

**Protocol of 1997 to Amend the International Convention for the Prevention of
Pollution from Ships 1973/78**

(New Annex VI - Regulations for the Prevention of Air Pollution from Ships)

Regulation Impact Statement

List of Abbreviations

AMSA	Australian Maritime Safety Authority
Annex VI	Regulations for the Prevention of Air Pollution from Ships contained in the Protocol of 1997 to the International Convention for the Prevention of Pollution from Ships 1973/78
ASA	Australian Shipowners Association
CFC	chlorofluorocarbon
DITR	Department of Industry, Tourism and Resources
HCFC	hydro-chlorofluorocarbon
IMO	International Maritime Organization
ISO	International Standards Organisation
kW	kilowatt
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships 1973/78
m/m	mass per mass
NO _x	nitrogen oxides
ODS	ozone depleting substance
PSC	port State control
SAL	Shipping Australia Limited
SO _x	sulphur oxides
VOC	volatile organic compound

1. Problem

1.1 Air quality is of prime importance in the economic, social and environmental health of our cities, regions, offshore territories and oceans. In Australia the transport sector is the single largest contributor to urban ambient air pollution. Road transport is the greatest concern contributing up to 70 per cent of total urban air pollution in Australia. Greenhouse gas emissions for the transport sector are the fastest growing emissions of any sector. Again, road transport is the leader, accounting for approximately 85 per cent of greenhouse gas emissions from the transport sector. By comparison coastal shipping in Australia accounts for 2 per cent of transport emissions.

1.2 Due to the relative importance of road transport to air quality and greenhouse gas emissions, efforts to minimise the effects of air pollution from the road transport sector in Australia and overseas have been directed at initiatives such as improved vehicle technology, emission standards and fuels.

1.3 The risk of focusing on one transport mode is that contributions to air pollution from other modes such as shipping can be ignored to the detriment of the environment and human health. Recent research undertaken for the European Community indicates that by 2010, sulphur oxide emissions from ships (if unregulated) are likely to be equivalent to over 75 per cent of all land based emissions in the European Union. This is due to the reduction in sulphur content in petrol and diesel fuel in land-based sectors.

1.4 In 1990, the international shipping community, under the auspices of the International Maritime Organization (IMO) recognised that while a great deal has been achieved internationally to reduce atmospheric emissions from land-based sources, there remained considerable scope for reduction of air pollution emissions from seagoing ships. It was also recognised that air pollution from seagoing ships is one of the few areas related to shipping where there are currently no enforceable international standards.

1.5 Environmental concerns recognised by IMO in 1990 included:

- *Emissions of sulphur oxides (SO_x)* from ships' exhausts were estimated at 4.5 to 6.5 million tonnes per year - about 4 per cent of total global sulphur emissions. Emissions over open seas are dispersed and the effects generally moderate, although on certain busy or confined routes the emissions create environmental problems, including the Baltic Sea, North Sea, English Channel, South China Sea and Straits of Malacca.
- *Emissions of nitrogen oxides (NO_x)* from ships were estimated at around 5 million tonnes per year - about 7 per cent of total global emissions.
- *Emissions of Chlorofluorocarbons (CFCs)* from the world shipping fleet was estimated at 3,000 to 6,000 tonnes - approximately 1 to 3 per cent of yearly global emissions.
- *Halon emissions* from shipping were estimated at 300 to 400 tonnes, or around 10 per cent of world total.
- *Volatile organic compounds (VOCs)* are emitted during loading and unloading of oil tankers.

Environmental and health impacts of emissions from ships

Sulphur Oxides

1.6 Sulphur oxides are a family of gases, which are released into the atmosphere through the residue of unburnt fuels, specifically diesel fuels. These sulphur particles are expelled with carbon into the atmosphere through exhaust pipes from ships and contribute to smog particularly in more built up, busy waterways where the discharge from exhausts is not dispersed. Once sulphur oxide levels in the air are visible as smog, the emissions are contributing to global warming.

1.7 In particular sulphur dioxide is responsible for most harmful effects on the environment and human health. Sulphur dioxide causes skin and airways irritation, breathing restrictions and aggravation of existing cardiovascular disease. Long-term exposure to sulphur dioxide can cause bronchial infections and respiratory illnesses, alterations in pulmonary defences and suppression of the immune system.

1.8 Sulphur oxide pollutes the atmosphere contributing to acid deposition and acid rain. The addition of sulphur oxides and other pollutants in rain are directly related to acidification of lakes and waterways, buildings, monuments, forests, farmland soil and agricultural crops.

Nitrogen Oxides

1.9 Nitrogen oxides are formed when nitrogen reacts with oxygen in the pressurised, extremely hot chambers of compression-ignition engines. The emission of nitrogen oxides from ship's diesel engines has many environmental and health impacts.

1.10 Nitrogen oxides are primary contributors to urban smog when combined in the atmosphere with hydrocarbons. Nitrogen oxides react with hydrocarbons and other VOCs in heat and sunlight to form ground level ozone. Ground level ozone contributes to the global warming effect and has adverse effects on human health. Ozone aggravates asthma and other respiratory illnesses and damages lung tissue, reducing lung function over a prolonged period. Impacts of ground level ozone and smog also damage vegetation and crops.

1.11 Nitrogen oxides react with sulphur dioxide along with other substances in the atmosphere causing acid rain to form. Acid rain can fall as rain, hail, and snow or as dry particles. Acid rain clouds can be carried for hundreds of kilometres, also contributing to the acid dispersal. Nitrogen oxides react with ammonia, moisture and many other compounds, often forming nitric acid and related compounds. Health concerns for humans are diverse because of the different compound reactions. These effects include difficulties in breathing and with the respiratory system, damage to lung tissue, aggravation of heart disease and premature death.

1.12 An increase in nitrogen oxides in bodies of water changes the chemical equilibrium of the water affecting all aquatic organisms living in and around waterways. Emissions of nitrogen oxides in the air have a direct impact on the levels of nitrogen in water and are a prevailing cause of nitrogen imbalance in the world's waterways.

1.13 Nitrogen oxides are highly reactive with various organic chemicals. This makes nitrogen oxides increasingly dangerous for humans and the environment. Nitrogen oxides can combine with a variety of other compounds in the air to form toxic chemicals. Some of the chemicals, which include nitrate radical, nitrosamines and nitroarenes, may cause biological mutations. Nitrogen oxides emissions readily combine causing diverse environmental problems.

Chlorofluorocarbons

1.14 CFCs are compounds made up of carbon, fluorine, chlorine and hydrogen. These were adapted for use after the Second World War as aerosol-sprays propellants, refrigerants, solvents and foam blowing agents. CFCs are used on ships as refrigerants in marine refrigeration installations and solvents for cleaning. CFCs were popular because of their non-toxic and non-flammable properties and convert from liquid to gas readily.

1.15 In the 1970s, studies of CFC compounds were undertaken. These studies revealed the serious threat such compounds pose to the environment. It was discovered that released CFCs accumulate over time in the stratosphere and break down the earth's protective ozone layer.

Halons

1.16 Halons contribute significantly to the depletion of the ozone layer and have previously been used on ships as fire-extinguishing agents in built-in systems and hand-held devices. Halons have been found to be 16 times more destructive to the ozone layer than CFCs, which were previously blamed entirely for the reduction of ozone in the stratosphere.

1.17 Halon is extremely difficult to destroy. This has made the task of halon removal and annihilation difficult. It has however been established that halons can be destroyed in a kiln-like furnace when it is heated to 10,000 degrees Celsius. Halons have become highly regulated substances because of their damaging effects on the earth's ozone layer and their ability to break down atmospheric oxygen compounds.

Volatile Organic Compounds

1.18 VOCs can have an effect on the formation of low-level ozone as well as human health and nearby vegetation. Certain VOCs from petrol are toxic, carcinogenic and teratogenic (producing congenital malformations).

1.19 The primary source of VOC emissions from shipping occurs during the loading and unloading of oil cargoes. Concerns about the impact of VOCs have originated largely in Europe, where large quantities of oil cargoes are discharged from ships in relatively confined areas.

Air quality in Australia

1.20 Australian national ambient air quality standards have been established to monitor the concentrations of six major air pollutants; carbon monoxide, nitrogen dioxide, ozone, lead, fine particles and sulphur dioxide.

1.21 The Australia State of the Environment Report, 2001 found that there is little evidence of air pollution problems arising from sulphur dioxide or nitrogen dioxide in capital cities. In regional areas sulphur dioxide was closely identified with processing of

metalliferous ores. The amount of ozone in the atmosphere is within safe levels in most Australia towns and cities. In larger cities like Sydney and Melbourne the safe level of ozone is exceeded several times a year.

1.22 The National Pollution Inventory recorded nitrogen oxide emissions from commercial shipping in Australia at 24 million kg in 2000-2001 (total NO_x emissions were 1,300 million kgs). Sulphur dioxide from commercial shipping in Australia were 14 million kgs in 200-2001 (total SO₂ emissions were 1,500 million kgs).

1.23 Although the current levels of NO_x and SO₂ from commercial shipping are low, there is likely to be a significant comparative increase from this sector in the future as SO₂ emissions from the road transport sector decrease due to current Government action to reduce sulphur content in vehicle fuels.

2. Objectives

2.1 To address the problem of air pollution from shipping the IMO adopted the "Protocol of 1997 to the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)" in September 1997. The Protocol amends MARPOL 73/78 by adding a new Annex VI entitled "Regulations for the Prevention of Air Pollution from Ships".

2.2 The objective of the proposed amendments is to prevent air pollution from ships by providing a basis for Australia's accession to, and implementation of, the Protocol of 1997 to MARPOL 73/78. The amendments would be made to the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and the *Navigation Act 1912*.

2.3 Australia is a signatory to MARPOL 73/78, which is administered by the IMO, and is currently in force in 125 countries. Australia has implemented other Annexes of the Convention dealing with the prevention of pollution by discharge of oil, chemicals, harmful packaged substances and garbage, and is in the process of implementing Annex IV dealing with the prevention of pollution by discharge of sewage from ships.

2.4 Annex VI of the Protocol of 1997 to MARPOL 73/78, will enter into force twelve months after acceptance by countries with a total of 50 per cent of the world's merchant shipping tonnage. As at 31 March 2003, 8 countries representing 26 per cent of world's shipping tonnage have become Party to the Protocol of 1997 to MARPOL 73/78. It is expected that the Annex will obtain the required level of acceptance during 2004.

3. Options

(i) Not accede to the Protocol of 1997 to MARPOL 73/78 (Annex VI).

(ii) Amend legislation as necessary and accede to the Protocol of 1997 to MARPOL 73/78 (Annex VI).

4. Impact Analysis

Stakeholders consulted in the impact analysis

- Australian Shipowners Association – representing Australian ship owners;
- Shipping Australia Limited – representing international ship owners operating in Australia;
- Environment Australia;

- Department of Industry, Tourism and Resources;
- State and Northern Territory Governments;
- Australian Institute of Petroleum (represent fuel oil suppliers);
- Australian Petroleum Production and Exploration Association;
- Australian Greenhouse Office; and
- Australian Association of Port and Marine Authorities.

Option (i) Not accede to the Protocol of 1997 to MARPOL 73/78 (Annex VI)

4.1 Option (i) would mean no change to the current arrangements. This option would leave Australia potentially vulnerable to unacceptable levels of pollution resulting from emissions from ships. This would result in additional costs to the community in that the level of environmental protection would be lower than internationally adopted standards. Australia would not be in a position to take advantage of, and enforce the full range of air pollution prevention measures against foreign flag vessels, while Australia flagged ships could be subject to such measures overseas.

4.2 The lack of a national approach to the issue could result in States/Northern Territory implementing their own requirements, potentially resulting in different requirements around the Australian coast and applicable only to State waters. Waters under Commonwealth jurisdiction beyond 3 nautical miles and up to 200 nautical miles would not be covered, resulting in inadequate protection from this type of pollution. During the consultation process, Australian shipping industry representatives raised this as a particular concern. It is expected that costs to the shipping industry in Australia could potentially increase due to complexity of regulations as States/Northern Territory may choose to implement their own requirements.

4.3 As MARPOL 73/78 is a widely accepted international Convention, and many of the regulations of Annex VI apply to large international trading vessels, it is likely that, whether or not Australia gives effect to Annex VI, Australian ships would be required to meet the Annex VI regulations in order to trade overseas. As a result Australian ships trading to overseas ports would incur additional costs as a result of the need to have proper documentation confirming compliance with Annex VI, documentation that may only be issued by Administrations that have adopted Annex VI. The international shipping industry has been aware since 1996 that international air pollution discharge standards would ultimately be put in place by the IMO. Ships built since that time have been designed accordingly.

4.4 This option would also not be in accordance with the general obligation under Article 211 of the United Nations Convention on the Law of the Sea for nations to adopt generally accepted international rules and standards when implementing laws and regulations to prevent, reduce and control pollution of the marine environment from vessels.

Option (ii) Amend legislation as necessary and accede to the Protocol of 1997 to MARPOL 73/78 (Annex VI)

4.5 Option (ii) would provide consistent national standards for commercial vessels trading internationally, and would enable Australia to implement the full range of enforcement measures available under MARPOL 73/78, including regular inspections to ensure compliance (known as port State control (PSC)) and boarding a suspect vessel to obtain evidence of possible violations. Australia would be in a position to take advantage of the IMO's administration of MARPOL 73/78, for example the development of standards for

the testing of shipboard equipment, and issuing of details of equipment that meets such standards.

4.6 Benefits accruing to Commonwealth and State/Northern Territory governments from Australian adoption of international standards include streamlined regulatory processes, reduced monitoring and enforcement costs and higher levels of compliance.

4.7 The implementation of Annex VI of MARPOL 73/78 as proposed in option (ii) will result in some costs for the Australian shipping industry. These costs are expected to be minimal and are described in greater detail below. Costs relating to the carriage of additional certification and survey requirements will become part of standard MARPOL 73/78 compliance. The impacts of the key components of Annex VI are summarised below.

Sulphur Emissions

4.8 Annex VI includes a global cap of 4.5% m/m on the sulphur content of fuel oil and calls on IMO to monitor the worldwide average sulphur content of fuel once the Annex comes into force. The implementation of this global cap will have little impact on local fuel oil suppliers or ships trading to or from Australia. Australian suppliers already use International Standards Organisation (ISO) 8217 as a standard fuel oil, as do most fuel oil suppliers world-wide. ISO 8217 currently specifies a maximum sulphur content of 5% m/m, but is being revised to reflect the new Annex VI standard. In any event, the international average sulphur content of marine fuel oil delivered to ships today is 2.7% m/m, with the most common grade of fuel oil, Marine Diesel Oil, averaging below 1.5% m/m.

4.9 Very little fuel oil for ships is actually sold in Australia. The report "Greenhouse Gas Emissions from Transport", issued by the Bureau of Transport and Regional Economics in November 2002, notes that fuel is more expensive in Australia, and that consequently only around 8 per cent of the fuel oil required for the task of shipping cargoes to and from Australia is purchased from Australian suppliers.

4.10 Annex VI allows for special "SO_x Emission Control Areas" to be established with more stringent control on sulphur emissions. In these areas, the sulphur content of fuel oil used on board ships must not exceed 1.5% m/m. Alternatively, ships must fit an exhaust gas cleaning system or use another technological method to limit SO_x emissions. The Baltic Sea and the North Sea will be designated as SO_x Emission Control areas under Annex VI.

4.11 This will have some cost implications for Australian registered vessels operating in these waters (currently at least five), although the requirement will be imposed on vessels of all nationalities by local regulations, and as such will be applied regardless of whether or not Australia adopts Annex VI. Fuel oil certified at less than 1.5% m/m sulphur content is expected to cost around 20-30 per cent (approximately AUD\$57 per tonne) more than regular bunker fuel.

4.12 The Annex will have some administrative impact on the Australian Maritime Safety Authority (AMSA) and fuel oil suppliers in Australian ports. AMSA will be required to maintain an up-to-date register of fuel oil suppliers in Australian ports (currently 62 suppliers in 27 ports). Suppliers will be required to provide to the master or a ship's officer a bunker delivery note and sample certified by the supplier that the fuel oil meets the requirements relating to sulphur content and quality. A copy of this delivery note must be retained by fuel oil suppliers for at least three years. These minor administrative requirements are unlikely to be burdensome for any fuel suppliers. As these measures apply to all fuel suppliers they will not disadvantage small fuel supply firms.

Ozone Depleting Substances

4.13 Regulation 12 of Annex VI prohibits deliberate emissions of ozone-depleting substances, which include halons and CFCs. The regulation prohibits new installations containing ozone-depleting substances on all ships. However, new installations containing hydro-chlorofluorocarbons (HCFCs) are permitted until 1 January 2020.

4.14 The requirements of Annex VI are in accordance with the Montreal Protocol on Substances that Deplete the Ozone Layer 1987, as amended in London in 1990. The Montreal Protocol is an international environmental treaty, drawn up under the auspices of the United Nations, under which nations agreed to cut CFC consumption and production in order to protect the ozone layer. The Commonwealth Government implements Australia's commitments under the Montreal Protocol and the Vienna Convention for the Protection of the Ozone Layer through the:

- *Ozone Protection Act 1989*;
- *Ozone Protection (Licence Fees – Imports) Act 1995*; and
- *Ozone Protection (Licence Fees – Manufacture) Act 1995*.

4.15 The prohibition on deliberate emissions of CFCs is currently covered in Australia by existing State and Territory ozone protection legislation. By the end of 2003, it is also expected to be covered by Commonwealth ozone protection legislation.

4.16 Prohibition on new installations on ships which contain ozone depleting substances (ODS) except HCFCs is currently covered in some State and Territory jurisdictions in Australia by the specific prohibition of the installation of such ODS-containing equipment. To the extent that gaps exist in the jurisdictions, this element is covered by the Commonwealth *Ozone Protection Act 1989* that prohibits the import and manufacture of such ODS-containing equipment that would be installed on ships without an exemption.

4.17 The ODS-exemption criteria are such that an exemption would not be granted for the purpose of allowing the equipment to be installed on a ship. An exemption will only be granted if the ODS use is essential for medical, veterinary, defence, industrial or public safety purposes; no practical alternative exists; its use is required by law; or the product is for calibration of scientific, measuring or safety equipment. Currently exemptions are only granted for the import and manufacture of specific asthma treatments and the import of portable fire extinguishers for commercial aircraft. Consequently, the existing prohibition cuts off the supply of ODS-containing equipment to ship owners, preventing them from installing it on their ships.

4.18 It should be noted that bringing an uninstalled ODS-containing piece of equipment into Australia on a ship and then attempting to install it would not circumvent Commonwealth legislation. However, if the equipment is uninstalled when it enters Australia, it would be considered an "import" for the purposes of the Commonwealth *Ozone Protection Act 1989*.

4.19 Regulation 12 of Annex VI also requires that ODS (except HCFC) and equipment containing such substances, shall be delivered to appropriate reception facilities when removed from ships. It is notable that Regulation 17 of Annex VI in no way prescribes the nature of the reception facilities to be provided - eg it does not require that the reception of the ODS or ODS-containing equipment occur in a manner to minimise emissions.

4.20 Nearly all States and Territories require sellers and distributors of ODS to accept ODS recovered from equipment. In those jurisdictions, repair ports or ship-breaking facilities that sell or distribute ODS would therefore constitute a "reception facility" - thereby discharging the Government's responsibility under Regulation 17 of Annex VI.

4.21 Where a repair port or ship-breaking facility does not sell or distribute ODS, they would still constitute a reception facility as they all have access to Australia's national network for the collection and transport of halon and CFC, run by Environment Australia's National Halon Bank in Melbourne. The requirement that the ODS or ODS-containing equipment be delivered to such facilities once removed from ships is generally covered by Commonwealth legislation (noting that the ODS in question here is ODS other than HCFC).

4.22 Under the *Ozone Protection Act 1989* a licence is required to remove new or used ODS from a ship (as it constitutes an "import") and an exemption is required to remove an ODS-containing product from a ship (again because it constitutes an "import"). Such a licence or exemption would not be granted if the Commonwealth is not advised of the intended destination of the ODS or ODS-containing equipment. Licences would only be issued if the ODS was to go to a facility approved in the recycling/reclamation of ODS for re-export, the destruction of ODS, or the manufacture of essential products. Exemptions would only be issued if the ODS-containing equipment was for an essential use (eg some asthma puffers).

4.23 By the end of 2003 it is expected that Commonwealth legislation will be passed to require all importers of ODS to make provisions for the responsible management, including disposal, of their ODS imports.

4.24 Taking into account each of the above elements, no further legislation is required in Australia to implement Regulation 12 of Annex VI, and there will therefore be no cost implications for Australian shipping.

Nitrogen Oxides

4.25 Annex VI places limits on emissions of NO_x from diesel engines of more than 130 kilowatts (kW). A mandatory NO_x Technical Code, developed by IMO, defines how this is to be done. There are three options:

- using gas turbine engines instead of heavy fuel oil engines;
- fitting current engines with exhaust catalysts; or
- modifying the combustion properties of existing engines.

4.26 The third option is currently the lower-cost alternative, and has been adopted by the engine-building industry. A 2003 report by the Maritime Transport Committee of the Organisation for Economic Co-operation and Development, "Cost Savings Stemming from Non-Compliance with International Environmental Regulations in the Maritime Sector", points out that this strategy can reduce the efficiency of the engine and slightly increase the amount of fuel necessary to achieve the same performance as before. The report did not seek to quantify this slight increase in fuel consumption.

4.27 The impact of this component of Annex VI is minimised by two important aspects of the regulations:

- the emission standards apply only to new diesel engines and diesel engines undergoing a major conversion. In other words, existing diesel engines will be permitted to operate for their normal service life and will not need to be replaced as a consequence of Annex VI; and
- retrospective application to diesel engines fitted after 1 January 2000. This means that the industry, aware that Annex VI would ultimately enter into force internationally, has been fitting engines that comply with the emission standards for more than two years.

4.28 The cost of marine diesel engines has not increased as a direct consequence of the NO_x emission standards, largely due to the emerging reliance on electronic engine management systems.

Shipboard Incinerators

4.29 - The Annex provides that if shipboard incineration of waste is to be undertaken, it may only be carried out in a proper shipboard incinerator, and that any incinerators installed on board ships on or after 1 January 2000 are to be tested and certified as complying with certain requirements set out in a technical appendix to the regulations. Prior to Annex VI, IMO had developed only non-mandatory guidelines for shipboard incinerators. The impact of this requirement on industry is has been kept to a minimum as the regulations enable shipboard incinerators fitted before 1 January 2000 to serve out their normal operational life. The retrospective application of this provision means that industry has effectively already implemented this change. The IMO has certified more than 70 incinerators produced by eleven companies in seven countries.

Ship Inspections

4.30 Ship inspections under the AMSA's PSC regime will be extended to include air emission requirements. This will primarily involve inspection of an additional certificate carried on board the ship. The survey and certification requirements in Annex VI will not result in additional costs for Government, as these functions are delegated to classification societies.

Petroleum Industry

4.31 The impact of Annex VI on the petroleum industry will be minimal. The Annex applies only to activities on offshore fixed and floating drilling rigs and other platforms that are not directly related to the exploration and exploitation of the seabed. These are:

- incineration of rubbish;
- diesel engines for provision of domestic/accommodation services; and
- fire extinguishing installations relating to domestic/hotel services.

4.32 The Department of Industry, Tourism and Resources (DITR) has confirmed that the emission standards can be incorporated in environment plans for offshore facilities under the Petroleum (Submerged Lands) (Management of Environment) Regulations.

4.33 Survey and certification of facilities will be carried out to verify compliance with these requirements. These requirements are new and will have some impact on industry and State government agencies in Western Australia, Northern Territory and Victoria. Discussions with DITR indicate that the impact of the Annex VI survey and certification requirements can be minimised by incorporating them into existing Petroleum (Submerged Lands) Act environmental plans and environmental audits carried out the by State Authorities.

4.34 Survey and certification of facilities will involve:

- sighting the type of approval certificate that will be provided with any incinerator fitted after the date of entry into force of Annex VI (see Regulation 16 and Appendix IV of Annex VI). This will normally be provided by the manufacturer of the incinerator. IMO will regularly issue circulars of all incinerators that have been approved as meeting the IMO standard. Incinerators already fitted to facilities when Annex VI enters into force will not require inspection;
- for all diesel engines providing domestic hotel services, sighting an Engine International Air Pollution Prevention Certificate that will be provided with any engine fitted after the date of entry into force of Annex VI (See Regulation 13 and the NOx Technical Code of Annex VI). This will normally be provided by the manufacturer and will not apply to existing diesel engines; and
- establishing that the fire extinguishing system relating to domestic/hotel services does not contain ozone depleting substances (see Regulation 12 and the definition of "ozone depleting substances" in Regulation 2(6) of Annex VI).

4.35 In summary, for existing facilities at the time of entry into force of Annex VI for Australia, the "survey" will require only confirmation that the fire extinguishing system does not contain ODSs. Documentation will normally be available to satisfy this requirement. When new incinerators or diesel engines related to domestic/hotel services are installed, manufacturer's documentation confirming compliance with IMO standards will need to be sighted.

4.36 Detailed arrangements for the survey and certification requirements will be established through consultations prior to entry into force of Annex VI for Australia.

Volatile Organic Compounds

4.37 The provision of Annex VI relating to emissions of VOCs from oil tankers is the only optional provision –it is up to each party to determine whether or not to regulate such emissions. If such emissions are to be regulated, the regulations must be in accordance with Annex VI.

4.38 Consultations with stakeholders in Australia indicate that there is currently no requirement for domestic regulation of VOC emissions. In comparison to Europe, where concerns were first expressed on this issue, Australia has relatively few oil terminals and these are widely separated. Even in Europe, moves to regulate VOC emissions from oil tankers have lost momentum. A 2001 report for the European Commission found that it is currently more cost effective to regulate VOC emissions from other sectors, such as paints and solvents. In any event, by 2007, older oil tankers which account for the majority of VOC emissions because oil cargo holds are emptied, cleaned and aired so they can carry

ballast water, will be completely phased out in favour of tankers with segregated cargo and ballast tanks. VOC emissions do not occur during the unloading of these more modern types of vessels if proper and normal tanker operations are observed.

4.39 Option (ii) would also be consistent with Australia's obligations to protect the marine environment as a signatory to the United Nations Convention on the Law of the Sea (UNCLOS) which provides for nations to adopt generally accepted international rules and standards when implementing laws and regulations to prevent, reduce and control pollution of the marine environment from vessels (Article 211 of UNCLOS). In addition, this option is consistent with the Precautionary Principle as set out in the United Nations Conference on Environment and Development, Agenda 21, Principle 15. The Precautionary Principle states that Governments should take action to prevent pollution whenever there are reasonable grounds for concern that such pollution may occur, and that lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

4.40 Environmental benefits of adopting the 1997 Protocol to MARPOL 73/78 include mitigating the adverse effects of air pollution in Australia such as formation of smog, ground level ozone or acid rain. Initially, ports and busy sea-lanes would see the greatest benefits. However the reduction of air pollution from ships would contribute to the reduction of ambient air pollution and greenhouse gases emissions more widely. Since shipping is an international business, reducing emissions from ships will contribute to reducing global warming.

5. Consultation

5.1 The main parties affected by the proposed legislation will be the shipping industry. The Australian Shipowners Association (ASA) and Shipping Australia Limited (SAL), which represent both Australian and foreign ship operators, support Australian adoption Annex VI. The shipping industry has been consulted at all stages in the development of the regulations contained in Annex VI, which dates back to the early 1990s.

5.2 ASA and SAL provided input and briefing to the various IMO Committee meetings which Australia have participated in the development of Annex VI. Contributions from industry were positive during consultation and all feedback received was included in briefing for the IMO meetings. In addition, the international shipping industry has consultative status at IMO and participates actively in deliberations. Industry also firmly supports early international entry into force of Annex VI.

5.3 In respect of consultation with the States/Northern Territory, in November 2002 the Australian Transport Council (ATC) comprising Commonwealth and State/Northern Territory Transport Ministers recommended that Annex VI be accepted by Australia. The ATC did not raise any concerns about Australian adoption of Annex VI. ATC agreed that Commonwealth legislation should be expressed to apply to all jurisdictions, with a savings clause to preserve the operation of any existing or future complementary State/Northern Territory legislation. This approach has been applied in respect of the other Annexes of MARPOL 73/78 that Australia has implemented.

5.4 Consultations with Environment Australia focussed on the need to ensure the provisions of Annex VI dealing with Ozone Depleting Substances were consistent with existing Australian regulations. As noted above, these consultations resulted in agreement that no additional legislation is required in this area.

5.5 Extensive consultations were undertaken with the Department of Industry, Tourism and Resources regarding the application of Annex VI to offshore fixed and floating drilling rigs and other platforms. As outlined above, agreement was reached on how these provisions will be implemented.

The Australian Institute of Petroleum, representing fuel oil suppliers, was also consulted to establish the nature of the trade in Australia, with particular regard to the sulphur content of fuel oil. The Institute raised no concerns regarding the new administrative obligations for fuel oil suppliers.

6. Conclusion and Recommended Option

6.1 Option (i) is that Australia not adopt Annex VI. This would leave Australia potentially vulnerable to unacceptable levels of air pollution from ships. It would also result in enforcement difficulties with respect to foreign ships operating in Australian waters, disadvantage Australian ships when visiting overseas ports and could result in additional costs to shipping if States/Northern Territory implement inconsistent standards in the future.

6.2 Option (ii) is that Australia develop the necessary implementing legislation and accede to Annex VI. This is the preferred option, and it would provide Australia with consistent national standards that could be applied effectively to foreign ships operating in Australian waters. Option (ii) would ensure that Australia's marine environment is protected by applying the most up-to-date international environmental standards.

7. Implementation and Review

7.1 Administration and enforcement of Annex VI will be by way of established procedures applied to other MARPOL 73/78 regulations, primarily through PSC inspections.

7.2 Consultation with the shipping industry is on-going in respect of any proposed changes to MARPOL 73/78 or problems experienced by industry that might need to be raised at IMO meetings. AMSA reports illegal discharges on an annual basis to the IMO. AMSA also produces reports setting out details of deficiencies found on vessels during PSC inspections. MARPOL 73/78 includes provisions to waive the regulations pertaining to Annex VI in special circumstances, such as accidental discharges and discharges that might be necessary to preserve the safety of a ship in an emergency. These provisions will be reflected in Australian legislation, although penalties will be applied where a person is reckless or negligent. It is proposed that penalties for non-compliance will be consistent with other Annexes of MARPOL 73/78, i.e. up to 2,000 penalty units for an individual and up to 10,000 penalty units for a corporation¹. Protocol II of MARPOL 73/78 sets out arbitration procedures in the event of a dispute between affected parties.

7.3 Amendments to Annex VI can be made. Amendments must be adopted by a two-thirds majority of the Parties to Annex VI present and voting at the IMO. Amendments are deemed to be accepted on the date on which two-thirds of the Parties, whose combined merchant fleet constitutes not less than 50 per cent of the world's shipping tonnage, have deposited a notification of acceptance with the Secretary-General of the IMO. Australia's acceptance of possible amendments to Annex VI would be subject to the Australian treaty process as well as the legislative process if amendments to legislation are required to implement amendments to Annex VI.

¹ In monetary terms up to \$220,000 for an individual and \$1.1 million for a corporation.

