternative efficacious foams are not yet confirmed available, AIP and Member Companies will continue to recognise the potential health and environmental risks associated with fluorinated foams.

To manage these uncertainties, while reducing the risk of environmental contamination from PFAS compounds, AIP and Member Companies are developing a set of principles for the containment, collection, storage and disposal of fluorinated foams.

While the principles are not yet finalised and endorsed for use by all AIP members, these principles are likely to be similar to the approach outlined below:

1. AIP Members prioritise the protection of human life and property. Foams can only be removed from service if there is an alternative efficacious foam available for its particular application.

2. AIP Members will focus their initial attention on the removal from operation and disposal of C8 PFOS foams, consistent with Government guidance.

3. A regulatory compliant/appropriate sampling and analysis regime will be utilised to determine if foam solutions and concentrates are non-compliant. All foam concentrates and solutions will be labelled and tracked using an appropriate inventory documentation system.

4. All foam concentrates and waste solutions produced as part of planned operations (e.g. produced during foam equipment cleaning and firefighting training) should be contained, collected and disposed of via a waste disposal process approved by both the company and the appropriate state based environmental regulator if/when they are available. The company should also perform appropriate due diligence to satisfy itself that appropriate licences for the disposal facility are in-place.

5. All foam solutions and concentrates destined for disposal should be transported via approved waste transportation contractors with appropriate waste certificates.

6. Destruction of foam concentrate and solutions shall only occur via approved waste disposal facilities.

7. Operating companies should retain 'chain of custody' records of foam concentrates and solutions.

8. Storage containers, which previously contained foam concentrates not compliant under Government policy, should also be disposed of, or decontaminated, if it is considered that they present a source of future contamination.

AIP notes that these principles would also be under regular review as appropriate to take account of any new information or improvements in operational practice.

5.4. Operationalising the Principles

Once finalised, AIP proposes to engage the Government in coming months to discuss industry actions that put the AIP Principles into operational practice in a manner that recognises the barriers and challenges for industry, manages risk but also works towards meeting Government imperatives.

For example, the core elements of a risk based operational approach to firefighting foams could be:

- AIP Member Companies undertake a comprehensive program of inventory analysis to determine existing foam content (likely to take approximately 3 months).
- Following the inventory exercise, AIP Members ensure the removal, where applicable, of any foam stocks found to be formulated with PFOS as the active ingredient, such as 3M Lightwater.
- AIP Members undertake a risk analysis of the remaining foam stocks. For any newly-constructed hydrocarbon storage sites, AIP Member companies will use C6 pure foams.
- For existing 'legacy' facilities, AIP Member Companies
    - continue to use remaining foam stocks where the environmental risks have been assessed and deemed as low/manageable
    - purchase quality C6 purity foams (provided suitable purity foams are commercially available) whenever foam inventory replenishment is required (such as when replacing depleted or expired stock)
    - take steps to segregate new purity stocks from legacy stocks to prevent contamination where practicable (might not be practicable in bulk storage tanks)
    - where practicable, put in place measures to ensure any C6 foam stocks are used first during a fire before legacy foams
    - assess the need to clean storage vessels and delivery systems when changing over foam inventory
- AIP, and AIP Member Companies develop and implement an interim risk management operational strategy for the management of firefighting foams
- AIP, in partnership with the Government, LASTFIRE, and foam manufacturers, facilitate a process to determine the timeframe and likelihood for the introduction of efficacious F3 foams that meet necessary performance, safety and broader environmental objectives.

AIP, and Member Companies, are also developing an interim risk management plan in support of these operational arrangements. The Interim Risk Management Plan is intended to cover elements relating to:

- key company personnel
- training
- selection and procurement of foams
- commissioning of new equipment

- maintenance of existing equipment
- activation of automatic fire suppression systems
- application of firefighting foams
- foam storage
- foam disposal.

The approaches may differ between companies so as to meet their own internal requirements, but each company's approach should contain actions relating to these core elements. The Risk Management Policy is intended to assist facility managers in complying with Government Policy.

5.5. Transitional Measures

AIP advocates that appropriate transition arrangements are necessary to achieve compliance with any changes to Government policy so as to effectively protect industry personnel and facilities, fire responders, and the broader community, as well as the environment.

AIP, in its discussions with the EPA, understands that the Government is amenable to working with industry to develop interim strategies.

AIP believes the transitional measures need to come in two forms:

1. Transitional period to comply with the legislation of 3 years from the date the legislation is promulgated and the associated regulations are made, that factor in the proposed approach outlined above.
2. An allowance for an additional transitional period beyond the three years for those industries such as the downstream petroleum industry where there are a range of barriers to fully moving towards fluorine free foams, where the availability of alternative foams extends beyond the 3-year implementation period, and/or where disposal routes are not available.

AIP's strong view is that both transitional measures must be recognised in the drafting of the legislation, whether it be implemented through new transitional arrangements included in revised legislation, through conditions imposed under Existing EPA License arrangements, or through some other mechanisms such as an Exemption License under the Environmental Protection Act.

However, such measures must not impose significant administrative or other compliance costs on industry given that there are currently no alternative firefighting solutions (i.e. non-fluorinated foams) available for effectively suppressing large bulk fuel fires. For example, AIP understands that the Exemption Licences process may be extremely costly, and as such we seek further guidance from the EPA.

The transition period needs to also provide sufficient time to achieve compliance where it can be demonstrated that there is significant cost associated with the compliance of the new policy. This includes any requirement to change foam stocks and site firefighting infrastructure. It should also recognise that companies operate nationally and timeframes should accommodate any requirement to undertake similar actions across all of a company's sites.

AIP envisages that the AIP Operational Principles and Interim Risk Management Plans could form the basis of the industry transitional measures. AIP anticipates that a significant engagement with the Government will be required to develop acceptable and agreed upon transition measures and is keen to engage on this work as soon as practically feasible.

5.6. Other Issues

AIP also notes that while the draft consultation legislation is at high level, we anticipate that detailed, comprehensive regulations will be required. Government should not progress with implementation until the full package is available for industry consideration. There remains a broad range of issues that require further clarity and consultation, including (but not limited to):

- definitions on purity limits for C6 foams
- definitions on acceptable contamination levels within storage tanks and delivery systems following a change in foam
- appropriate, agreed testing methodology for determining foam content
- whether foam is defined as waste or feedstock for the purposes of disposal
- availability of approved disposal facilities

AIP welcomes the opportunity to provide input on the development of policy responses to these issues. While AIP and Member Companies are currently working on developing positions on these issues, we are not yet in a position to provide any formal response, but we are keen to engage in discussions with the Government on these issues as soon as practicable.

AIP also encourages Government to develop associated policy that places the onus on foam manufacturers to prove the environmental credentials of their products, rather than placing the liability solely on end users.

AIP notes it has not considered the question on whether the ban should extend to handheld fire extinguishers. However, AIP assumes that issues outlined in this submission are likely to apply to handheld devices, albeit at smaller scale and therefore lower environmental risk.

6. CONCLUSION

There is a range of barriers that prevent downstream petroleum companies from moving to fluorine free foams. Most notably, there are significant firefighting performance concerns with these foams versus the range of fluorinated foams currently used by the industry. Indeed, there are no fluorine free foams currently certified by industry for the purpose of extinguishing large atmospheric bulk fuel storage tank fires. However, the downstream petroleum industry is actively working to address these issues through initiatives such as LASTFIRE.

AIP Member Companies are wholly reliant on foam manufacturers to develop foams that do not contain PFOS, PFOA or their precursors, but also meet the firefighting performance requirements to protect life and property in the event of, or risk of, a large bulk fuel fire.

AIP and Member Companies are keen to work with Government to develop appropriate measures and actions to permit the smooth transition from fluorinated to fluorine free foams once the proven foam stocks are available. However, this must be done in a manner that does not impose unreasonable measures or costs on the industry that could lead to increased life or asset risk.

AIP and Member Companies are developing a set of principles for the containment, storage and disposal of fluorinated foams and are also developing an interim risk management strategy. AIP recommends these be used as the basis for developing an industry transitional response until such time as efficacious foams are available.

AIP and Member Companies are committed to working with Government to develop and implement these appropriate transition measures that meet the needs of industry, Government, fire responders and the broader community.