



**Submission to the Senate Inquiry into
the potential environmental, social and economic
impacts of BP's planned exploratory oil drilling
project, and any future oil or gas production in the
Great Australian Bight**

Submission to
Senate Standing Committee
on Environment & Communications

April 2016

Key Messages

AMOSC considers there is currently a robust, proven and highly coordinated capacity to “mitigate the effect of an oil spill” in Australia, underpinned by:

- **oil spill response plans, preparedness and coordination at AMOSC, and national and international levels**
- **full-time AMOSC staff of 12 dedicated to oil spill preparedness and response**
- **established core group (120 personnel) of highly trained Australian experts drawn from member companies to respond to a spill**
- **the establishment, availability and location of specialised oil spill response equipment**
- **maintenance of international linkages to access capabilities and expertise**
- **the adoption of international best practices, regularly audited and tested via annual exercises**
- **a particular focus on Australian locations of higher risk for oil spills**
- **services of AMOSC also available to non-members through the National Plan**
- **appropriate industry resourcing of oil spill preparedness and response capability.**

This assessment is supported by the following facts:

1. AMOSC is a not-for-profit marine spill response organisation wholly owned by the Australian Institute of Petroleum (AIP) providing highly specialised spill response and other services to the petroleum industry.
2. Industry (through AMOSC) is committed to the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) and provides the services to the Australian petroleum industry that the Convention requires from all acceding States.
3. AMOSC and its members are committed contributors to the Australian National Plan for Maritime Environmental Emergencies - the cooperative arrangement between the Commonwealth, State and Northern Territory Governments plus the shipping and oil industries for responding to marine oil spills.
4. AMOSPlan details the Australian industry cooperative oil spill response arrangements in a series of plans structured for each level of use and is revised by AMOSC annually. It includes a series of international agreements and relationships designed to support the petroleum industry during a response.
5. AMOSC preparedness and response activities are based on years of history and experience and are acknowledged as providing ‘good oilfield’ practice for the Australian operating environment.
6. AMOSC conducts high fidelity training for industry as prescribed and endorsed by the International Maritime Organisation (IMO) with refresher courses designed to update previously trained responders.
7. Specialised oil spill response equipment has been established in Australia and is constantly maintained for effective deployment. This equipment has been pre-positioned by industry (through AMOSC) for the main crude risk areas of Australia. This strategy is supported by strong relationships with transportation providers.
8. AMOSC and industry collaborate in a multitude of exercises conducted annually either within the National Plan context or by companies individually exercising.
9. Regular audits, both external and internal, are conducted on AMOSC equipment and operations and have consistently found AMOSC to be fully ‘fit-for-purpose’ and meeting international best practices.
10. International best practices are shared with industry through AMOSC including the Joint Industry Projects where AMOSC is a significant contributor.
11. The petroleum industry contributes substantial funding and resources to National Plan activities including training and spill response advice and services, and also equipment (largely through AMOSC), and there are effective cost-sharing agreements and shared resources models operating within industry and between industry and government.

Key Statistics	
Personnel	<ul style="list-style-type: none"> • 12 AMOSC Staff • 5 spill response contractors • 120 Core Group members • 355 industry personnel trained in last 3 years
Equipment	<ul style="list-style-type: none"> • \$18 Million invested in surface equipment and dispersant value • \$11 Million invested in sub-surface equipment and dispersant value • >\$750,000 invested in annual aerial fixed wing costs
Availability	<ul style="list-style-type: none"> • 24/7
Support	<ul style="list-style-type: none"> • Contract: oiled wildlife call-off contract with provider • Contract: trajectory mapping of spills with provider • Agreement: air charter services with provider • Agreement: land transport provider • Agreement: National Plan – AMSA • Agreement: Alliance Agreement with OSRL • Relationship: Global Response Network • Relationship: IPIECA • Relationship: subsea response & equipment advisor/provider • Relationship: oiled wildlife provider USA • Relationship: National Plan partners

About this Submission

AMOSC welcomes the opportunity to provide this submission to the Senate Environment and Communications References Committee Inquiry into oil or gas production in the Great Australian Bight.

This Submission provides key background on AMOSC, its membership and oil spill response plans and cooperation, to address two terms of reference for this Inquiry, namely:

- (d) *the capacity, or lack thereof, of government or private interests to mitigate the effect of an oil spill; and*
- (e) *any other related matters.*

This submission should also be read alongside:

The International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) 1990 see

[http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-on-Oil-Pollution-Preparedness,-Response-and-Co-operation-\(OPRC\).aspx](http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-on-Oil-Pollution-Preparedness,-Response-and-Co-operation-(OPRC).aspx)

International Petroleum Industry Environmental Conservation Association (IPIECA) see <http://www.ipieca.org/>

The Joint Industry Project(s) – 19 outcomes see <http://oilspillresponseproject.org/>

The Nautical Institute see <http://www.nautinst.org/>

The National Plan for Maritime Environmental Emergencies see

https://www.amsa.gov.au/forms-and-publications/Publications/national_plan.pdf

Regional Association of Oil, Gas and Biofuels sector companies in Latin America and the Caribbean (ARPEL); RETOS Tool see <https://arpel.org/article/arpel-presented-its-retostm-tool-2014-iosc/>

Should you have any questions in relation to this submission, or require additional information from AMOSC, the relevant contact details are below.

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AMOSC consents to its submission to be made publicly available on the Committee's webpage.

About AMOSC

(see - <http://www.amosc.com.au/about.php>)

The Australian Marine Oil Spill Centre Pty Ltd (AMOSC) operates the Australian oil industry's major oil spill response facility. AMOSC's stockpile of oil spill response equipment includes oil spill dispersant and containment, recovery, cleaning, absorbent and communications equipment. Equally important is AMOSC's role in training and coordinating industry personnel ready to provide immediate emergency oil spill response.

AMOSC was established in 1991 as a not-for-profit subsidiary company of the Australian Institute of Petroleum (AIP), primarily as a combined industry response to the Exxon Valdez incident that occurred in Alaska in 1989. This incident pre-empted the introduction of an International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) in 1990.

AMOSC owns and operates the oil industry's major oil spill response facilities including stockpiles of oil spill response equipment and sub-surface intervention equipment. There is one main stockpile located in Geelong, three stockpiles located in/around Perth and additional stockpiles in Exmouth and Broome.

AMOSC has a permanent staff of twelve available on a 24/7 basis. When responding to oil spills, the permanent staff is supplemented by participating oil company personnel specially trained for marine spill response. This group of around 120 company employees forms the AMOSC Core Group. The Core Group receives support and training in excess of usual industry based oil spill response courses conducted under the International Maritime Organisation (IMO) levels I-III format and are kept valid and in-date through refresher training every two years. This Core Group is available to all AMOSC Member Companies and others through the National Plan (see below).

AMOSC conducts focussed marine oil spill response training courses at its well-resourced training centres at Geelong and Fremantle. These training courses cover the full range of oil spill response activities – from equipment operation through to management of oil spill response activities. AMOSC also provides advice, auditing, contingency planning and exercise management services all based on marine spill preparedness and response. The IMO courses conducted by AMOSC are accredited by the internationally recognised Nautical Institute (an international representative body for maritime professionals with 7,000 members in 115 different countries - see <http://www.nautinst.org/>).

As marine oil spills may occur that require response efforts over and above individual company capabilities, the petroleum industry has developed cooperative arrangements for mutual aid. These mutual aid arrangements are brought together under AMOSPlan which has received international support and promotion through IPIECA, the global oil and gas industry association for environmental and social issues. Under AMOSPlan, designated oil spill response resources of individual companies are made available to other companies and to the National Plan through service contract agreements administered by AMOSC.

AMOSC is governed by a Board of Directors consisting of its key founding member companies which meets quarterly to determine risk and strategy and review financial and governance operations.

About the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) ([see http://www.imo.org/en/Pages/Default.aspx](http://www.imo.org/en/Pages/Default.aspx))

In July 1989, a conference of leading industrial nations in Paris called upon IMO to develop further measures to prevent pollution from ships. This call was endorsed by the IMO Assembly in November of the same year and work began on a draft convention aimed at providing a global framework for international co-operation in combating major incidents or threats of marine pollution. The result was the OPRC Convention and Australia was one of 90 countries contributing at the two week diplomatic conference to consider the draft Convention.

The IMO is the United Nations' specialised agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships. The IMO consists of 171 member nations with Australia having joined as a member state in 1952. The Australian Maritime Safety Authority (AMSA) is the Australian designated *Maritime Authority* under the IMO context and operates as the "competent national authority" as required by the Convention.

Parties to the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) are required to establish measures for dealing with pollution incidents, either nationally or in co-operation with other countries. Australia acceded to the OPRC Convention in 1996.

Following the establishment of AMOSC in 1991, the petroleum industry committed to following the OPRC Convention in order to remain consistent with the then 'National Plan to Combat Pollution of the Sea by Oil' – this included the key Convention tenets of:

- Plans
- Trained personnel
- Pre-positioned oil combat equipment
- Exercises
- Mutual aid

Through AMOSC, the petroleum industry remains committed to the OPRC Convention and delivers the requirements of the OPRC Convention to the domestic industry needs consistent with international 'good oilfield' practices.

About the Joint Industry Projects (JIP)

([see http://oilspillresponseproject.org/](http://oilspillresponseproject.org/))

During the Macondo response in 2010 the global petroleum industry reviewed the gaps in the response effort and formed an expert group of scientists and experienced responders to support oil spill preparedness and response material in the form of guides, educational programs and scientific papers. This Joint Industry Projects (JIP) group, established under the International Petroleum Industry Environmental Conservation Association (IPIECA, based in London UK), has been steadily launching the outcomes for 19 work sets to update governments and industry groups on the findings of the Macondo response and ways of responding to oil spills more coherently. Importantly the lessons of the Macondo response have been addressed in the JIP work.

The JIP outputs are recognised internationally as the most up-to-date and relevant pieces of information available to the marine oil spill preparedness and response communities.

AMOSC contributed to the JIP group in some of the operational areas of response doctrine. AMOSC uses the JIP outcomes in its training and education programs ensuring industry has the

most up-to-date information but more importantly, ensuring all AMOSC trained responders are responding with up-to-date information, skills and tools.

About AMOSC Member Companies

The member companies of AMOSC carry out almost all of the oil and gas exploration and production, offshore pipeline and terminal operations, and crude and petroleum tanker movements around the Australian coast. AMOSC has two shipping based companies, four downstream companies and twenty upstream companies. The Participant members of AMOSC represent the Board membership. Current AMOSC members are:



The four Australian based refining companies contribute additional levy funding into the International Oil Pollution Compensation Funds through their refining activities (see <http://www.iopcfunds.org/> for more information). This levy is used to underpin the International Oil Pollution Compensation Funds which represents two intergovernmental organisations (the 1992 Fund and the Supplementary Fund) providing compensation for oil pollution damage resulting from spills of persistent oil from tankers.

Oil spill preparedness and response framework

Plans – The National Plan for Maritime Environmental Emergencies

(see https://www.amsa.gov.au/forms-and-publications/Publications/national_plan.pdf)

The *National Plan for Maritime Environmental Emergencies* (the National Plan) provides the umbrella arrangements for marine oil spill preparedness and response in Australia as required by the OPRC Convention (being a National Contingency plan designating the national competent authority, national contact points and an authority that can act on behalf of the State for mutual aid/reporting).

The National Plan is managed by AMSA on behalf of the Federal, State and Northern Territory governments and the petroleum and shipping industries. The Australian petroleum industry is represented by AIP and AMOSC on the Industry Advisory Forum (an advisory only, non-decision making forum) and the technical working groups. The shipping industry is also represented in these forum/groups. This forum represents the entire total of the annually funded Australian

regime for the marine oil spill preparedness and response sector (Regulator funding not included).

AMSA collects a levy imposed on all commercial vessels using Australian ports to fund the National Plan arrangements. Additionally, the petroleum industry in Australia contributes substantial funding and resources to National Plan activities including training and spill response advice and services, and also equipment. This capability and capacity is generally offered through AMOSC.

The National Plan establishes clear divisions of responsibility for marine oil spill preparedness and response between governments and industry. It recognises the roles of the shipping regulator (AMSA) and the offshore oil & gas regulator, the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) in the preparedness and response modes. It also recognises the roles that the States and Northern Territory are responsible for and the roles for which the Control Agencies are held accountable. It defines the 'spiller' as the Responsible Party (RP) and beholds the RP to a series of actions.

The National Plan recognises the role of AMOSC and the contribution that the petroleum industry makes through AMOSC for supplying resources into spills from shipping based incidents which are not oil & gas related. It also recognises the training and commitment by industry to provide trained and effective personnel into a spill response.

The Australian petroleum industry, through AIP, has signed a Memorandum of Understanding with AMSA which outlines responsibilities and commitments of both Parties to support and collaborate on key operational aspects of the National Plan. This includes:

- Sharing of resources by industry into the National Plan
- 50/50 cost sharing of the Fixed Wing Aerial Dispersant Contract (FWADC)
- Any other cost sharing initiatives that may be shared between industry and governments

Plans – AMOSPlan

<http://www.amosc.com.au/pdf/AMOSPlan%20Public%20Information%202015%20V2.1.pdf>

AMOSPlan sets out the cooperative and mutual aid arrangements for all members of AMOSC and also integration by industry into the National Plan. The AMOSPlan exists in three layers: for AMOSC use only, for AMOSC member use and for the wider public dissemination. The first two layers of the plan are highly operationally focussed and designed for AMOSC and its members to prepare and respond to marine oil spills. The third layer discusses the industry arrangements in terms of:

- AMOSC membership and its two membership categories
- Governance arrangements around AMOSC and also National Plan integration
- AMOSC Centre Rules which set out AMOSC operations and AMOSC relationships with its member companies
- Operational arrangements for response services

AMOSPlan also outlines the Joint Standard Operational Procedures shared with AMSA for the fixed wing aerial dispersant Contract (more details below). This is a substantial cost sharing initiative between AMSA and AMOSC that represents 20% of the AMOSC annual operating budget.

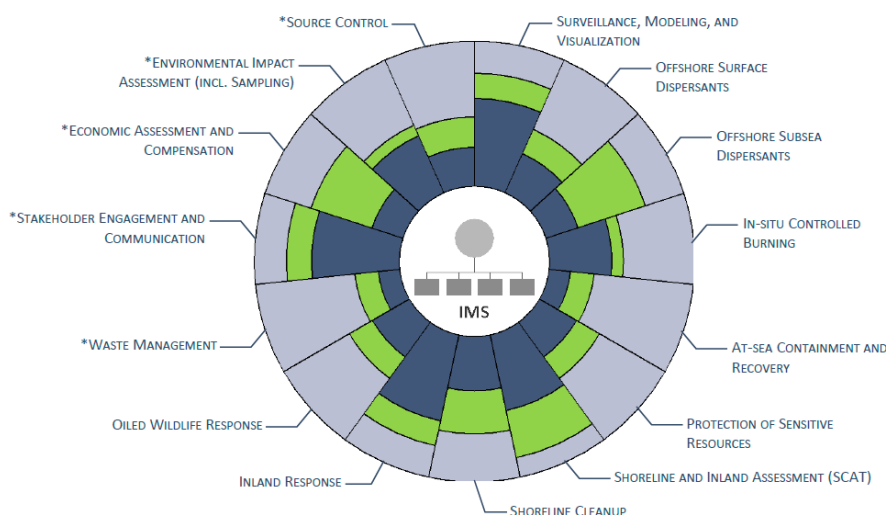
The Global Response Network consists of seven of the industry based oil spill response organisations around the world (Alaska, Australia, Canada east & west, Norway, USA and UK)

including AMOSC (<http://www.globalresponsenetwork.org/index.htm>). Under AMOSPlan, AMOSC outlines the contributions it makes on behalf of the petroleum industry into the executive of the GRN and also the technical working groups that occasionally convene to discuss operational aspects of six areas of response operations: Dispersants, In-situ Burning, Remote Sensing, Ice-covered Waters, Shallow Water, Onshore, Offshore spill response. AMOSC actively contributes into these fora and applies the international knowledge into its advice for its Australian based member companies. AMOSC also contributes this information into the National Plan and AMOSPlan.

For the ease of response operations on behalf of joint members, AMOSC has an Alliance Agreement with Oil Spill Response Ltd (OSR), industry’s global spill response organisation. The nearest base for OSRL is in Singapore and the agreement is occasionally tested between the 2 Parties.

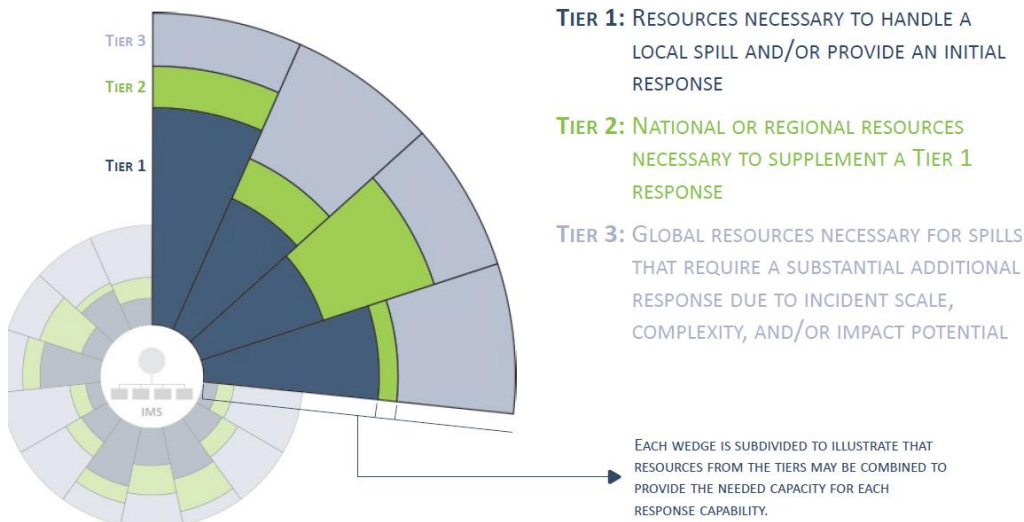
AMOSPlan also recognises the application of the Tiered Preparedness (TP) model (following). This model has been produced from the JIP teams as the most appropriate strategy for preparing and resourcing a marine oil spill. The key aspect to the TP model is the differentiation between national and international resources and AMOSPlan is very specific to the national industry resources available for spill response.

THE FOLLOWING 15 CAPABILITIES ESSENTIALLY REPRESENT THE SCOPE OF TIERED PREPAREDNESS AND RESPONSE:



*THESE CAPABILITIES MAY NOT BE PROVIDED BY OIL SPILL RESPONSE ORGANIZATIONS OR MUTUAL AID, BUT MUST BE CONSIDERED BY OPERATORS IN PLANNING. OPERATORS MUST COMBINE INTERNAL AND EXTERNAL RESOURCES TO MEET THE CAPABILITY REQUIRED TO RESPOND TO POTENTIAL INCIDENTS.

THE TIERS REPRESENT THE VARIOUS LEVELS OF RESOURCE CAPACITY REQUIRED TO RESPOND TO A SPECIFIC FACILITY OR REGION, AND DO NOT REPRESENT QUANTITATIVE MEASUREMENTS OF CAPACITY.



Trained Personnel (1)

AMOSC conducts several forms of training. The first form is the basic foundation training that follows the IMO framework of courses developed early in 2000 for the member States. This framework was adopted by the IMO and relies on the individual States Maritime Administration or alternatively the Nautical Institute to accredit providers who have suitable credentials and quality training programs to provide the marine oil spill response training into that State's spill response regime. This is entirely consistent with the OPRC Convention and provides international consistency. AMOSC is an accredited provider of this training in Australia (*current to 17 May 2017; enclosed*) and offers the three levels of IMO training. This is specific to marine based oil spill response.

AMOSC trains approximately 150 industry personnel per year in the IMO suite of courses:

- IMO 1 Field Operations
- IMO 2 Oil Spill Incident Management
- IMO 3 Command and Control for decision makers

The IMO courses are delivered to a full competency based assessment of each participant and accredit successful participants with an IMO certification. AMOSC also provides re-validation courses that are designed to refresh the IMO training after 3 years has lapsed – this brings each participant up to date with the latest information and technology.

Another form of training involves more specialised and advanced training to industry personnel. This includes aerial surveillance and spill quantification training, focussed courses for onshore and offshore operations and Incident Command System (300) training. This training is non-accredited but meets the requirements of companies for providing properly trained personnel into a spill response.

AMOSC also undertakes tailored training for individual companies which require either basic incident management training or more focussed and complex training at their site(s). This

training is also non-accredited and used by companies as top-up training or specific validation training for their oil pollution emergency plans.

Most AMOSC member companies undertake one or more of the AMOSC suites of training. Generally, individual company personnel are then available under mutual aid for participating in a response team being coordinated by the Responsible Party.

Trained Personnel (2)

A major contribution that the petroleum industry provides to the National Plan and any industry Responsible Party, is the AMOSC coordinated Core Group. The current membership of this group is drawn from the ten Participating Companies, plus two of the Associated Companies, and comprises 120 personnel. The Core Group undertakes the IMO levels of training as a pre-requisite to joining, and then undertakes advanced operationally focussed workshops biennially.

The Core Group is an Australian industry initiative that was initially crafted in 1992. It is unique within the international context and is noted for being innovative and effective to rapidly expand and surge well trained personnel into a spill response. The Core Group has attended most Australian based spills and also several offshore spills.

The Core Group has around 5-10 Incident Control Advisers, 30-40 Incident Management Team personnel and 80 field operators. Within the field operators section, there is capacity to expand out a response based on the in-company trained supervisory skills of many of the field operators. This team has all the necessary skills for both operating spill equipment and also operating heavy movement/lift machinery that they use daily within their own companies.

Revalidation every two years is a requisite feature of the Core Group. This entails three one week workshops training and testing the Group on scenario driven exercises per year. The ten Participating Companies offer 8-14 of their oil spill trained employees into the Core Group and AMOSC coordinates their availability and training to maintain their readiness for a response.

There is a monthly availability matrix made available under AMOSPlan to all of its members and the callout system to all 120 Core Group members is regularly tested. Generally, 40% of the Core Group is immediately available for spill response (within a 4 hour response test) with another 20% being available within 36 hours. The remainder would be called on for fulfilling the second and third rostered work shifts. AMOSC reports the status of the Core Group for the forthcoming month's availability, based on individual member company's assessment of their own Core Group member availability. Industry is aware on a daily basis of the numbers of Core Group available to them for a spill response.

In past spill response exercises, AMOSC has been able to deploy personnel (either AMOSC staff and/or Core Group members) within 24 hours with subsequent deployment of Core Group members as required by the status of the incident.

The status procedures of the Core Group are audited as part of the regular operational audit of AMOSC by AMOSC member companies.

Pre-positioned Oil Spill Response Equipment

AMOSC has several equipment stockpiles located around Australia for the intervention and treatment of surface marine oil spills. The capacity rationale of the AMOSC stockpile originated from the scenario of two holds of a Suezmax (160,000 tonne oil tanker) which approximates 21,000 tonnes of oil, spilling and requiring recovery. Over the last 25 years, this equipment capacity has naturally grown beyond the original capacity rationale and AMOSC uses a defined

reasoning process for determining its annual capital equipment program (example of first strike reasoning enclosed).

The main stockpile is sited in Geelong to service the southern crude oilfields and shipping routes and importantly has access to Avalon airport and main transportation hubs to tranship equipment around Australia. This represents Australia's largest stockpile of oil combat equipment and includes state-of-the-art containerised facilities to treat oiled wildlife.

In 2013 AMOSC member companies embarked on an initiative to increase the capacity and capability of the oiled wildlife resource available to industry. From an agreed concept of operations, industry (through AMOSC) set about developing plans and embarking on a training and equipping program. Several international experts were engaged for the training programs and, with the addition of the Department of Parks and Wildlife WA, a suite of training courses has been adopted and used by the Perth Zoo and Murdoch University. Concurrently AMOSC procured two specialised and portable oiled wildlife treatment containers designed to work in hot and cold areas, and to be deployed in a very short time to a wildlife refuge centre. The wildlife containers constitute the formation of a treatment 'village' very similar to the wildlife model used successfully to treat thousands of animals during the New Zealand *CV Rena* response (2011). This model helped AMSA also procure treatment containers for the National Plan stockpile.

There are also smaller stockpiles based on the west coast including Fremantle where the equipment warehouse is collocated with the 500m³ dispersant warehouse. This stockpile is a smaller but mirrored image of the Geelong stockpile and used for training as well as operationally being available for the west coast AMOSC membership. Oiled wildlife containerised support is also available at Fremantle.

The two other stockpiles are located in Exmouth (at the Harold E Holt naval communication station) and Broome. These stockpiles are strategically located adjacent to the crude fields along the North West shelf and consist of equipment and materials that would be required in the first instance of an oil spill.

AMOSC also owns and coordinates the offshore industry's subsea intervention equipment that is used during a loss of well control incident. This equipment enables a responsible party who has suffered a loss of subsea well control to undertake a seabed survey, clear debris away from the well-head, undertake Blow out Preventer intervention, and prepare the surrounding seabed for the arrival of a capping stack. The last intervention capability this equipment enables is the deployment of dispersant at the well head – this is made possible with additional equipment and tubing (provided by the RP) but the essential (long lead for delivery) mechanical pieces are in place to use dispersant subsea.

Along with the hardware, AMOSC also owns 500m³ of dispersant that would treat between 5-10 days of a free flowing well subsea (dependant on well flows/oil type). Should this stock be exhausted, all domestic and international stocks would be sought to continue the application of dispersant if necessary. This equipment is stored and regularly maintained in Perth and is available for 24/7 use. The subsea stock is also potentially available to other kinds of spills at short notice.

The status for all equipment stockpiles is reported monthly to all members and relies on a comprehensive database and maintenance schedule.

AMOSC has long standing formal Agreements with a reputable road transport company and also a global air charter company. Both Agreements have been used in actual responses and form an integral part of the AMOSC response capability.

Fixed Wing Aerial Dispersant aircraft; since 1996, a contract arrangement has been in place through AMSA, on behalf of the National Plan, to make agricultural aircraft available for dispersant spraying. AMOSC shares the cost of the contract with AMSA. The contract ensures six aircraft are available to leave base within four hours of mobilisation, one each located as follows:

1. Eastern Zone – Moree NSW
2. North Eastern Zone – Emerald QLD
3. Northern Zone – Batchelor NT
4. Western Zone – Jandakot WA
5. Southern Zone – Adelaide SA
6. South Eastern Zone – Ballarat VIC

Aircraft are required to operate fully loaded with dispersant out to 200 nautical miles offshore and are available to all AMOSC member companies. The contract also allows for additional aircraft to be supplied during a response where dispersant becomes the primary strategy.

Exercises

As a member of the National Plan, AMOSC is involved with the annual National Plan exercise program. The most recent 2015 exercise involved a scenario of a loss of well control from a fictitious well offshore from Exmouth. AMOSC planned, led and controlled the operational exercise that involved several hundred people and various equipment to respond off/onshore over a four day period. The operational exercise involved 16 exploration & production companies, four government departments and a number of consulting/commercial organisations. The operational aspect tested the industry arrangements for a spill response based on an offshore scenario. The strategic exercise was facilitated by AMSA and tested the *Offshore Petroleum Incident Coordination Framework* between a company crisis management team and governments.

AMOSC is also regularly involved with its member companies' exercises. In 2015 there were fourteen significant exercises logged where AMOSC was requested to provide response support and/or advice.

AMOSC also assists its member companies with conducting their internal exercises which are focussed on marine spill response. These exercises are based on testing the company Oil Pollution Emergency Plan for a particular site or facility.

Mutual Aid

The aspect of mutual aid in relation to both equipment and personnel continues to evolve in the field of spill response. At present, AMOSC is coordinating ten projects based on the provision of *shared resources* between member companies. The projects range from trajectory mapping to shared labour for a shoreline response and are designed to gain efficiency in Contract management for a number of operators.

Under AMOSPlan, AMOSC also administers mutual aid through maintaining an individual equipment manifest for its member companies who hold or own equipment and have agreed that it can be distributed. This inventory is available for the wider AMOSC membership who can use AMOSC as an agent to coordinate the transfer of individual company equipment to the RP during a spill.

With regards to mutual aid of industry personnel, AMOSC holds the records of all AMOSC trained personnel who potentially can provide additional support for an oil spill response.

AMOSC Effectiveness

As an Oil Spill Response Organisation, AMOSC undergoes annual external audits to assess and ensure its operational capabilities are appropriate to industry needs. These audits are conducted by professional operational auditing teams provided by at least two member companies. In addition to assessing and confirming AMOSC fit for purpose, the audits also have the function of proving the industry capacity in oil spill response for regulatory purposes. The audits have been conducted to a specified baseline standard over the last few years. This audit function is critical to ensuring that AMOSC, member companies and other stakeholders have assurance that AMOSC is appropriately resourced and operationally ready.

AMOSC also internally uses an international assessment tool called RETOS which provides a degree of rigour and assessment of preparedness and response capacity. RETOS has been widely accepted by the international spill response community as a valid and high fidelity tool to assess capability and capacity. AMOSC is a fit-for-purpose marine spill response organisation according to this independent assessment tool.

These assessment tools assist AMOSC in maintaining its effectiveness and efficiencies.

Conclusions

In relation to the Inquiry's Terms of Reference item 'd', AMOSC considers there is currently a robust, proven and highly coordinated capacity to "*mitigate the effect of an oil spill*" in Australia, underpinned by:

- oil spill response plans, preparedness and coordination at AMOSC, and national and international levels
- full-time AMOSC staff of 12 dedicated to oil spill preparedness and response
- established core group (120 personnel) of highly trained Australian experts drawn from member companies to respond to a spill
- the establishment, availability and location of specialised oil spill response equipment
- maintenance of international linkages to access capabilities and expertise
- the adoption of international best practices, regularly audited and tested via annual exercises
- a particular focus on Australian locations of higher risk for oil spills
- services of AMOSC also available to non-members through the National Plan
- appropriate industry resourcing of oil spill preparedness and response capability.

Additional information is contained in this Submission in relation to the Inquiry's Terms of Reference Item 'e' - *any other related matters*.

Additional supporting information

1. Nautical Institute Certificate of Accreditation: this is the certification and accreditation for AMOSC to be able to conduct the marine oil spill specific training prescribed by the IMO
2. AMOSC background: provided to the Inquiry to review staff credentials and incidents AMOSC staff have been involved with
3. Global Response Network: for background into AMOSC's international relationships
4. Capacity reasoning for First Strike resources: to demonstrate how capacity can be derived
5. RETOS results for AMOSC: to demonstrate the most recent survey of AMOSC performance



Certificate of Accreditation

This is to certify that the

MCA Level 3 (IMO 1 equivalent)
MCA Level 4 (IMO 2 equivalent)
MCA Level 5 (IMO 3 equivalent)

Oil Spill Response Training Courses

Delivered by

Australian Marine Oil Spill Centre (AMOSC)

Has been accredited by the Nautical Institute in accordance with its
accreditation policy and procedures on

20th May 2014
(Valid until 19th May 2017)

PRESENTED UNDER OUR HANDS AND THE INSTITUTE SEAL:-



PRESIDENT _____

CHIEF EXECUTIVE _____

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The Nautical Institute, 202 Lambeth Road, London, SE1 7LQ, United Kingdom is a registered Charity Number 1002462,
and Registered as a Company Limited by Guarantee Number 2570030 VAT Number 547 9635 93

Who is AMOSC

- Incidents AMOSC staff have operated in over last 10 years;
 - Mystery spill - Golden Beach, Gippsland VIC
 - CV Rena – IC, Ops Chief, Planning, OC Marine Ops, Geelong support & admin
 - Macondo –SCAT & shoreline ops
 - Montara – dispersant ops, aerial surveillance, at sea containment & recovery
 - Pacific Adventurer,
 - Pasha Bulker,
 - Global Peace
 - Northern Hemisphere responses
- Staff backgrounds include;
 - Drilling & mud engineering – on/offshore
 - Diving & subsea work
 - Emergency services,
 - IT & ICT
 - Marine Science
 - Mechanical engineering
 - Military (Navy)
 - Regulatory & maritime compliance
 - Refining & engineering
 - State Government

Global Response Network

The Global Response Network (GRN) exists to share information, improve spill response performance and provide centres of expertise in spill preparedness, response and recovery techniques



This will be achieved by: fostering strong collaborative relationships amongst its Members;

establishing functional teams to exchange operating information, response techniques and share good practice; and

assisting oil companies and other stakeholders to enhance industry standards for spill response.

GRN OPERATIONAL TEAMS comprise subject matter experts from key functional areas of response, and provide a forum for exchange of information

Dispersants
In-situ Burning
Remote Sensing
Ice-covered Waters
Shallow Water/Onshore
Offshore

GRN MEMBERSHIP CRITERIA

Industry-funded response organisation whose prime objectives do not include profit generation

Service provider for multiple companies and operators

Breadth of Interest and scope of service delivery enables provision of subject-matter expertise

Willing and able to collaborate in the sharing of knowledge and resources

www.globalresponsenetwork.org

Definition of First Strike Resources (expected to be provided by companies)

Introduction

The AMOSC Board requested a review on the definition of 'first strike' and the identification of the spill preparedness and response resources that could be expected to be provided by companies to meet a 'first strike' requirement.

Definition of 'TIER'

In 2014, IPIECA (through the Joint Industry Project) has reviewed the tiered definitions for preparedness and response and has refined the 'tiered' concepts as follows

TIER 1: Resources necessary to handle a local spill and/or provide an initial response

TIER 2: National or regional resources necessary to supplement a Tier 1 response

TIER 3: Global resources necessary for spills that require a substantial additional response due to incident scale, complexity and/or impact potential

Definition of 1st Strike; National Plan for Maritime Emergencies

In the National Plan definition;

"First Strike means a prompt initial response to protect the environment that is intended to limit the effect of an incident until such time as other resources can be deployed in support. This capability may vary from location to location"

Determining 1st Strike

Risk/Capacity Methodology

The risk/capacity methodology is an appropriate starting point to determine individual facility spill response requirements. This methodology calls for

- Credible spill scenarios to be identified and assessed to create the risk based appreciation of what needs to be responded to in the event of a spill.
- Appropriate response equipment to be selected, and
- Equipment capacities to be combined with personnel required to deploy the equipment.

The methodology and working example is included overleaf.

AMOSC Role in providing 1st Strike resources

BM 101 agreed that AMOSC should consider the provision of 1st Strike resources to groups of AMOSC Member Companies who require that service. This means AMOSC can provide efficiencies to industry by providing industry wide shared resources on a regional basis. The Broome Supplementary Stockpile is representative of this stance. AMOSC currently provides Tier1 drilling kits – that will be the extent of Tier1 services that AMOSC provides.

Risk/Capacity Methodology

The following steps provide an overview of the methodology

Firstly the following questions need to be answered at a facility level

- Hydrocarbon type and fate/weathering of spilled hydrocarbon (eg. Brent Crude; API 38.06; 10% wax content; dispersible for 24 hours at 20°)
- Time and distance to sensitive resources (eg. 12 hours to shoreline contact)
- Capacity of facility to store response resources (eg. FPSO footprint available for spill equipment is 8m x 2m)
- Logistics required to provide off-site resources to the site of a spill/potential spill (eg. supply base located at xx port 20nm from facility).

Secondly the credible risk scenario needs to be quantified (eg. single instantaneous release due a split hose/rupture during off-take operation with spill potential for 32.5 m³ in 1 minute before valve isolation).

Thirdly a net budget of oil (without any interventions) needs to be estimated – eg. natural dispersion over 12 hours (using ADIOS Modelling) would indicate 45% dispersion leaving 15 m³ that could impact the shoreline.

Fourthly an assessment of equipment needed to contain and recover and hold waste, or to use chemical dispersant to disrupt the oil eg. at sea booming and skimming using 1 x 200 m offshore boom and a 20 m³/hour skimmer encountering the oil within 4 hours; or at sea dispersant use with 20:1 application ratio requires 750 litres of dispersant (for 15 m³ - but noting this is occurring within 4 hours, then oil budget would be around 28.5 m³) and a vessel based application system.

Lastly a summary of the 4 steps would establish the 'first strike' rationale and inventory for a particular facility.

Notes

1. During a loss of well control incident in the offshore sector, the 'first strike' resources may need to include some additional resources to start the processes needed to support other realistic response strategies (such as satellite tracking buoys for surveillance of the movement of the oil over time).
2. The application of this methodology in the downstream sector would involve a simpler model than one needed to assess the low probability high consequence issues in the upstream sector

Box 1 provides a more in depth explanation of how the equipment capacities can be determined.

Box 1: Equipment capacities

The equipment containment capacities can be determined by

Containment type	Inventory	Oil encounter rate	Eq efficiency factor	Containment capacity (8 hours)
J sweep roboom	600m	30m	1.0	200 m ³

Notes

1. To determine the oil encounter rate for J sweeping with Roboom then multiply:
Length (600m) x encounter area (30m therefore 0.3) x speed (.75kts therefore 1390 m/hr)
x oil thickness (0.1mm) x conversion to m³ (10⁻⁶ m³/mm); Equals 25m³/hour contained.
2. Efficiency factors depend on the ability of the equipment to contain and not lose oil

The equipment recovery capacities can be determined by

Skimmer type	Nominal capacity	Inventory	Eq efficiency factor	Recovery capacity (8 hours)
GT 185 skimmer	45	2	0.4	173m ³

Notes

1. For weir skimmers, good sea conditions and free flowing oil is required so an efficiency factor (including oil to water ratios) of 40% is assumed
2. Disc skimmers and rope mops tend to have a very good recovery efficiency so the factor assumed for recovery is 90% for these skimmers

Global Performance Analysis Results for AMOSC – Feb 2016

Category	Value
Legislation, Regulations, Agreements	92%
Oil Spill Contingency Planning	74%
Response Coordination	85%
Health, Safety & Security	83%
Operational Response	89%
Tracking, Assessment & Information Management	93%
Logistics	83%
Financial & Administrative Considerations	90%
Training & Exercises	86%
Sustainability & Improvements	83%
Total	85%
<i>Institution Specific Criteria</i>	<i>100%</i>

