Draft Amendment to POEO (Clean Air) Regulation 2010 – Limit Sulfur Content of Fuel Used by Cruise Ships in NSW Ports

Summary of Submissions

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NSW EPA released the draft Protection of the Environment Operations (Clean Air) Amendment (Cruise Ships) Regulation for public comment on 2 June 2015.

Consultation ran for approximately two weeks, to 15 June 2015. A total of 195 submissions were received. The large majority (87%) were received from community members and environmental groups. Industry (7%) and Commonwealth and local government, Members of Parliament and academics/researchers (6%) made up the balance of submissions.

Issues raised in the submissions, and the EPA's responses to them, are summarised in the table that follows. Many submissions raised similar issues and/or made similar comments on an issue. Rather than address every issue from each submitter individually, the table captures the common issues and provides a single response.

1. Overall summary

1.1 Community views

The community expressed strong support for the Regulation amendment, citing better health outcomes, the need for better controls including better enforcement and large fines to ensure compliance, and consistency with other developed nations. Many community members called for the Regulation to extend NSW wide, and to apply immediately. They felt that to date the cruise industry had refused to voluntarily address issues and cruise ship companies already operating at regulated emission levels in other parts of the world were taking advantage of Australia's lack of fuel regulation to use the cheapest low grade fuel oil regardless of health impacts on local communities.

Low sulfur fuel requirements were considered to be a good start in addressing cruise ship emissions but the community were concerned that exemptions may be used as loop holes to avoid using cleaner fuel, and called for exemptions to be carefully scrutinised.

The community also called for shore-to-ship power to be installed as soon as possible to address air and noise emissions and vibrations.

Communities in the vicinity of ports with non-cruise shipping such as Newcastle have also raised concerns about emissions.

1.2 Industry views

Industry raised concerns about NSW taking unilateral action on shipping emissions and commented that national regulation conforming with international obligations would ensure consistency among Australian jurisdictions and the most cost-effective approach to regulation.

Industry considered the timeframes for implementing the regulation too short. Internationally, long transition periods of 1-5 years allow industry to establish the required fuel supplies and the technical ability to use them.

The fuel industry indicated that there would be no local supply of low sulfur (0.1%) fuel in the timeframes required by the regulation. Supplies of ultra-low sulfur (0.001%) fuel are readily available, being the fuel required for on-road diesel vehicles in Australia.

Industry broadly supports the stage 1 requirement for cruise ships to use low sulfur fuel (0.1% or less) at berth in Sydney Harbour from 1 October 2015. It acknowledges that a low sulfur fuel with 0.001% sulfur content would appear to be the only grade of fuel available to cruise lines in NSW (and Australia-wide), and most cruise ships are capable of burning this ultra-low sulfur fuel for the limited number of hours that cruise ships are at berth.

Industry does not support the draft proposed stage 2 requirement for cruise ships to use low sulfur (0.1% or less) fuel while operating in NSW ports from 1 July 2016 given concerns

about safety when switching fuels at sea, operating logistics including onboard fuel storage and delivery capability, and adequate local fuel supply. Prolonged use of 0.001% fuel is not considered feasible for stage 2 given safety concerns.

Industry also believes that stage 2 is a disproportionate response to addressing ship emissions in NSW ports given that cruise ships account for around only 35% of fuel use and associated ship emissions (in Sydney Harbour), while 65% of fuel use and associated ship emissions is targeted through stage 1 requirements.

In particular, the cruise ships companies have advised:

- while cruise ships can carry sufficient low sulfur marine fuel during a voyage for use while they are berthed, they would likely need to obtain more 0.1% sulfur fuel during a voyage in order to comply with stage 2
- most cruise ships will need to switch fuels off shore before entering the port. In order to do this, the engines and fuel storage and delivery systems will need to be re-fitted in dry dock. As dry dock periods are booked in advance, and occur on a 2-3 year basis, this may mean that some ships are not scheduled for dry docking until after 30 June 2016.

Summary of consultation responses

Issue	Submitter	Response
Unilateral action by NSW		
Regulation should be approached on a national basis and in conformity with international requirements, including International Maritime Organization (IMO), US EPA, European Union (EU) and Hong Kong regulations, to ensure consistency among Australian jurisdictions and the most cost-effective approach to regulation. NSW should take a leadership role to ensure maritime vessel emissions are included in National Clean Air Agreement.	Industry	Internationally, MARPOL mandates fuel sulfur limits that apply generally, and more specifically in Emission Control Areas (ECAs). These specific limits of 0.1% apply in ECAs in Europe and North America. Additionally, European Union (EU) countries require 0.1% sulfur for ships at berth in the EU. Hong Kong requires 0.5% sulfur fuel for ships at berth from July 2015. Alterative but equivalent emission reduction methods are permitted. The NSW Government has committed to ensuring that NSW residents have the same standard of protection from shipping emissions as that enjoyed by people in North America and Europe. The community expects a reduction of emissions in timely manner. Any national process to regulate shipping emissions will take at least three years and would likely apply to shipping generally. The proposed NSW Regulation aims to meaningfully reduce emissions where they impact urban communities the most (i.e. in close proximity to cruise terminals) in as shortest period of time possible while aligning with MARPOL obligations and practices. The Regulation will bring forward emission reduction actions that industry is required to undertake by 2020-2025 in accordance with MARPOL. NSW continues to work with the Commonwealth and other jurisdictions on national measures to address broader shipping emissions.
Timeframes for implementation		
The Regulation should apply immediately.	Community	Reducing the impacts of shipping emissions is a priority for the NSW Government. The Government moved to develop a Regulation to limit the sulfur content of fuel used by cruise ships in Sydney Harbour immediately following the March 2015 election. Allowing for regulatory development processes, including consultation with stakeholders, a Regulation will be in effect before the start of the 2015-16 cruise season that addresses around 90% of cruise ships' sulfur dioxide emissions in Sydney Harbour.
A few months is too short a timeline for introduction of the sulfur limits and is without international precedent. The Regulation will impact on commercial operations and may not be achievable by all vessels due to 3-5 year advance berth bookings and dry-docking/maintenance schedules. Internationally, industry has had greater lead time (e.g. 3-5 years) prior to commencement of low sulfur requirements. In respect of emission control areas, MARPOL Annex VI Regulation 14.7 allows a 12 month period (following emission control area designation) to comply with fuel sulfur content and fuel switching requirements. Long	Industry	Approximately 96% of port visits in Sydney Harbour can be made using 0.1% sulfur fuel. Some ships are able to bring sufficient volumes of this fuel with them to meet the stage 1 at berth requirements. Most cruise ships are capable of burning ultra-low sulfur (0.001%) fuel, which is widely available in Australia, for the limited number of hours that cruise ships are at berth. Use of MARPOL certified alternative technologies such as exhaust scrubbers and natural gas turbines is also permitted under the regulation amendment.

Issue	Submitter	Response
transition periods allow for the required fuel supplies and technical ability to use them to be established. It would be more productive to encourage vessels to be early adopters of further emissions controls (e.g. energy efficiency management plans) such as through reduced harbour dues, than to rapidly introduce legislation that is disruptive to the cruise industry.		The suggested early adoption of energy efficiency management plans will not address community concerns in a timely manner, nor is the measure focused on addressing the key community concern of reducing fine particle emissions.
Coverage of NSW Regulation – vessels		
The Regulation should be extended so that low sulfur fuel is to be used by all vessels, including all merchant vessels.	Community Local government Academics/researchers	NSW's focus is to reduce population exposure to shipping emissions. Cruise ships produce 38% of total $PM_{2.5}$ emissions from all ships in Sydney Harbour. Around two-thirds of emissions (and 90% of sulfur dioxide emissions) occur at berth, near residential populations. Cruise ships' relative proportion of ship emissions at berth is higher than other vessel types due to their higher energy requirements while hotelling. As such, the Regulation amendment targets cruise ship emissions. NSW is continuing to explore other (state-based) options for reducing emissions from shipping of all types, and is working with the Commonwealth and other jurisdictions on potential national measures to address broader shipping emissions.
Cruising makes up less than 5% of the total shipping volume in NSW. Application of fuel limits to cruise shipping only is unbalanced and an ineffective way of reducing emissions given that cruise accounts for only a portion of all shipping emissions. Other shipping types (e.g. cargo) operate and berth inside NSW ports, sometimes within only a kilometre from cruise terminals. By mandating the fuel requirement on cruise's tiny fraction of the shipping industry, it will be impossible to generate market forces needed to drive changes in the currently inadequate fuel supply chain distribution network.	Industry	
Coverage of NSW Regulation – area and duration		
Support first phase (clause 78B) in which cruise ships would use low sulfur fuel while alongside in NSW ports from 1 October 2015. This addresses core community concerns about cruise ship emissions expressed to Government through the media.	Industry	As noted for Issue 3, the regulation amendment targets cruise emissions. In the first stage it addresses emissions at berth in Sydney Harbour where populations are most exposed. Cruise ships primarily berth at Circular Quay (56%) and White Bay (41%). From 1 July 2016 the Regulation amendment would apply to all areas within Sydney Harbour, to address the population exposure risk of emissions transported within port. Exposure reduces where emissions occur further out to sea. These areas lie within Australian territorial waters over which NSW has no jurisdiction. Regulation of fuel sulfur beyond this limit would require a national approach (e.g. designation of an emission control area). NSW is working with the Commonwealth and other jurisdictions on potential national measures to address shipping emissions. Sydney Harbour is defined in clause 78A. Berth means any place a vessel is secured or anchored while in port, which includes buoys, anchorages, wharfs, terminals, docks or platforms. It is not feasible for stage 2 to apply by 1 October 2015 given fuel availability and fuel switching at sea concerns described at Issue 5 and Issue 9 respectively
The requirement to switch to low sulfur fuel should apply at all times and extend beyond cruise terminals to all terminals (e.g. Gore Bay) throughout the Harbour, to all NSW waters and even out to 200 nautical miles from the coast, consistent with the US approach (i.e. emission control areas)	Community	
Definition of Sydney Harbour should include White Bay as well as the international terminal at Circular Quay and any docking which may occur at Garden Island or berthing on platforms in the harbour.	Community	
Stage 2 should apply from 1 October 2015 as well.	Community	

Issue	Submitter	Response
		The Regulation amendment focuses on Sydney Harbour. Cruise ship visits to Sydney Harbour constitute over 90% of all cruise ship visits to NSW ports. The EPA will consult with local communities in regional NSW ports before reconsidering a regulatory amendment requiring broader application of the low sulfur fuel requirements.
Concerns about phase two (clause 78C) which would require cruise ships to switch to and operate on 0.1% or less sulfur fuel while underway in NSW ports from 1 July 2016. Ships would have to operate with 0.1% or less sulfur fuel in more than one main engine which would require many cruise lines to upgrade fuel storage and delivery systems. These upgrades would need to be undertaken while ships are out of service and therefore within ships' dry-docking schedules. Some ship upgrades may not be completed by mid-2016. Fuel supply is also uncertain and safety concerns about fuel switching at sea need to be resolved.	Industry	Refer Issue 5 and Issue 9 for a response.
The previously agreed provision, that from 1 July 2015 ships berthed overnight at White Bay would be required to use ultra-low sulfur fuel in auxiliary engines, should be included.	Community	The initially proposed option to require use of ultra-low sulfur fuel in cruise ship auxiliary engines as soon as possible was withdrawn following consultation with cruise ship companies which showed such a measure would not be effective. Only a very small proportion of cruise ships have or can use auxiliary engines to generate power while at berth.
Low sulfur fuel supply		
Cruise ships do not have access to low sulfur (0.1%) fuel in Australia as it is not produced locally. Volumes required in Australia would be small (i.e. required only for cruise ships, at berth and potentially within three nautical miles. of the coast) and capital costs of production are high. It is therefore unlikely to be economic for local refineries to switch over production for the low and uncertain demand from cruise ships for use under the Regulation amendment (some may opt for alternative technologies and/or source 0.1% sulfur fuel outside Australia). At least 3 months' notice is needed to source 0.1% sulfur fuel overseas (e.g. from Singapore), and at least 6-12 months to establish shore storage and retro-fitting of cruise ships for extra storage tanks. There is therefore no guarantee of an adequate supply by the proposed implementation date of 1 October 2015, nor by 1 July 2016. Availability of fuel at other Australian ports and ports in the region outside Australia is also not certain.	Industry	Some cruise ships operate seasonally in NSW ports and are able to source sufficient 0.1% sulfur fuel to meet the proposed at berth fuel requirements on their return from the Northern Hemisphere. Most cruise ships are capable of burning this ultra-low sulfur fuel for the limited number of hours that cruise ships are at berth. Internationally, ultra-low sulfur fuel is used as an alternative to 0.1% sulfur fuel if it does not cause operational issues (e.g. the United States permits use of 0.0015% sulfur marine fuel as an alternative to 0.1% sulfur marine fuel). Refer Issue 9 for discussion of operability and safety concerns associated with prolonged use of 0.001% sulfur fuel.

Issue	Submitter	Response
Cruise ships can carry sufficient low sulfur fuel during a voyage for use while they are berthed so as to comply with clause 78B. They can source this fuel in transit to Australia and hold the required quantities throughout the season. Additional volumes are required to comply with clause 78C and would likely need to be obtained during a voyage. However, ships have insufficient tank storage capacity for the whole season. As 0.1% sulfur fuel is not available in Australia, ships would be forced to use 0.001% fuel for extended periods of operation (with consequent operability and safety concerns).	Industry	Most cruise ships can use 0.001% sulfur fuel, which is widely available in Australia, while at berth. Some ships may purchase supplies of 0.1% sulfur fuel on transit to Australia to meet the stage 1 requirements. A defence to stage 2 requirements would apply (except when berthed in Sydney Harbour) but only if the defendant can establish that low sulfur marine fuel was not reasonably available for purchase inside or outside Australia for use by the cruise ship at the relevant time, and all reasonable steps had been taken to obtain low sulfur marine fuel for use by the cruise ship. The regulation amendment relies on MARPOL as much as possible. A general exemption for fuel availability is provided in stage 2.
A fuel non-availability exemption should be included, consistent with MARPOL Annex VI Regulation 18.2, i.e. in recognition of where all reasonable attempts have been made by the ship owner or master to obtain compliant fuel but none is available. MARPOL Annex VI requires member states to ensure adequate supplies of fuel to meet the standards are available. The exemption should provide, consistent with MARPOL Annex VI Regulation 18.2.2, that a ship should not be required to deviate from its intended voyage or to delay unduly the voyage to achieve compliance.	Industry	
There is no evidence of insufficient supply of low sulfur fuel in other regions of the world where low sulfur is required.	Consultant	Refer Issue 5 concerning low sulfur fuel supply in Australia.
Fuel definitions		
Current definitions of 'low sulfur fuel' and 'marine fuels' are inaccurate. There are two kinds of marine fuels under ISO 8217:2012 *Petroleum Products – Fuels (class F) – Specifications of marine fuels* that can have a sulfur limit of 0.1% or under - distillate marine fuels which encompass various marine gas oil grades (including diesel), and residual marine fuels which encompass various fuel oil grades. Also, in accordance with relevant fuel sulfur test methods in clause 78A (2), sulfur limits are expressed as either mass % or milligram/kilogram (mg/kg). 0.10 mass % maximum or less is equivalent to 1000mg/kg maximum or less. Sulfur content is normally expressed to two decimal places to indicate that that testing undertaken is relevant to two decimal places.	Industry	Definitions offered by industry were initially adopted but created issues for aligning marine fuel and 0.001% sulfur. To ensure clarity, a simpler and more effective fuel definition focusing on sulfur only has been included in the regulation (Clause 78A(1)), and references to the correct international test methods for determining sulfur content (Clause 78A(2)).
Fuelling supplier obligations		

Issue	Submitter	Response
Division 4 fuelling supplier obligations (i.e. provision of bunker delivery notes, fuel samples) are similar to requirements already being fulfilled under MARPOL Annex VI Regulation 18. The regulation amendment would impose duplicate obligations on fuel suppliers. Clarification is needed as to whether the already required MARPOL samples and bunker notes can serve both purposes.	Industry Government	The proposed regulation aligns as much as possible with existing MARPOL procedures and practices while ensuring EPA regulatory requirements are also prioritised and responsibilities are clear. Changes are made to 'Division 4 Requirement relating to fuelling cruise ships' in the regulation amendment to make bunker delivery note and fuel sample requirements consistent with MARPOL Annex VI, including specifying that: 'The sample is to be provided in accordance with MARPOL Annex VI and the International Maritime Organisation document MEPC.182(59) '2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI'. 'The person supplying the fuel under this clause is to retain a copy of the bunker delivery note for at least three years and provide it to an authorised officer on request'. Propose that guidance to be issued with the Regulation states that the sampling process is the same as MARPOL. The only additional requirement is that an extra sample is required. The bunker notes already being provided for MARPOL can serve both purposes if they meet all MARPOL requirements referred to in Annex VI and the MEPC guidelines.
Record keeping requirements		
Division 5 record keeping requirements (i.e. log books, fuel switching procedures, fuel samples) should not force the maintenance of additional logs/administrative burdens beyond what is required by MARPOL Annex VI.	Industry Government	Changes are made to 'Division 5 Record keeping and information provision requirements' in the Regulation amendment to make requirements for documenting fuel switch procedures and log book recording of fuel switch operations consistent with MARPOL Annex VI, including by specifying that 'This log book may be the ship's official log book'.
Safety and operational concerns with fuel switching at sea		
Switching fuels at sea can cause fuel leakages in machinery spaces, engine room fires, fuel pump seizures and damage to fuel injection equipment associated with the low viscosity and lubricity of low sulfur fuel, and electrical blackouts and loss of propulsion resulting in a ship drifting until power is restored. These issues can present safety risks to crew and passengers. Incidences such as these led to the US Coast Guard issuing a Marine Safety Alert in March 2015. Insufficient consideration was given to such incidents occurring internationally in drafting the Regulation amendment. From 1 July 2016 the Regulation amendment proposes fuel switching be done offshore, near the entrance to a port, which is often an area of heavier marine traffic and navigational hazards. In order to switch fuels, ships' engines and fuel storage and delivery systems will need to be re-fitted in dry dock. As dry dock periods are booked in advance, and occur on a 2-3 year basis, this may mean	Industry	Safety, operational concerns and fuel availability issues are noted. The EPA may exempt a cruise ship from the operation of stage 2 requirements if it is satisfied that the cruise ship is required to be in a dry dock to carry out the engineering modifications necessary to comply with stage 2, and they cannot reasonably be carried out in order for the cruise ship to comply with stage 2 requirements by 30 June 2016 (e.g. where the next dry dock is scheduled after this date). Any exemption, if approved, will cease to have effect after 31 December 2018 and would apply only to the current cruise ship fleet. Defences around fuelling operations, where they present a significant risk to ship safety, have been broadened to include fuel changeover operations.

Issue	Submitter	Response
that some ships are not scheduled for dry docking until after 30 June 2016.		
Internationally, emission control area requirements are being met through supply of fuel with a sulfur content between 0.005% and 0.01%. Significant safety and reliability concerns are emerging from fuel switching at sea using this range of low sulfur fuel. These concerns are likely to be exacerbated by using 0.001% fuel available in Australia. This is likely to be the fuel required to comply with clause 78C, due to 0.1% fuel supply and storage constraints, but its prolonged use (while underway) is largely untested.	Industry	
The period of pilotage from port entrance to berth (and associated emissions) is not significant for cruise ships in NSW ports, compared to the berthing period alongside residential populations. Recommend that clause 78C be limited to at berth so as to avoid fuel switching risks at sea.	Industry	
Ships can switch between low and high sulfur fuels with limited technological issues (e.g. Maersk, world's largest shipping company).	Consultant	
Alternative emission reduction technologies		
The cruise industry has identified emission reduction technologies as the most consistent and reliable approach to complying with MARPOL Annex VI requirements. They eliminate commercial risks associated with the consistent and adequate supply of low sulfur fuel around the world. Each cruise line has an investment/installation plan scheduled around deployments, itineraries and dry-docking availability with the objective of meeting MARPOL compliance by 2020. The proposed timeline of the NSW Regulation amendment will require a significant number of ships deployed in the Australasian region to potentially undertake engine modifications and fuel storage and delivery upgrades that conflict with the MARPOL compliance timetable.	Industry	Alternative exhaust gas emission cleaning technology that meets MARPOL certification is permitted under the regulation. New documentary evidence subclauses are added to the 'Application for approval' provisions in 'Division 6 – Alternative methods for emission reductions' that capture documents issued under Regulation 4 of Annex VI of MARPOL and *Resolution 184(59): 2009 Guidelines for exhaust gas cleaning systems,* which certify exhaust gas cleaning technology has been installed in a ship that is capable of achieving the required emission levels. Alternatively, where emission reduction methods are being developed/trialled, evidence must include detailed descriptions of the methods, monitoring procedures and timeframes and reporting milestones. The regulation amendment already provides that ships using scrubbers are exempt from the low sulfur fuel requirements. An exemption from stage 2 requirements is added in clause 78G of the final Regulation Amendment for ships needing to undertake engineering modifications during dry-docking which isn't scheduled to be completed before 1 July 2016. This exemption can apply where a ship seeks approval to use alternate methods for emissions reductions. The exemption will only apply until 31 December 2018.
Alternative Compliance/Equivalency provisions of MARPOL Annex VI (Regulations 3 and 4) are not provided for in like terms in the NSW Regulation Amendment.	Industry	
Allow exemptions for ships where the introduction of alternative technologies (e.g. scrubbers) are planned for the next vessel dry-dock which is the safest time to undertake fuel system modifications.	Industry	

Issue	Submitter	Response
Suggest an exemption for berthed vessels connected to an alternate power source where emission performance is equivalent to or better than gaseous fuels covered by clause 78F(1)(g) of the consultation draft regulation amendment.	Industry	An exemption is provided in Clause 78H of the final regulation amendment for gaseous fuels both at berth and in port. See also Issue 14 concerning shore-side power.
Recommend introduction of a formal approval period (i.e. three years) for use of alternative technology on a per ship basis, to provide a high degree of certainty of operating environment to cruise ship companies for making deployment and itinerary decisions.	Industry	'Granting of approval' provisions in 'Division 6 – Alternative methods for emission reductions' will specify that an approval period will not exceed three years.
An appeals or consultation process should be included in relation to the revocation and variation of alternative methods approvals.	Industry	'Division 7 – Appeals' added specifying that the ship master or owner may appeal to the Land and Environment Court within 21 days of the EPA issuing, refusing to issue, revoking, suspending or varying an approval or exemption. The lodging of an appeal does not, except to the extent that the Land and Environment Court otherwise directs in relation to the appeal, operate to stay the decision appealed against.
Concern that the EPA does not have the expertise to approve alternative methods. All supporting documentation and testing results should be provided by the marine engineer when providing certification, not just the certificate. 'Qualified marine engineer should be replaced by 'a classification society that is a member of the International Association of Classification Societies (IACS)'. The regulation should specify or reference a standardised method for determining that sulfur dioxide emissions (from alternative technologies) are comparable with those achieved by complying with clauses 78B and 78C (i.e. using 0.1% or less sulfur fuel).	Community Local government Industry Consultant	Ships seeking approval to use alternative technologies to achieve equivalent or better emission reductions than would be achieved using low sulfur fuel need to provide internationally recognised documentary evidence of the emission reduction capabilities of those technologies. This is specified in the 'Application for approval' provisions of 'Division 6 – Alternative methods for emission reductions', e.g. an International Air Pollution Prevention Certificate issued under MARPOL Annex VI. This must also be verified by a local qualified marine engineer. Strengthen the verification of such documentation by adding the marine engineer must be 'suitably qualified'. International standards for testing the sulfur content of fuels are specified in clause 78A(2). The proposed amendment determines equivalence for meeting 0.1% sulfur based on existing MARPOL requirements for ECAs.
Exemptions to offences		
Concern that exemptions will be used as loopholes to avoid using cleaner fuel. They should never or rarely be granted (only in exceptional circumstances) and need to be carefully scrutinised.	Community Member of Parliament	The Division 3 exceptions outlined in the consultation draft Regulation amendment have mostly been converted to 'Defences' which shift the onus from the EPA to the ship master/owner to demonstrate, to the EPA's satisfaction, that the relevant circumstances apply. They relate to circumstances in which there is significant risk to the safety of the ship, securing the safety of another ship or saving life at sea, and unforeseeable events, all of which are consistent with international regulations and in particular, are prescribed in MARPOL Annex VI Regulation 3. The defence added regarding fuel availability is also
Provisions could be strengthened by defining what constitutes 'significant risk'. These provisions beg the question that if ships seeking to berth are so outdated that they are technically unable to upgrade to burn low sulfur fuel, should they be allowed to berth next to residential communities in the first place?	Member of Parliament	

Issue	Submitter	Response
The public should be advised of exemptions.	Community	consistent with MARPOL, and will apply only in stage 2 (except when berthed in Sydney Harbour). The exemption relating to dry dock scheduling applies only in stage 2, is available only to ships that previously visited Sydney Harbour in the period 1 October 2013 to 1 October 2015 or are scheduled to visit before 1 October 2017, and ceases to have effect on 31 December 2018. Ships unable to upgrade to burn low sulfur fuel will be in breach of clauses 78B and 78C and will incur penalties. Repeated offences will lead to prosecution with higher penalties which will serve as incentive to shipping companies to upgrade or replace ships. The EPA will consider whether a register of exemptions should be published on its website as a transparency measure.
The 30-day advance request time for the clause 78E(3) safety exception in the consultation draft regulation amendment is too long given uncertainty ships will face using 0.001% sulfur fuel with which it has little no experience using. Technical failures may manifest suddenly and ships may need to return to using other fuel at short notice for safety reasons.	Industry	Time limit has been removed in the final Regulation amendment (clause 78G).
The EPA's ability to exempt ships from complying with the regulation are broad – they should focus on exempting ships with certain engine types rather than ships as a whole. Any defence against an offence for a ship to obtain an exemption should be conditional on notification being provided prior to entering the harbour. Wording of exemptions in clause 78F in the Consultation draft Regulation amendment should reduce ambiguity and create a clear nexus between a breach and an extenuating circumstance. Wording of defences, exemptions and exceptions should be the same as in MARPOL Annex VI Regulation 3. Offences should be provided for failure to comply with conditions of alternative technology approvals or terminal operating licences.	Local government Industry	Regulation is by vessel – it is not practical on an engine basis. Not feasible to enforce given timeframes required to assess and process exemption applications, particularly in the case of emergency situations. Exceptions are largely aligned with international protocols (i.e. MARPOL). Defences/exceptions, as now amended, are aligned with international protocols (i.e. MARPOL). Alternative technologies such as exhaust scrubbers and natural gas fuels achieve higher particle emission reductions than the use of low sulfur fuels.
Strong enforcement and penalties, public reporting		
Tight controls, better enforcement and large fines are necessary to ensure compliance/deter undesirable behaviour. Penalties for breaches are low and should be increased.	Community Local government	Sulfur limits required under the regulation amendment are consistent with the strictest standards applied internationally. Penalties for breaching the standards, of up to $15,000 per offence (i.e. per port call), are framed so that they are higher than the cost of obtaining compliant fuel. Should a matter proceed to prosecution (for example, where a vessel repeatedly breaches the sulfur limits), the maximum fines permissible under the *Protection*
The criminal offence with proving 'use' presents a regulatory challenge. The inclusion of remote exhaust testing would provide the	Community	

Issue	Submitter	Response
inspectorial function with a separate means for creating an offence relating to sulphur stack discharge concentration.		*of the Environment Operations Act 1997* ($44,000 for a corporation, $22,000 for an individual) would apply.
Continuation of a breach should not be tolerated. Should: the engine be shut down? the ship be removed from the harbour as soon as possible, regardless of cruise ship operation requirements?	Consultant	It is easier and more effective to specify limits for the sulfur content of fuel and audit compliance, consistent with MARPOL requirements and practices The regulatory response needs to be framed so as to be both effective and proportionate to the problem.
The EPA should make publicly available quarterly compliance reports and monitoring results. Records of complaints should also be kept and reported on. Hold regular forums involving government, community and industry to monitor and report on cruise impacts.	Member of Parliament Community	A community and agency forum under which compliance can be reported is already in place.
Other minor amendments to draft Regulation		
Change the definition of 'owner' in clause 78A(1) to be the definition in the *Navigation Act 2012* (Cth)	Government	Agreed.
Change the definition of 'cruise ship' to 'a passenger ship not having a cargo deck, designed exclusively for commercial transportation of over 100 passengers in overnight accommodations on a sea voyage'.	Government	Agreed. Consistent with MARPOL.
Change 'safety of the ship' in Division 3 to 'safety of the ship or to life at sea'.	Government	Agreed.
In clause 78F(1)(g) in the Consultation draft Regulation amendment provide clarification, consistent with International Maritime Organization (IMO) definitions, of when a ship is considered primarily an liquefied natural gas (LNG) fuelled ship.	Government	A separate exception (clause 78H in final Regulation amendment) has been included, applicable where liquefied natural gas (LNG), compressed natural gas (CNG) and liquefied petroleum gas (LPG) is used as the primary fuel source and appropriate notifications are given to the EPA.
Defences provided to the master of the ship should be strengthened as the Regulation amendment can potentially enable a ship master an ability to circumvent local laws by following instructions of the ship owner.	Local government	As noted for Issue 11, exceptions outlined in the consultation draft Regulation amendment have mostly been converted to 'Defences' with the burden of proof transferred from the EPA to the owner/master.
Shore-side power		
Shore-to-ship power is supported and should be installed immediately.	Member of Parliament Community Local government Industry	Establishing a shore-side power system on land and matching infrastructure on the largest polluting ships can significantly reduce local cruise ship emissions but has high capital costs and a long lead time to establish. Upgrading electricity grid infrastructure would take 2-3 years. Currently around 19% of cruise ships operating in NSW are shore-side power capable (engines can take the power), but not shore side 'ready' (plugs and adaptors

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Shore power delivers the greatest positive effect on air emissions while vastly improving noise impacts and vibrations that stem from having to run ships' engines while in port.		need to be fitted on board). The Port Authority of NSW, the lead agency for port infrastructure, is currently analysing options for developing landside infrastructure and operational procedures.
A tax should be imposed (e.g. 10%) on each cruise ticket to cover the cost of shore-side power.	Community Consultant	
Suggest that research be undertaken into a green power alternatives (e.g. hydro).	Community	
Diversion of cruise shipping away from NSW		
The regulation amendment may force cruise ships to look elsewhere for berthing leaving the people of NSW without the income derived from such a major tourism facility.	Not specified	The regulation amendment brings forward a MARPOL requirement to reduce the sulfur content of fuel that industry is required to comply with by 2020 or 2025. The impact on business costs is minimal. A diversion of cruise shipping away from NSW is therefore not considered likely.
Overnight berthing at White Bay		
Objection to a voluntary moratorium by the Port Authority of NSW on overnight berthing at White Bay. There should be no overnight berthing near residential areas.	Community	The moratorium is a transient measure until substantive action is taken. Overnight berthing by cruise ships is an irregular practice in NSW ports.
Inadequate industry consultation		
Consultation around the proposed legislation fell short of regulatory best practice and the EPA's proposed process. The regulation amendment is fast-tracked while results of EPA's international shipping consultancy on emission reduction options results have not yet been released and discussed with stakeholders.	Industry	A response to emissions from passenger cruise shipping has been prioritised and is appropriate given its contribution to shipping emissions, high fuel use at berth and location near residential populations. Consideration of shipping emissions is linked to the level of population exposed. Other options to reduce emissions from ships of all types continue to be explored. An international shipping consultancy on the feasibility, costs and emission impacts of these options for ships at major ports in the NSW greater metropolitan area is being finalised. A workshop will be held to discuss findings. A final report is expected to be delivered to Government by the end of the year.
Monitoring data doesn't support a case for action		
Average levels of air pollution modelled and measured at White Bay are similar to background levels elsewhere in Sydney and are in compliance with requirements set for the cruise passenger terminal.	Industry	Monitoring data to date has been on PM_{10} and sulfur dioxide. $PM_{2.5}$ is a priority due to its adverse health impacts. Those most affected are the elderly, children and those with existing health conditions. Health studies show that there is no threshold concentration for exposure to particle emissions, below which health impacts are not observed. Numerous

Issue	Submitter	Response
There is no air quality monitoring in the broader Sydney Harbour area, including Circular Quay. There is no official health audit in the White Bay area to determine whether or not cruise ship emissions are causing health problems in the surrounding area.		studies have linked fine particle exposure to a variety of cardio-vascular and respiratory diseases and, in 2012, the World Health Organisation's International Agency for Research on Cancer classified diesel exhaust as a human carcinogen. Reducing sulfur in fuel is a key means to reduce fine particulate pollution.
Noise		
The noise generated by the ships' turbines is a health risk. Continual loud noise has not been curtailed by the State Government.	Community	The Department of Planning and Environment is responsible for ensuring operations at White Bay Cruise Terminal under the Project Approval issued by the then Minister for Planning in 2011. The Project Approval contains specific conditions regarding noise from terminal operations. The Department of Environment and Planning are working with the Port Authority of NSW, as the terminal operator, to develop and implement a Noise Impact Mitigation Strategy.
Emission limits for ships		
The regulation should include provisions for maximum sulfur dioxide and particulate matter emissions from ships.	Local government	It is easier and more effective to specify limits for the sulfur content of fuel and audit compliance, consistent with MARPOL requirements and practices.
Further regulations are needed to address nitrogen oxide (NOx) and $PM_{2.5}$ emissions from shipping adjoining densely populated areas.	Community	Other options to reduce emissions from ships of all types continue to be explored. A final report is expected to be delivered to Government by the end of the year.
Other impacts		
There is noticeable defoliation of trees in the path of the funnel plumes and non-pathogen related impacts (e.g. holes burnt in the leaves of a range of plant material, burnt leaf tips), consistent with the effects of acid rain.	Community	Emissions reductions under the regulation amendment will have benefits for both human and ecological health.
Traffic issues and pedestrian access.	Community	These issues are beyond the scope of the regulation amendment.
Relocation of cruise ship terminal to Garden island.	Consultant	This is beyond the scope of the regulation amendment.