

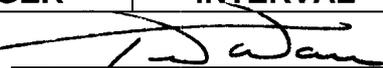
GIPPSLAND BASIN

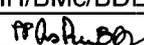
PRODUCTION LICENSE VIC/P54

OIL SPILL CONTINGENCY PLAN

OPERATIONS

OWNER	OPERATIONS MANAGER	REVIEW INTERVAL	12 MONTHS
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DOCUMENT APPROVAL 

REV No	DATE	REVISION	APPROVALS		
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0	07/09/04	Base Document	IRC	CC/MH/ BMc/BDL	EH
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2	16/09/05	Updated for Fur Seal-1	IRC/LH	MH/BMc/BDL 	EH 

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Reference Documents

Apache Emergency Response Plan AE-00-ZF-025
Petroleum (Submerged Lands) Act Schedule
National Marine Oils Spill Contingency Plan (NatPlan)
Victorian Marine Oil Pollution Contingency Plan (VicPlan)
Australian Marine Oil Spill Plan (AMOSPlan)
AMOSC - Emergency Directory

1 DOCUMENT CONTROL

1.1 MANUAL DISTRIBUTION

COPY No.	MANUAL HOLDER			
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006	Drilling Onshore Logistics Coordinator - Melbourne	Max Blakiston/John Lohf	HC	CD
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014	On Scene Coordinator	Bill Deacon	HC	
015	Victoria Department of Primary Industries	Terry McKinley	HC	CD
016	Drilling Engineer	Ole Moller	HC	

1.2 REVISION PROCEDURE

This document, any subsequent revisions or updates to the content, including changes arising from changes to legislation, or any revisions to procedures which affect this document are the responsibility of the Managing Director, Australia or delegate.

Since this document is a manual within the Apache Safety Management System (SMS), no additions or changes to this manual may be made without the following process of review and authorisation taking place:

- Addition/change identification.
- Review by immediate supervisor.
- Production of new draft by ERT Secretary.
- Written approval on Revision Sheet by Deputy Chairperson ERT.
- Updated Manual installed on the Intranet by Library.
- Distribution to manual holders by Library.

Each holder will receive a numbered copy of the manual. The list of names of the holders is identified in the table in Section 1.1.

During the course of use of the manual, holders may identify necessary additions or changes to the manual and related procedures. Those persons concerned should initiate the changes according to the above process.

Apache will ensure that this document is revised and submitted for acceptance by the Department of Primary Industries (DPI) – Victoria, in the event that it is used for operations outside its current scope.

Emergency Response Telephone Directory

This directory will be revised and reissued six monthly. The ERT Secretary will be responsible for updating the directory. An up to date master directory will be kept in the Emergency Response Room.

Paging System

It is the responsibility of ERT members to advise the ERT Secretary of any changes to phone or pager numbers. The company Paging Service conducts a monthly paging test, reporting results to the ERT Secretary, who reviews the pager list as required.

1.3 RECORD OF REVISIONS

SECTION NO	PAGE NO	REMARKS	DATE	REV

1.4 PLAN MAINTENANCE

1.4.1 Training

The Operations Manager will be responsible for the establishment of the training program. This will ensure response personnel are familiar with their roles, particularly with regard to the establishment of strategies, communications and rapid deployment of equipment and materials.

The Marine Adviser is available to travel to the field to support the Incident Controller and Situation Coordinator as an Onscene Co-ordinator. The Marine Adviser is also available to assist in implementing suitable training programs, to ensure that Apache has sufficient suitably trained personnel available to support a response to an oil spill occurring in the companies Gippsland Basin operating areas, and to provide support to other operators through mutual aid arrangements and Government response plans.

The Operations Superintendent is the alternate Incident Controller.

A list of suitably trained Apache oil spill response team personnel is maintained in [Appendix B AE-00-ZF-025-20 Emergency Response Telephone Directory](#) pages 9 & 10.

Regular exercises will be carried out to test Apache's response and to test the co-ordination between Apache, other operators and external authorities. This will be co-ordinated by the Marine Adviser who will be the principle contact with other operator's mutual aid co-ordinators (MAC) and FSO owners.

1.4.2 Updating of Manual

The Marine Adviser will be responsible for review and updating the manual on a yearly basis.

1.4.3 Maintenance of Pollution Equipment

In Victoria, Apache will rely primarily on pollution control equipment maintained by the Australian Marine Oil Spill Centre (AMOSC), based at North Corio Quay, Geelong.

Additional pollution control equipment will remain on standby in Western Australia in constant readiness for an emergency. The Marine Manager will co-ordinate with the Varanus Island Field Superintendent on the North West Shelf to ensure that all company owned equipment and dispersant inventory will always be available if required.

[Ref Appendix E Apache Oil Spill Equipment Inventory](#)

[Ref Appendix F Marine Oil Spill Equipment System \(MOSES\)](#)

2 BACKGROUND INFORMATION

2.1 INTRODUCTION

This manual outlines the Apache Energy Limited (Apache) Gippsland Basin Oil Spill Contingency Plan (OSCP). The aim of this OSCP is to minimise the effect of any marine oil pollution incident resulting from operations by Apache in the Gippsland Basin through the implementation of rapid, effective and appropriate response procedures.

The OSCP serves as a guide to persons identified as having a role in responding to an emergency situation by showing those people where they should go and what they should do once they have become aware that an emergency exists.

Functional roles are used rather than individuals because a large team may not be able to be staffed totally with Apache personnel and alternates may be necessary when a primary candidate is not available. The terminology used is as far as possible common between companies and external agencies to avoid confusion if outside resources are introduced during a large emergency operation.

Should you have to delegate your emergency response role please hand the handbook to your alternate.

Keep this manual readily available.

Should you have to delegate your emergency response role due to absence from Perth or not being reasonably contactable within Australia to perform your role, please hand your mobile phone and Personal Response Handbook to your alternate.

Keep this Manual and your Personal Response Manual readily available.

Please advise the Operations Department / ERT Secretary when you delegate your ER role or if you will be absent from Perth or the Field, but readily contactable and able to return to fulfil your role.

2.2 SCOPE OF PLAN

2.2.1 Overview

The OSCP has been standardised for operations in the Gippsland Basin to ensure that all members within the oil spill response effort have a clear understanding of their roles and responsibilities for all oil spill incidents.

Apache will operate support vessels and logistics operations out of Melbourne, Wharf 27. The primary supply base for oil spill response equipment will be Geelong, Victoria. Oil spill response activities will be directed from Apache's Emergency Response Centre in Perth, Western Australia. Additional assistance and equipment may also be seconded from Apache's North West Shelf operations in Western Australia as and when required.

2.2.2 Project Description

In October/November 2005, Apache proposes to drill an exploration well, Fur Seal-1 within the Permit Area VIC/P54. The well is located in the Gippsland Basin in 58 m Commonwealth waters off the Victorian Coast. The details for Fur Seal-1 are given in Table 2.1. A map of the permit area is presented in Figure 2.1.

The drilling program is expected to take approximately 20 days to complete based on a dry hole scenario.

Table 2.1 Details of Fur Seal-1

Well Name	Fur Seal-1
Surface hole location	38° 07' 47.82" S 148° 09' 08.53" E GDA '94
Type of well	Exploration
Approximate water depth	58 m
Approximate length of drilling period	20 days (dry hole)
Proposed total depth of well	2,612 m
Drilling rig	Ocean Patriot
Drilling fluid	top hole – seawater/high vis sweeps Bottom holes – WBM (KCl/PHPA)
Volume of cuttings (estimate only)	280 m ³
Annular disposal?	No
Volume of WBM cuttings disposed to sea floor	280 m ³
Scheduled commencement date	Oct/Nov 2005
Distance to nearest land or reef system	Approximately 30 km south from the Victoria coastline
Oil Spill Modelling	Undertaken from representative location for Oct/Nov weather conditions

The wells will be drilled using the semi-submersible drilling rig Ocean Patriot. The rig will be towed into position by one or two support vessels. When in position the rig will be held on location by an eight point anchor spread.

The one or two support vessels which will tow and position the rig will also supply the rig with fresh water, food, fuel, bulk drilling fluid materials and drilling hardware. These vessels will operate between the rig and the Port of Melbourne.

The drilling rig and support vessel crews will be accommodated aboard their respective vessels. Marine crew changes will involve transfer from the vessel when it is in Port.

2.3 OBJECTIVES

The objectives of the Apache Gippsland Basin OSCP are to:

- ensure that Apache responds to the priorities set out in Section 2.4 (below) during response to a marine oil pollution incident;
- ensure that procedures are consistent with those used by Victorian agencies as detailed in the Victorian Marine Oil Pollution Contingency Plan (VicPlan);
- ensure a full and effective integration and utilisation of industry and government response efforts and resources;
- identify protection and cleanup priorities; and
- protect the interests of Apache.

2.4 RESPONSE PRIORITIES

The response priorities of this OSCP are to:

- ensure the safety of all Apache and Contractor personnel;
- secure and minimise the impact on the environment through timely and effective management (particularly in relation to oil spills);
- secure and minimise potential losses or damage to equipment and assets; and
- minimise disruption to work activities.

2.5 COMPLIANCE

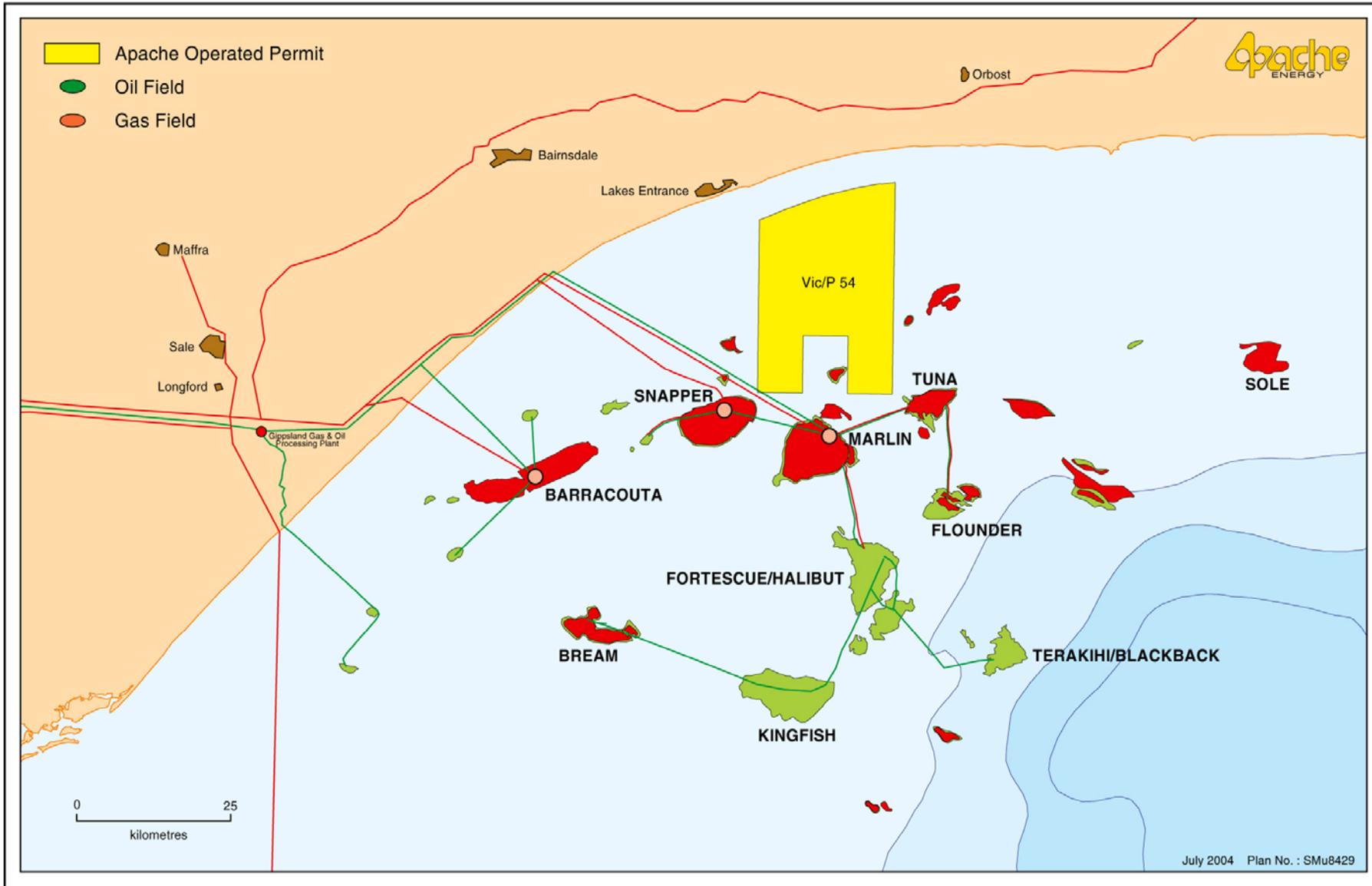
The OSCP has been developed to meet the following Commonwealth requirements:

- *Petroleum (Submerged Lands) Act [P(SL)A], 1967* (administered by the Department of Industry, Tourism and Resources [DITR] through the Victorian Department of Primary Industries [DPI]);
- *Environment Protection and Biodiversity Conservation Act 1999* (administered by the Department of the Environment and Heritage [DEH]);
- *Petroleum (Submerged Lands) (Management of Safety on Offshore Installations) Regulations, 1996* (administered through DPI);
- *Petroleum (Submerged Lands) (Management of Environment) Regulations 1999* (administered through DPI);
- *Schedule of Specific Requirements as to Offshore Petroleum Exploration and Production, 2003* (administered through DPI); and
- *Protection of the Sea (Prevention of Pollution by Ships) Act, 1983 and amendments* (administered by the Australian Maritime Safety Authority [AMSA]).

The OSCP also meets the following Victorian requirements:

- *Marine Act, 1988* (administered by the Department of Infrastructure [DoI]);
- *P(SL)A, 1982* (administered by DPI);
- *Schedule: Specific Requirements as to Offshore Petroleum Exploration and Production, 2003* (administered by DPI);
- *Port Services Act, 1995* (administered by Marine Safety Victoria [MSV]); and
- *Pollution of Waters by Oil and Noxious Substances Act, 1986 (POWBONS)*, (administered by MSV).

Figure 2.1 Apache Operated Permit – VIC/P54



3 POTENTIAL POLLUTION RISKS

3.1 POTENTIAL INCIDENTS

Activities that have the potential to result in the release of oil into the environment during production and export operations are listed below.

Drilling Rigs

- Spillage of diesel during transfer (refuelling).
- Blowout during drilling resulting in release of oil.

Well Testing

- Discharge of oil caused by incomplete combustion during well testing operations.

Vessel Collision/Foundering

- Release of diesel arising from collision or foundering of vessels.

Loading Wharves

- Overflow of diesel during transfer (refuelling).
- Release of diesel due to hose rupture.
- Accidental discharge of diesel from containers or drums.

3.2 POTENTIAL HYDROCARBONS

3.2.1 Diesel

Spills caused by fuel handling mishaps are rare, but because of the number of times fuel is handled at sea and the volumes involved, this is one of more common sources of spills. Causes include hose rupture, coupling failures, and tank overflow. The likely maximum volume of fuel spilt as a result of one of these events is estimated at 2.5m³. Rupture of a fuel transfer hose typically leads to a spill not exceeding 0.2m³.

Release from a general support vessel incident, *i.e.* vessel collision, is highly unlikely. A worst case volume lost under this scenario would be up to 275m³ of diesel, which would have a generic leak frequency assessment estimated at approximately 1.1×10^{-6} (Apache 2001). A credible spill volume from this scenario is estimated at 80m³.

3.2.2 Oil

Blowout

Monitoring systems are in place to detect potential blowouts. Such events can occur only if all systems fail and if the casing, wellhead or blowout preventers (BOPs) fail catastrophically. The occurrence of such circumstances has been reduced via improved back-up systems. The risk is further reduced when knowledge of the underlying stratigraphy and formation pressures is available for nearby wells. The probability of a blow-out is minimised through:

- reservoir knowledge;
- testing the BOPs before starting the operation and regularly during the operation;
- pressure testing of casing strings;
- continuous monitoring for abnormal pressure during drilling; and

- providing mandatory training in safety procedures for the drill crew.

Should a blowout occur, the volume of oil spilled will depend on the permeability of the producing formation, the thickness of the encountered producing interval, the viscosity of the oil, the number and type of obstructions in the well hole, and the time taken to regain control and seal off the well bore. Drilling of directional 'interception' or relief wells to stop the flow can be undertaken, but this is considered the last resort as this operation can take several weeks to complete. The maximum volume of oil that is likely to be released from a blowout has been estimated at 1,000m³.

Well Testing

Well testing is conducted to evaluate any hydrocarbon-bearing formations for possible flow characteristics. Oil fallout during production testing could result in the loss of small volumes of oil from the burner to the ocean surface.

Oil burners that atomize the hydrocarbons are used to ignite and burn the mixture. Fallout of free oil can occur if improper combustion occurs or if the burners become plugged by well debris, ie sediment.

Volumes of oil involved in such a spill would be 500L or less. Measures taken to minimise this risk include continuous monitoring of the test equipment and using specialised 'green' burners that will allow the optimisation of the burning process by:

- incorporating sensors to monitor fluid pressure, temperature and flow rate;
- combining sufficient quantities of compressed air and water with the oil to allow an optimal burn; and
- incorporating remote control operation of the burner panels that allows the optimisation of the atomisation process and the orientation of the burners in all weather conditions.

3.3 OIL SPILL MODELLING

Oil spill modelling representative of drilling in VIC/P54 has been done using the surface location of the Longtom-2 well. Longtom-2 is 14.7 km to the east of Fur Seal-1. The modelling was undertaken using the OILMAP model. The analysis considered the following spill scenarios:

1. 600,000 L of generic Gippsland crude (source ADIOS database, registered by AMSA) released over 24 hours to represent a loss of well control;
2. 80,000 L of marine diesel (source ADIOS database, registered by AMSA) spilled at the surface over 6 hours, to represent a ruptured vessel fuel tank; and
3. 8,000 L of marine diesel (source ADIOS database, registered by AMSA) spilled at the surface as an instantaneous release, representing a refuelling incident.

Appendix D summarises the results of the oil spill modelling analysis.

4 ENVIRONMENTAL RESOURCES AT RISK

4.1 VICTORIAN COASTLINE

The Victorian coastline is located close to Fur Seal-1, at a distance of approximately 30 km. This coastline is characterised by extensive beaches interrupted by occasional rocky headlands such as Point Hicks and Cape Conran. Immediately to the north of the permit is the eastern extremity of Ninety Mile Beach.

Although there are no mangroves, coral reefs or extensive wetland lagoons along the exposed coastline, there are environmentally sensitive areas situated in, or adjacent to, coastal estuaries. These areas are:

- Gippsland Lakes, a designated Ramsar Wetland. The lakes are estuarine and linked to the ocean via a narrow opening at Lakes Entrance.
- Point Hicks Marine National Park
- Croajingolong National Park
- Australian fur seal colony near Little Ram Head
- Australian fur seal haul out site at Beware Reef
- Ninety Mile Beach Marine National Park near Seaspray
- The Ewing Morass State Game Reserve
- Little Tern Rookery sites at Tamboon and Sydenham Inlet.

4.2 ENDANGERED AND VULNERABLE SPECIES IN THE PERMIT AREA

A total of five marine species listed under the EPBC Act database as being endangered or vulnerable may occur within VIC/P54. These are shown in Table 4.1.

Table 4.1 Endangered and Vulnerable Species under the EPBC Act

Species	Listing	Likely presence in the Area
Blue Whale (<i>Balaenoptera musculus</i>)	Endangered marine species	Possible (passing through area)
Southern Right Whale (<i>Eubalaena australis</i>)	Endangered marine species	Possible (passing through area)
Humpback Whale (<i>Megaptera novaeangliae</i>)	Vulnerable marine species	Possible (passing through area)
Grey White Shark (<i>Carcharodon carcharias</i>)	Vulnerable marine species	Possible
Whale Shark (<i>Rhincodon typus</i>)	Vulnerable marine species	Unlikely

The small area in which the drilling will take place is unlikely to function as a critical habitat for any of the listed species. While some of them may migrate through or temporarily forage within VIC/P54, it is unlikely that the drilling programme will adversely affect their populations. There are no listed threatened ecological communities as defined in the EPBC Act in the vicinity of the drill sites. There are, however, numerous other species threatened fish and migratory marine species that may be found within the region of VIC/P54.

4.3 OTHER FAUNA IN THE PERMIT AREA

The following provides a summary of the Description of Environment presented in Appendix C and detailed in the Environment Plan for Fur Seal-1 (EA-70-RI-003).

4.3.1 Fish

The pelagic water species found in Bass Strait are largely of cool temperate water species, common to Southern Australian seas (ANZECC, 1998). A variety of commercially important fish species are found in Bass Strait. Many of these are fished in waters much deeper than that found within the permit area.

4.3.2 Whales

Of the whales listed in Table 4.1, the Southern Right Whale is known to calve close to the western Victorian coast between May and September (EA, 2001). Blue whales aggregate and feed in waters off the western Victorian coast and individuals of both species may pass through VIC/P54. It is unlikely that the proposed drilling programme will have a detrimental effect on any of these species because of the temporary nature of the drilling program and its distance from recognised calving and feeding grounds.

4.3.3 Seals

The Australian fur-seal (*Arctocephalus pusillus*) occurs throughout Bass Strait. There are numerous breeding colonies near Wilson Promontory, Philip Island and King Island. There are no breeding grounds within VIC/P54 or in the immediate surrounding waters (Bryden et al. 1998).

4.3.4 Seabirds

Migratory seabirds listed under the EPBC Act are known to occupy the Islands of Bass Strait and the nearby coastline and may pass through VIC/P54 during the time of the drilling program. Due to the lack of suitable roosting and breeding habitats they are not expected to occur within the permit.

4.3.5 Other Species

Other listed species identified by the EPBC Act Protected Search Tool as species that may inhabit the area includes:

- 20 species of Pipefish;
- 4 species of Seahorse;
- 1 species of Seadragon (*Phyllopteryx taeniolatus*);
- 2 species of Pipehorse;
- 1 species of fur seal (*Arctocephalus pusillus*); and
- 19 other species of cetaceans (whales and dolphins).

5 VICTORIAN AND NATIONAL PLAN ARRANGEMENTS

5.1 INTERFACES WITH OTHER CONTINGENCY PLANS

5.1.1 NatPlan

The National Plan to Combat Pollution of the Sea by Oil (NatPlan) represents the combined contingency plan of the Commonwealth and State Governments and oil industry to combat oil spills threatening the Australian marine environment. NatPlan provides a framework for individual State oil spill contingency plans. It is administered nationally by the Australian Maritime Safety Authority (AMSA). AMSA has resources distributed at strategic locations throughout Australia.

Relevance

NatPlan applies to Commonwealth Waters, within which the VIC/P54 Permit Area is located. NatPlan specifies AMSA as an immediate point of contact in the event of an oil spill arising from Apache's operations. If required, Apache may request the assistance of AMSA in managing spill responses.

5.1.2 VicPlan

Within the framework of NatPlan is the Victorian Marine Pollution Contingency Plan (VicPlan). VicPlan documents arrangements for emergency (including oil spills) preparedness and response for offshore oil and gas exploration in Victoria and adjacent Commonwealth waters. VicPlan is administered and coordinated in Victoria by Marine Safety Victoria (MSV). VicPlan provides an interface with AMSA for the request and coordination of interstate and overseas assistance.

Relevance

VicPlan assumes relevance if a spill in Commonwealth waters is likely to impact on State waters, *i.e.* to move within 3nm of the Victorian coastline. This scenario must be considered for any spills determined to be Tier 2 or 3 incidents.

5.1.3 AMOSPlan

AMOSPlan, the Australian Industry Cooperative Oil Spill Response Arrangements document, is a voluntary mutual aid plan which is administered and funded by the oil industry through the Australian Marine Oil Spill Centre (AMOSC). AMOSC also provides guidelines for spill response strategies in Victoria and is responsible for the hiring of response equipment and resources.

Relevance

As a subscribing member, Apache can obtain assistance through AMOSPlan in combating incidents which are beyond Apache's own resources to control. Industry assistance is available through the industry funded response facility based at North Corio Quay, Geelong, Victoria. AMOSC resources include:

- AMOSC spill response equipment;
- oil company equipment based at various locations; and
- trained industry response ('Core Group') personnel.

5.2 DIVISION OF RESPONSIBILITIES

5.2.1 Overview

The following sections outline the responsibilities of various positions in the event of an oil spill occurring during Apache's operations.

5.2.2 Operator Staff and Contractors

It is the responsibility of all staff and contractors to:

- be familiar with the contents of the OSCP;
- know their designated oil spill response role; and
- know the reporting and immediate response requirements.

5.2.3 Statutory Agency

The Statutory Agency (SA) is defined in NatPlan as the Government Agency which has responsibility to ensure that an adequate spill response plan is prepared and, in the event of an incident, that a satisfactory response is implemented. These responsibilities are defined in Table 5.1.

Table 5.1 Statutory Agencies

Location	Spill Source	SA	Statutory Authority
Commonwealth waters	Offshore exploration and production	DPI	P(SL)A 1967
	Vessels	AMSA	<i>Protection of the Sea (Prevention of Pollution by Ships) Act, 1983</i>
Victorian waters	Offshore exploration and production	DPI	P(SL)A 1982
	Vessels	MSV	POWBONS 1986 ⁽²⁾
Port waters	Vessels ⁽¹⁾	Port Operator	<i>Port Authorities Act 1999</i>
		MSV	POWBONS 1986 ⁽²⁾

(1) Includes MODU if in Port.

(2) In accordance with POWBONS, Section 10, vessel masters must also ensure that they maintain an Oil Record Book if their vessel exceeds 400 tonnes.

5.2.4 Combat Agency

The Combat Agency (CA) is the agency (industry or government) that directs and manages the spill response. This may be the Company responsible for the spill, the SA or other agency at the request of the SA. Nominated CAs are shown in Table 5.2.

Table 5.2 Nominated CAs

Spill Location	Spill Source	CA		Relevant OSCP
		Tier 1	Tier 2/3	
Commonwealth waters	Offshore exploration and production	Apache	Apache ⁽¹⁾	Apache Gippsland Basin OSCP
	Vessels	Apache	AMSA	National Marine OSCP
Victorian waters	Offshore exploration and production	Apache	Apache ⁽¹⁾	Apache Gippsland Basin OSCP
	Vessels	Apache	Regional Control Agency (RCA)	RCA OSCP
Within Port	Vessels ⁽¹⁾	Apache	Port Authority	Port OSCP

(1) Apache may request Government nominated CA to assume control (see CA for vessel spills).

5.3 REPORTING

There is a statutory requirement to report all oil spills that are over 80L (0.5bbl) to the DPI within 2 hours.

For vessels, the Master must report all discharges to sea of oil or oily mixture to the relevant authority (POWBONS, Section 10), being:

- AMSA, if spill is >3nm from shore;
- MSV if spill is <3nm from shore; or
- Port Authority if spill occurs within a Port.

All spills from either the rig or vessels require in-house reporting to the Drilling Supervisor/PIC, who will forward these for further action by the Drilling Manager.

5.4 VICTORIAN STATE ORGANISATION

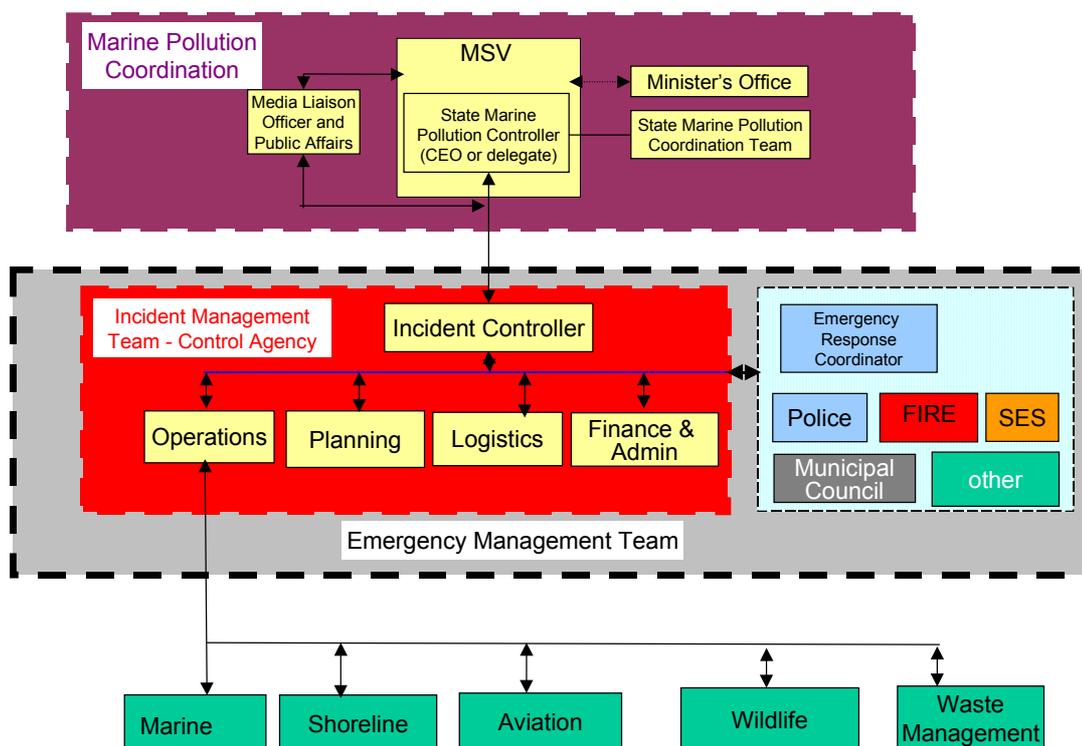
5.4.1 Overview

Administrative arrangements for managing marine oil pollution preparedness and response in Victoria and adjacent Commonwealth waters are documented in VicPlan. The Victorian organisation is illustrated in Figure 5.1. VicPlan is administered and implemented by:

- the VicPlan Management Committee;
- the VicPlan Operations Group; and
- four RCAs (Figure 5.2).

Overall responsibility for response remains with Apache. DPI requires Apache to seek assistance from other Government Agencies if required. As detailed in Section 5.2, Apache may request that a Government Agency assumes the CA role (see also Section 7). Note that DPI does not assume a CA role under VicPlan.

Figure 5.1 Victorian State Organisation



5.4.2 Management Committee

The Management Committee is responsible for the administration of VicPlan. In a major response Management Committee members may be required to facilitate the provision of human and material resources by their respective agencies. The Chairman of the Management Committee is the Director Marine Safety of MSV and is responsible for coordinating the activities of the Management Committee.

5.4.3 Operations Group

The Operations Group is responsible for maintaining operational preparedness. During an incident the Operations Group may be activated to provide support to the Incident Controller (IC). The Operations Group is coordinated by the General Manager Safety and Environmental Services of MSV.

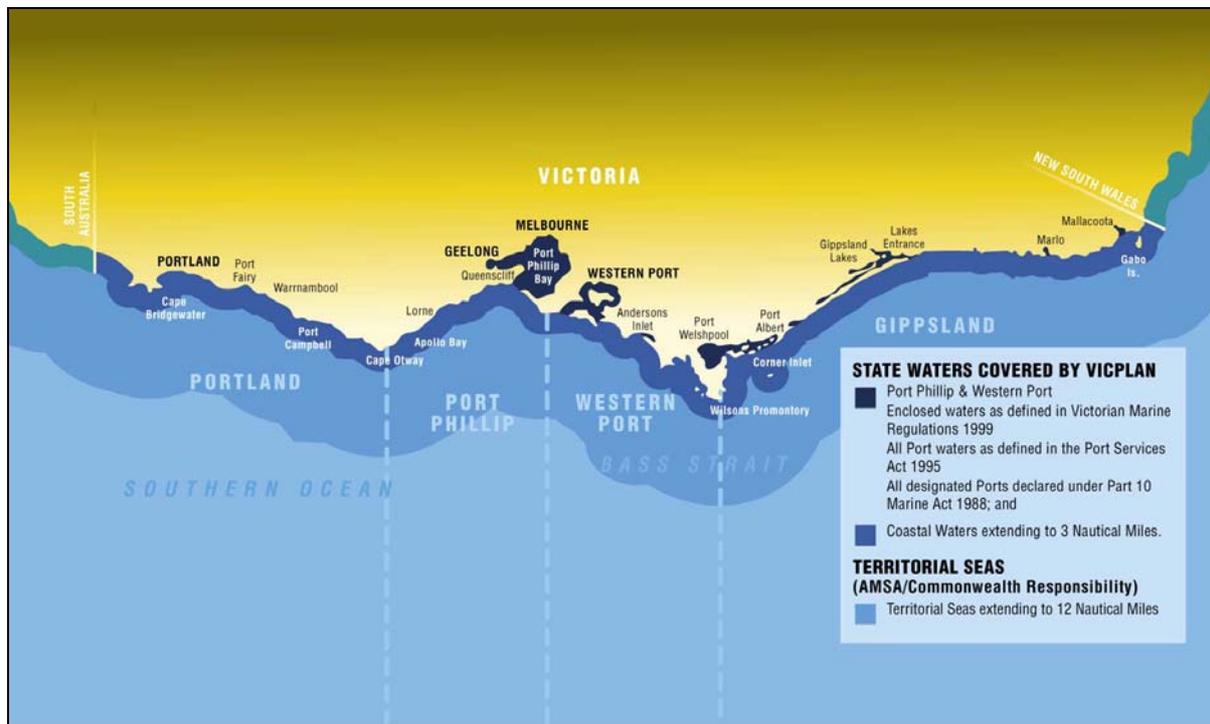
5.4.4 State Marine Pollution Controller

In a large scale or high profile response, a State Marine Pollution Controller (SMPC) may be appointed to be responsible for the management of major issues arising from the incident. The SMPC in Victoria is the Director of Marine Safety at MSV.

5.4.5 Regional Organisation

To manage Victoria's marine pollution response, the Victorian coastline is divided into four VicPlan Marine Pollution and Response regions. VIC/P54 falls within the Gippsland region (Figure 5.2), which makes the RCA the Gippsland Ports Committee of Management Inc., who will respond to spills within the Gippsland District and associated waters, at the request of MSV.

Figure 5.2 RCA Regions and Ports



6 RESPONSE - OIL SPILL

6.1 TIERED RESPONSE STRUCTURE

Response actions will be coordinated in accordance with a three-tiered response defined according to:

- agency assuming the role of CA;
- number of agencies called upon to respond; and
- amount of resources mobilised.

These in turn will depend on the:

- type of oil spilled;
- location of the spill and resources at risk; and
- volume of oil spilled.

Regardless of tier level, Apache's Oil Spill Commander/Incident Controller retains overall responsibility for managing all response actions. If a spill becomes beyond their management capability, Apache may request appropriate external assistance per Section 5.2. Apache will remain as the lead combat agency (CA) and will retain overall management responsibility, with supporting government agencies acting as advisors. These agencies may vary depending on the location of the spill (refer to Table 5.2).

6.2 TRIGGERS FOR DETERMINING RESPONSE TIER

6.2.1 Tier 1: Less than 10 tonnes

Tier 1 is a spill of up to 10 tonnes that has been stopped and is within Apache's on-site capability to control. A field-based team will be responsible for managing the spill, supported as necessary by the Perth-based Apache ERT. The local impacts of such a spill are considered to be of low environmental significance.

Tier 1 is Apache's initial response to an oil spill incident. Apache has an inventory of containment and clean-up equipment capable of dealing with crude oil or diesel fuel spills of this volume ([Ref Appendix E Apache Oil Spill Equipment Inventory](#)). For larger spills within this tier, under difficult conditions or in the event that containment is considered beyond the capability of Apache resources and staffing, industry support through the Australian Industry Cooperative Oil Spill Response Arrangements (AMOSPlan) is available. This plan is managed by AMOSC. Relevant equipment is cited in MOSES ([Ref Appendix F MOSES](#)).

In the event of any Tier 1 spill Apache will notify AMSA and DPI as a matter of course, keeping them informed of the outcomes of the spill and any associated cleanup operations.

6.2.2 Tier 2: Between 10 and 1,000 tonnes

A Tier 2 incident is greater than 10 tonnes but less than 1,000 tonnes that has been stopped, or a continuing spill that is likely to exceed 10 tonnes. The spill will be too large for management by the field-based team alone. Such a spill is likely to result in negative short-term environmental impacts to a localised area.

The initial response will be mounted by Apache, with assistance from AMOSPlan (via MAC) as required. AMSA and other Government Agencies (refer to Table 5.2) may be requested to assist or to assume the CA role. The Apache ERT leader will take charge of coordinating Apache involvement, and activating support as required.

6.2.3 Tier 3: Greater than 1,000 tonnes

A Tier 3 spill is greater than 1,000 tonnes, or a continuing spill that is likely to exceed 1,000 tonnes. Response requires the mobilisation of full state, national or international resources. Resulting environmental impacts may be of high regional or long term significance.

The nominated Government CA will usually assume operational control of the spill response. The Apache ERT support structures will remain active in order to support the broader response.

The size of the spill (quantity) does not determine the response taken if the spill is likely to affect an environmentally sensitive area. The primary consideration is the likely effect on sensitive resources, therefore a smaller spill may require immediate outside assistance in these circumstances.

Table 6.1 Summary Description of Response Tiers

	Tier 1	Tier 2	Tier 3
Control			
CA Incident Control ⁽¹⁾	Apache	Apache with Government assistance or nominated Agency as per Table 5.1 ⁽¹⁾	
Possible 'Triggers' for Response Tier⁽²⁾⁽³⁾			
Spill Size	0 – 10t	10 - 1,000t	>1,000t
Potential Economic or Environmental Harm	Low Not Significant	Moderate Local/Short-term	High Regional/Long term
Indicative Resources Mobilised⁽³⁾			
Apache			
AMOS/Industry			
AMSA			
Victorian State (including MSV/RCA)			
International			

(1) Apache would request either AMSA or the Victorian MSV to take control of the response if this proved beyond Apache resources.

(2) See Section 6.2

(3) Indicative only. Highly dependent on a number of considerations. Refer to Section 6.1.



Standby, or partially mobilised.

Mobilised or likely to be mobilised.

6.3 RESPONSIBILITY FOR DETERMINING TIER

6.3.1 Tier 1

Apache will assess whether it can manage a spill and this assessment will be confirmed by DPI (who can reassess the response at any time and escalate the Tier). As a rule, if Apache can manage the spill then it is defined as Tier 1.

6.3.2 Tier 2/3

If it is agreed that Apache cannot manage the response with its available resources, then Apache (or DPI) may request another agency to take the role of CA. The decision on whether a response is a Tier 2 or a Tier 3 response is decided by the CA. Guidelines for determining the Tier are provided in Table 6.2.

Table 6.2 Guidelines for Determining Spill Response Tier

		Oil type										
		Light-Medium Crudes ⁽¹⁾ and Lube Oil				Diesel Fuel Oil			Very Light Crudes and Condensate ⁽²⁾			
Volumes (tonnes) ⁽³⁾		< 10	10- 100	100- 1,000	> 1,000	< 10	10- 100	100- 500 ⁽⁴⁾	< 10	10- 100	100- 1,000	> 1,000
Time (hrs) to shore impact	<12	2	2	3	3	2	2	2	1	1/2	2	2/3
	12-24	2	2	2/3	3	1	1	2	1	1	1	2
	>24	1	2	2/3	2/3	1	1	2	1	1	1	1/2

- (1) Highly dependent on crude type. Lighter crudes are unlikely to persist beyond 48-94hrs. Landfall is highly unlikely. Heavier crudes may impact and a higher Tiered response is likely (refer to Table 8.2).
- (2) Tier levels for larger spills will depend on the type of condensate and the need to protect sensitive coastal and marine resources. Careful modelling of spill trajectory and weathering will be required.
- (3) Trajectory modelling or manual calculations required.
- (4) Maximum diesel spill is <500t.

6.4 EMERGENCY RESPONSE ORGANISATION

This section provides an outline of emergency response organisations that have been planned and built into the levels of Apache's operational and management structure. The Apache response to an emergency has been divided into the following three principal areas based on the Oil Spill Tier Level:

- Tier 1 : Local management – **Field Emergency Response Team (ERT)**
- Tier 2 : Emergency Management – **Perth ERT**
- Tier 3 : Crisis Management – **Crisis Management Team (CMT)**

Each is presented briefly below and is discussed in further detail in the sections that follow.

Figures 6.1 – 6.5 flowchart the Apache corporate response to different levels of emergency. A minor emergency is defined as one which can be managed with the resources available within the company (Tier 1). A major emergency is defined as one which requires the introduction of resources from outside the company (Tier 2/3). A full list of Emergency Response Organisation Nominees is presented in Table 6.3.

6.4.1 Tier 1 – Local Management – Field Emergency Response Team

For Tier 1 responses, the Field ERT is the offshore emergency team formed to carry out the response to minor and major emergencies onboard and surrounding any Apache operation. Immediate onshore support to this organisation will be provided by the Drilling Section Chief. The focus of this group is to secure and stabilise the situation after an incident.

For this level of response the role of Incident Controller will normally be the PIC/Drilling Supervisor.

6.4.2 Tier 2 – Emergency Management – Perth Emergency Response Team

For Tier 2 responses, the emergency response organisation is per Figure 6.1. A component of this structure is the Emergency Response Team (ERT) formed in Perth and shown in Figure 6.2.

The Perth ERT is assembled from the Perth-based management and support staff to provide assistance for emergencies that cannot be handled entirely by the Field ERT. The Perth ERT conducts activities from the Perth Emergency Response Room.

For this level of response, the Oil Spill Response Team will be mobilised. This team comprises the onshore Drilling Superintendent (Senior Drilling Engineer – in charge of project), who may travel to the field location to set up a forward command post. In the event of mobilisation, the Incident Controller will be the ERT Deputy Chairman. Key members of the Oil Spill Response Team are presented in Table 6.4.

6.4.3 Tier 3 – Crisis Management – Crisis Management Team

For this level of response, organisation is as presented in Figure 6.3. In addition, a Crisis Management Team (CMT) provides senior corporate level direction and presence should a crisis result from an emergency. The CMT structure is shown in Figure 6.4.

Notes: For this level of response, the relevant onshore Drilling Superintendent (Senior Drilling Engineer – in charge of project) may travel to the field location to set up a forward command post. As in the case of a Tier 2 response, Apache emergency response activities will be conducted and coordinated from the Emergency Response Room in Perth.

Figure 6.1 Emergency Response Organisation – Tier 2 Oil Spill

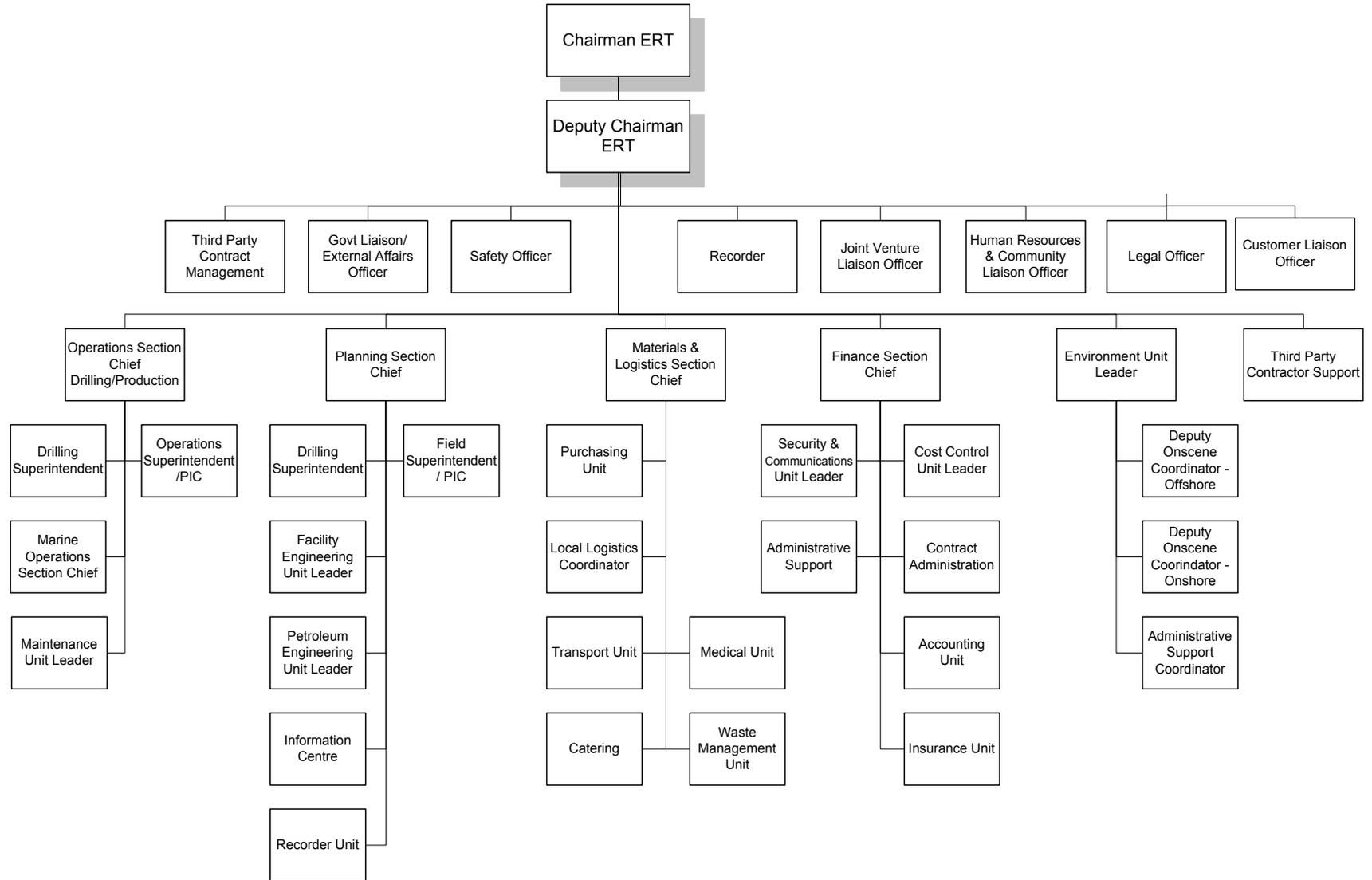


Figure 6.2 Emergency Response Team (ERT)

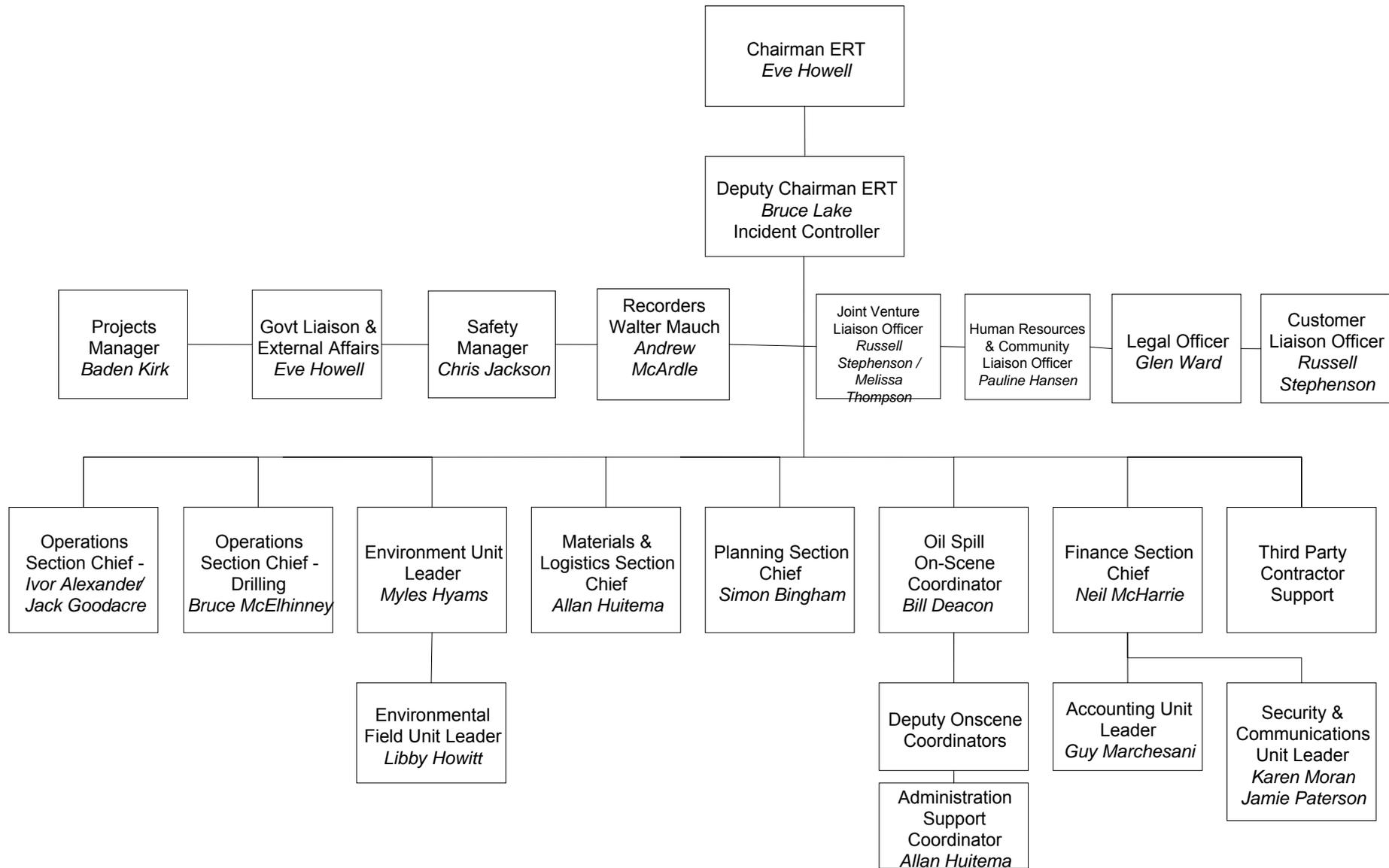


Figure 6.3 Emergency Response Organisation – Tier 3 Oil Spill

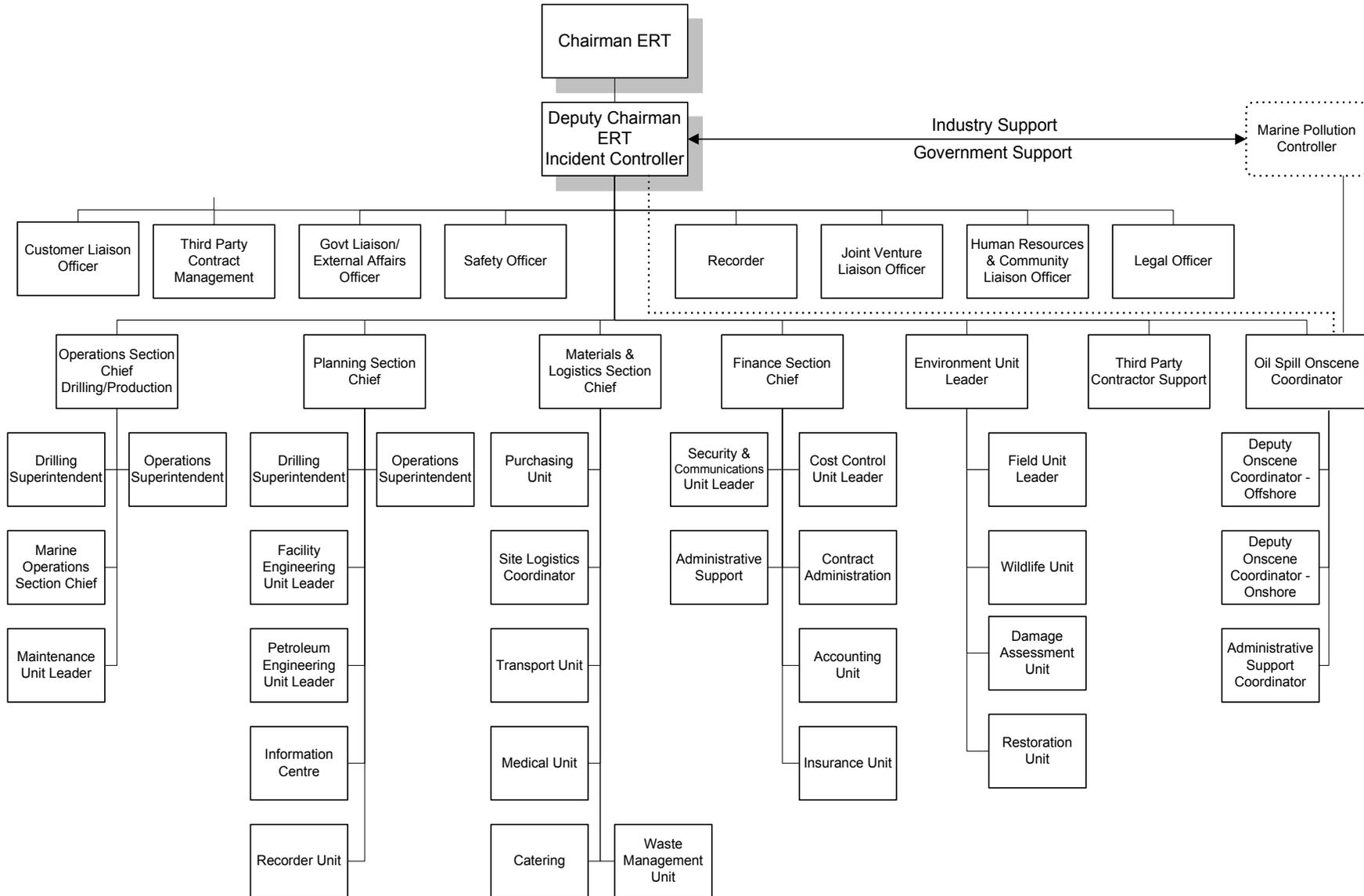


Figure 6.4 Crisis Management Team Structure

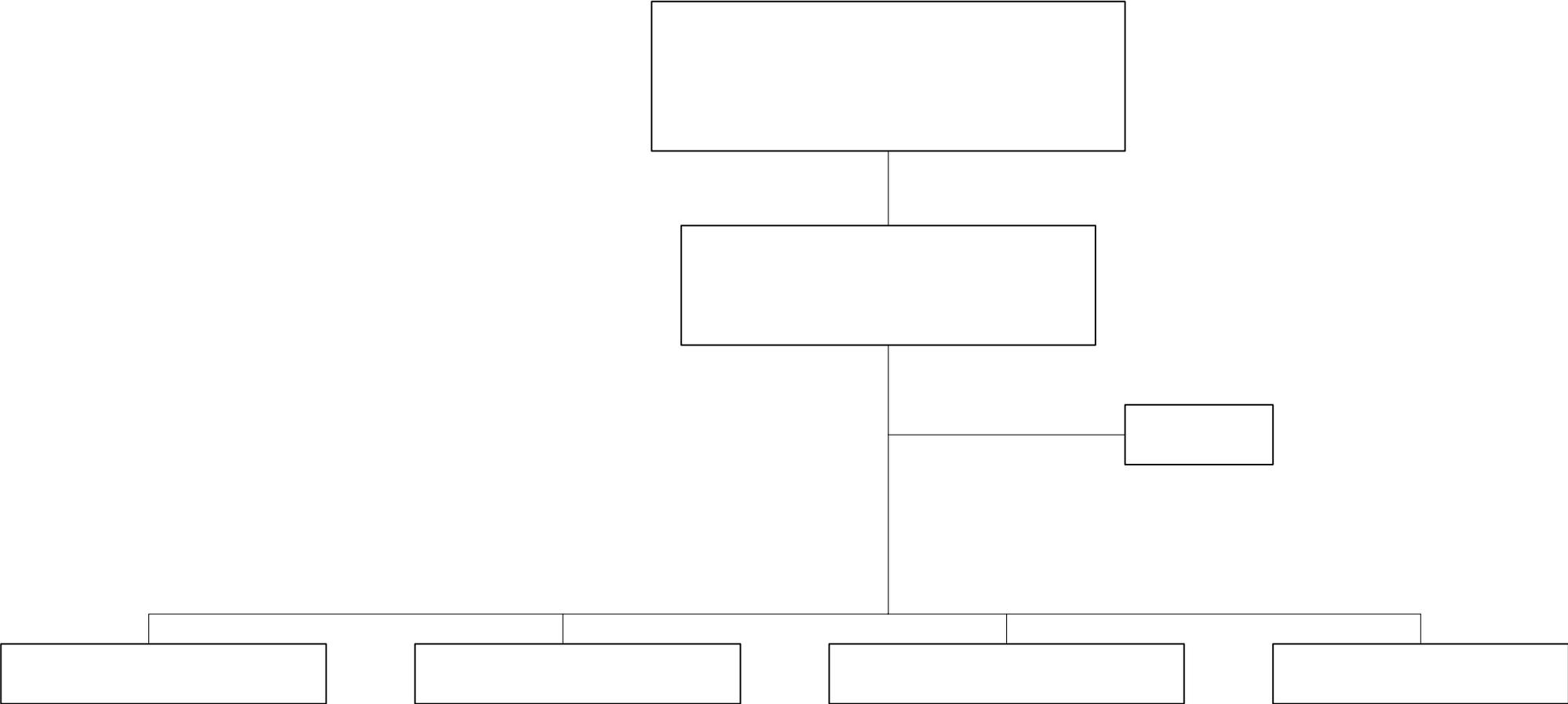


Table 6.3 Emergency Response Organisation Nominees

Team Position	Nominated Personnel	
	Primary	Alternate
COMMAND STAFF		
Chairman – ERT	Eve Howell	John Bedingfield
Deputy Chairman - ERT	Bruce Lake	Jack Goodacre
Government Liaison/External Affairs Officer	Eve Howell	Stephen Keenihan
Safety Manager	Chris Jackson	Reza Parker
Secretary ERT	Elisabeth Ford	Carol Foster
Joint Venture/ Liaison Officer * (Exploration/Drilling Events)	Russell Stephenson Melissa Thompson*	Rod Lake Steve Moss*
Customer Liaison Officer	Russell Stephenson	Rod Lake
Human Resources & Community Liaison Officer	Pauline Hansen	Neil McHarrie
Counselling Service	Occupational Services	
Legal Officer	Glen Ward	Guy Oxnard
OPERATIONS SECTION		
Field Production Manager	Ivor Alexander	Jack Goodacre
Drilling Manager	Bruce McElhinney	Mike Cropper
Marine Operations	Bill Deacon	
Maintenance	Walter Mauch	
PLANNING SECTION		
Planning Section Chief	Simon Bingham	Ian Sigsworth
Drilling Engineering Unit	Craig Duncan	Duane Selman
Facility Engineering	Ian Sigsworth	
Petroleum Engineering	Alan McDiarmid	Brendan White
Information Centre	Carol Foster	Leanne Blight
Recording	Walter Mauch	Andrew McArdle
Environmental Unit	Myles Hyams	Libby Howitt
MATERIALS AND LOGISTICS SECTION		
Materials And Logistics Section Chief	Allan Huitema	Tammy Lloyd
Onshore Logistics Coordinator Karratha	Wayne Neenan	Danny Thompson
Onshore Logistics Coordinator Melbourne	Max Blakiston	John Lohf
Purchasing Unit	Des Itzstein	Mark Wallin
Communications	Karen Moran	Jamie Paterson
Waste Management	Max Blakiston	John Lohf
FINANCE SECTION		
Finance Section Chief	Neil McHarrie	Guy Marchesani
Cost Control	Mark Hansen	
Commercial Issues	Neil McHarrie	
Contract Administration	Glen Ward	Guy Oxnard
Accounting	Guy Marchesani	
Insurance	Glen Ward	Guy Oxnard
SUPPORT STAFF		

Team Position	Nominated Personnel	
	Primary	Alternate
Telephone Supervisor	Sandra Harrison	Natina Morolla
Administration Support	As Required	As Required
Administration Support	As Required	As Required
PROJECT TEAM		
Project Manager	Baden Kirk	Ajay Singh
OIL SPILL RESPONSE TEAM		
On-Scene Coordinator	Bill Deacon	Jack Goodacre
Deputy On-Scene Coordinator Offshore	As Required	
Administrative Support Coordinator	Allan Huitema	Tammy Lloyd

Table 6.4 Oil Spill Response Team (for Tier 2/3 Responses)

Role	Responsibility
Oil Spill Commander/ Incident Controller	<ul style="list-style-type: none"> • Overall responsibility for oil spill response. • Notification of incident to Victorian DPI and other Authorities. • Mobilise ERT and if necessary Crisis Management Team. • Prepare and review with section leaders Strategic and tactical response objectives. • Focal point for all Government agencies.
On-Scene Coordinator Oil Spill	<ul style="list-style-type: none"> • Responsible for the coordination and direction of the Oil Spill Combat Team. • Notifies the Deputy On-Scene Coordinators, offshore and foreshore of the activation of the Oil Spill Combat Team. • Assists the Deputy Chairman in the development of response strategy. • Directs the development of the work plans for the Oil Spill Combat Team.
Deputy On-Scene Coordinator – Offshore Oil Spill	<ul style="list-style-type: none"> • Directs surveillance, containment and recovery or dispersion operations at sea. • Deploys the equipment, materials and personnel required for offshore combat operations. • Liaises with the Environmental Unit Leader on use of chemical dispersants. • Liaises with Administrative Support Coordinator on the availability and delivery of combat equipment, materials and personnel to the combat scene.
Deputy On-Scene Coordinator – Foreshore Oil Spill	<ul style="list-style-type: none"> • Directs all shoreline clean up operations. • Deploys the equipment, materials and personnel required for shoreline clean up and protection operations. • Liaises with the Environmental Unit Leader on the disposal of recovered oil and oily debris and the priorities and techniques for the clean up of various coastline types. • Liaises with the Administrative Support Coordinator on the availability and delivery of combat equipment, materials and personnel to the combat scene.
Administrative Support Coordinator - Oil Spill	<ul style="list-style-type: none"> • Provides administrative and logistics support to the Oil Spill Combat Team. • Establishes and outfits Advanced Operations Centre and provides required support services. • Responsible for maintaining a log of the Oil Spill Combat Team's activities. • Administers and records all financial expenditures associated with combat activities.

NB: Detailed Roles and Responsibilities are attached to the [ER Management Manual](#) and are included in ER handbooks

6.5 EMERGENCY MANAGEMENT

6.5.1 Overview

This section provides an outline of the processes carried out within the Emergency Response Organisational Structure, and the planning used by the Perth ERT. The ERT will normally be mobilised for oil spills categorised as Tier 2 and above.

The focus of the ERT is on recovery from an incident.

The strategy used for the ERT management process is a system designed to provide a disciplined, highly structured approach to the management of emergency response operations. It works toward the establishment and maintenance of a uniform, fully integrated, well-coordinated response effort.

The overall goal of the system is to have the ERT ensure that the response is moved from a reactive to a pro-active mode of operation as quickly and efficiently as possible. This goal is achieved by addressing the emergency as a project and employing all the techniques and benefits of project management.

6.5.2 Objectives

To convert the reactive emergency response effort into a pro-active project the ERT will work to address the following objectives:

- Assess the problem in terms of nature and scope.
- Develop long range strategic objectives.
- Prepare a project plan to achieve these objectives.
- Implement this project plan.

6.5.3 Planning Cycle

This process is illustrated in a flowsheet in Section 3.6.1 of the [Emergency Response Manual AE-00-ZF-025 - Planning Cycle Flowsheet](#).

The Planning Cycle is divided into two major areas:

- Initial Planning Cycle: This is made up of two phases; the Response Initiation Phase and the Strategic Plan Development Phase.
- Daily Planning Cycle: This is made up of one phase; the Plan Implement Phase. This phase occurs on a daily basis until the completion of the project.

Section 3.6.2 of the [Emergency Response Management Manual AE-00-ZF-025](#) provides a detailed explanation of the Objectives and Activities associated with the Three Phases of Emergency Management.

6.5.4 Benefits of this Method

The use of a standard approach to the functional organisation of the emergency management team has the following benefits:

- The sections are arranged in a logical manner to provide similarity of services in a manageable hierarchy.
- The terminology is common between companies to avoid confusion if outside resources are introduced during a large emergency operation.
- Roles are used to indicate positions rather than individuals because a large team may not be able to be staffed totally with Apache personnel and alternates are necessary when a primary candidate is not available.

6.6 STATUTORY REPORTING

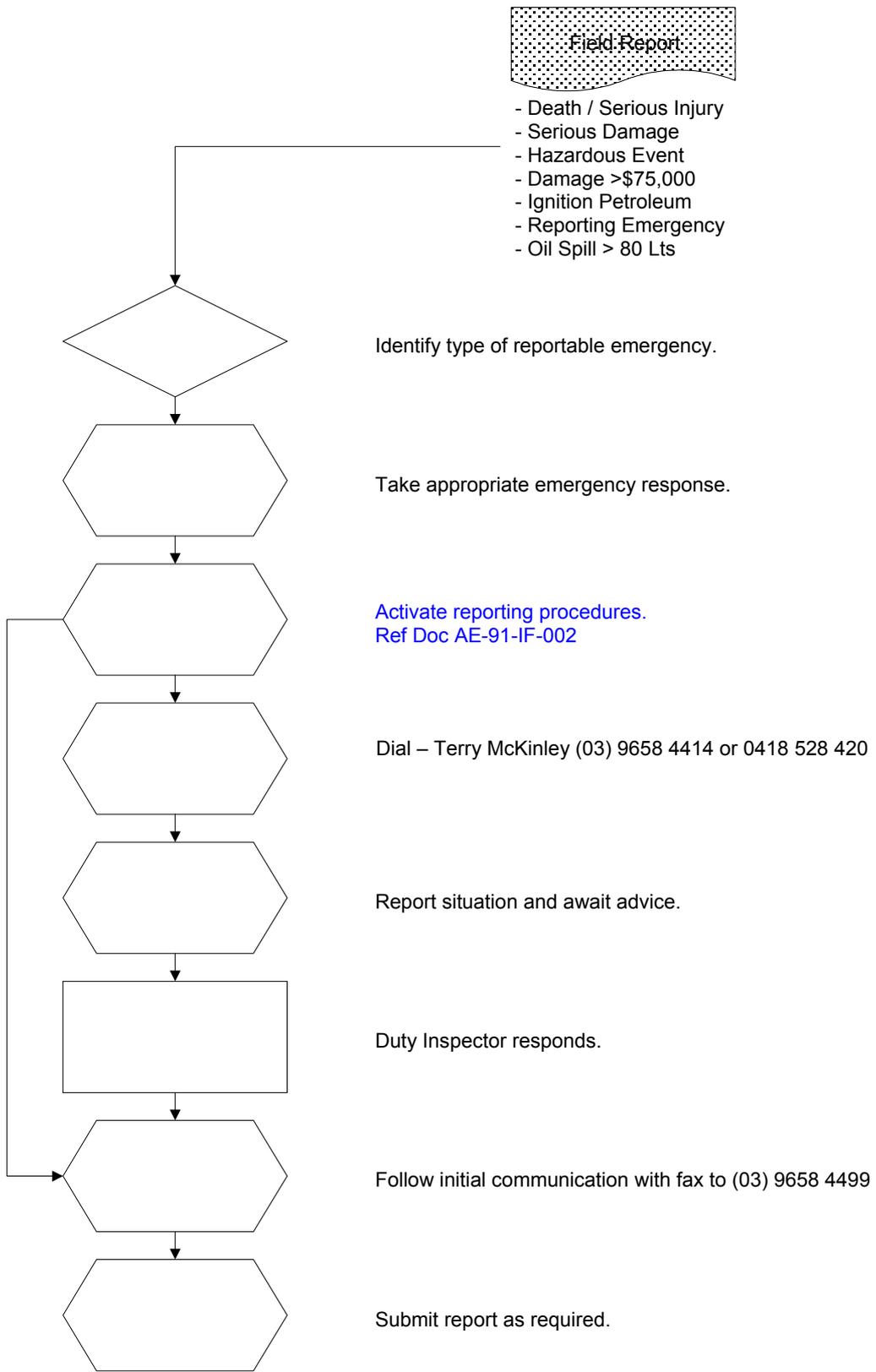
In the event of a Tier 2/3 incident, the ERT will inform the VicPlan Management Committee and AMSA that the spill is beyond the capabilities of Apache, and will request assistance under NatPlan. The relevant notification procedures are illustrated in Figure 6.5 and Figure 6.6.

If a Tier 2/3 response is required, a Government IC or SMPC may be appointed and an Incident Management Team (IMT) and/or Executive Response Group (ERG) will be formed under either the NatPlan (administered by AMSA) or the MSV RCA OSCP. The SMPC may also activate the State Marine Pollution Coordination Team. Details of the IMT are provided in Appendix G.

Figure 6.5 Major Emergency Notification Sheet



Figure 6.6 Notification Sheet for Victorian DPI by Deputy Chairman ERT



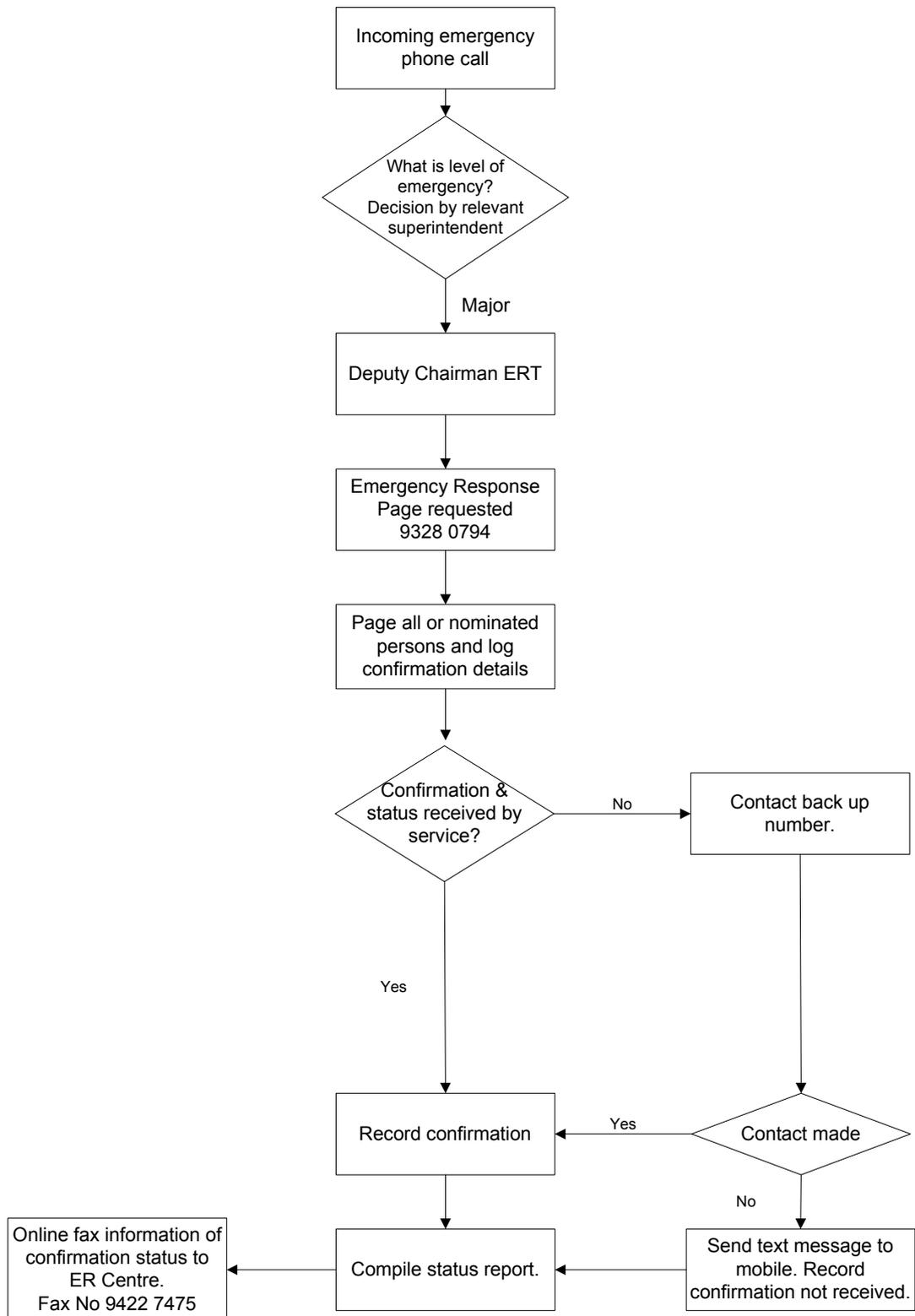
6.7 COLD START – LOG IN PROCEDURE

For major emergencies, the Deputy Chairman or his delegate will activate the pager system to convene the Apache ERT as shown in Figure 6.7. The paging service will confirm which members have responded to the page by phone on request and by fax to the ER Room.

Should primary and secondary numbers fail to respond, the paging service will telephone the team members' contact numbers. If a team member is not contactable, this will be recorded on the status report and faxed to Apache ERT.

1. On receiving the emergency call, committee members will be asked:
 - a) Your name
 - b) Are you able to respond to the emergency call?
 - c) What is your present location?
 - d) What is your ETA at ER Room?
2. Collect handbook and overnight bag.
3. Travel to ER Room for briefing.
4. Follow your defined ER line role.

Figure 6.7 Paging Perth Emergency Response Team/Response Flowsheet



7 ACTION PLAN AND RESPONSE TEAM

7.1 PRIORITY OF ACTIONS

In responding to a pollution event within any of Apache's operational areas, the following priorities will be observed:

- Personnel safety.
- Prevention of fire.
- Stop discharge of the oil.
- Implement action aimed at preventing spill reaching shore or sensitive localities.
- Notify management and authorities.
- Initiate additional environmental monitoring.

7.2 RESPONSE ACTIONS

Should an oil spill incident occur, Apache will immediately take the following actions:

- Follow procedures to protect human life and equipment. Implement procedures to reduce the risk of fire or explosion.
- Cut off the supply of oil to the spillage.
- Notify the DPI, Victoria, NOPSA and other relevant Authorities.
- Identify the extent of spillage and the weather/current conditions in the area.
- Implement offshore and onshore actions for oil spill tracking, dispersion, containment, collection, treatment and clean-up as appropriate.
- Coordinate response actions in accordance with the three tiers of Oil Spill Control depending on the size of the spill, the proximity to environmentally sensitive areas and the resources available to control the spill.
- If an oil slick is likely to reach a shoreline, advise wildlife agencies and advise these agencies to assume responsibility for wildlife rehabilitation activities.
- Monitor affected shoreline and intertidal zones to determine environmental effects of spill impact and clean-up operations.
- Attempt to prevent the spill reaching sensitive environmental resources.

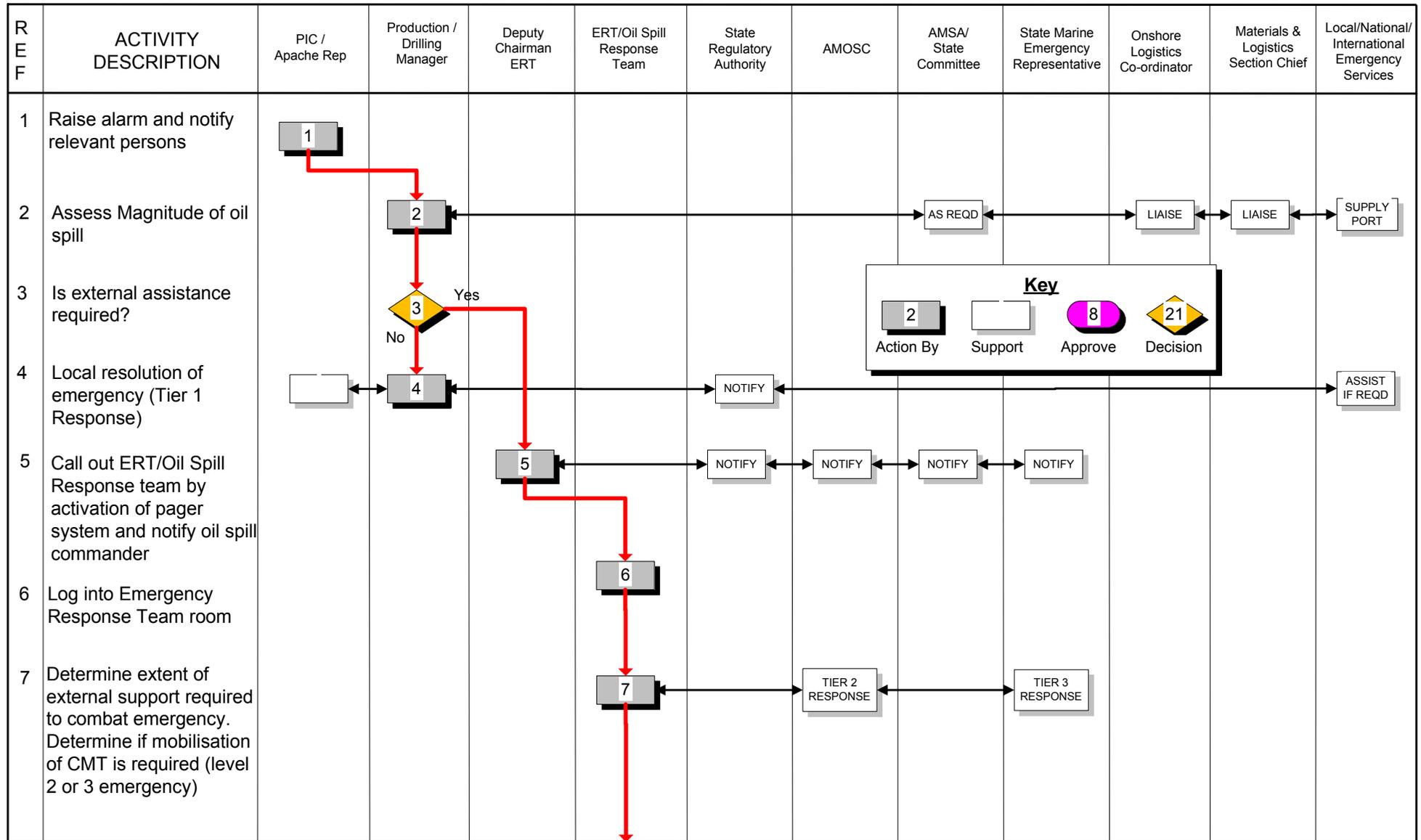
7.3 RESPONSE FLOWCHART

A flowcharted outline of the steps required by Apache and external organisations following an oil spill is provided in Figure 7.1. Step 5 of this flowchart links directly to the *Paging Perth Emergency Response Team/Response Flowsheet* in Figure 6.7.

7.4 RESPONSE TEAM STRUCTURE

The general structure of the Apache Oil Spill Response team is summarised in [Figure 7.2](#). There may be slight variations to this structure depending on the location and nature of the spill. The roles of each member of the response team to an oil spill are given in Section 7.5 of this document.

Figure 7.1 Emergency Response Call Out Flowchart (Oil Spill)



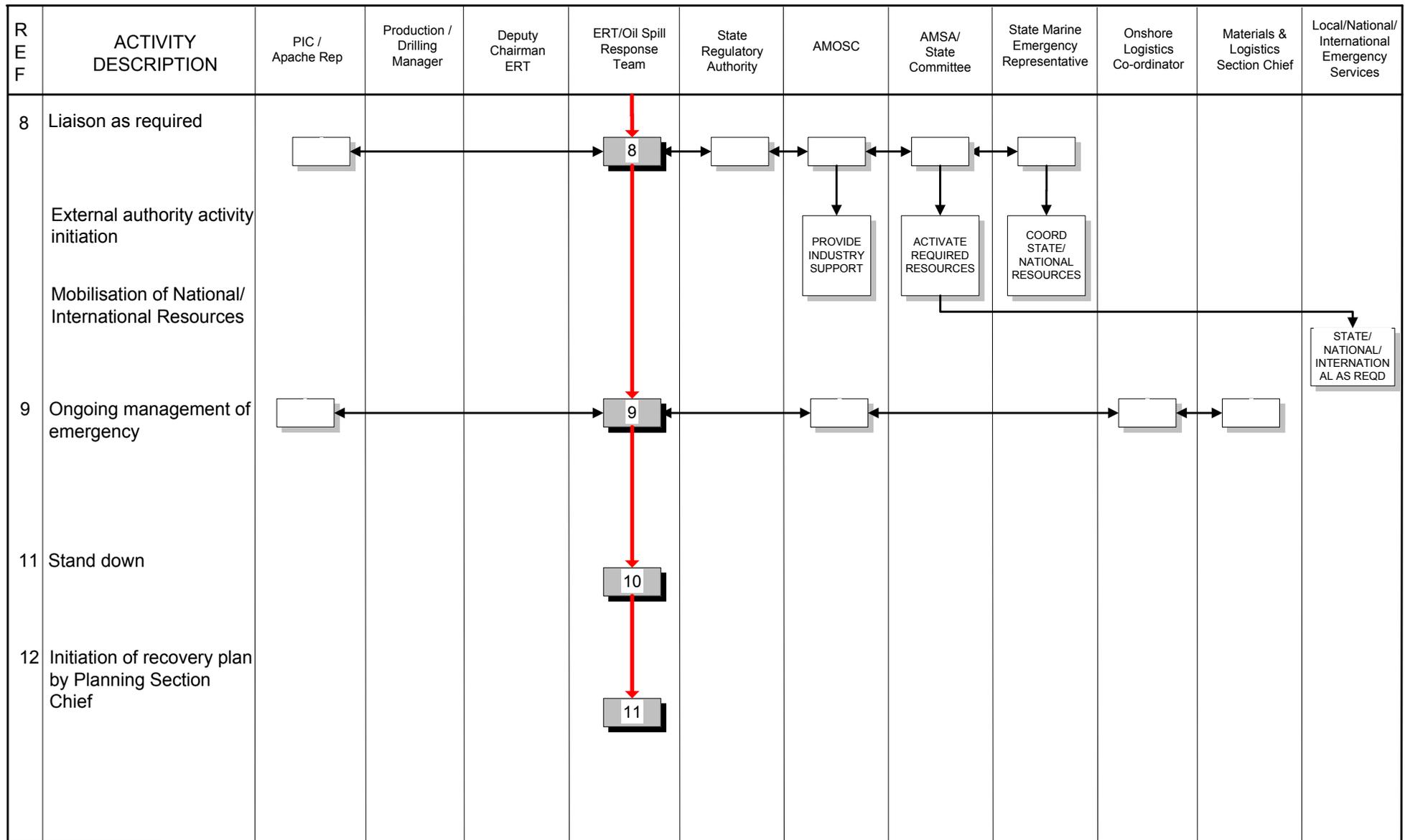
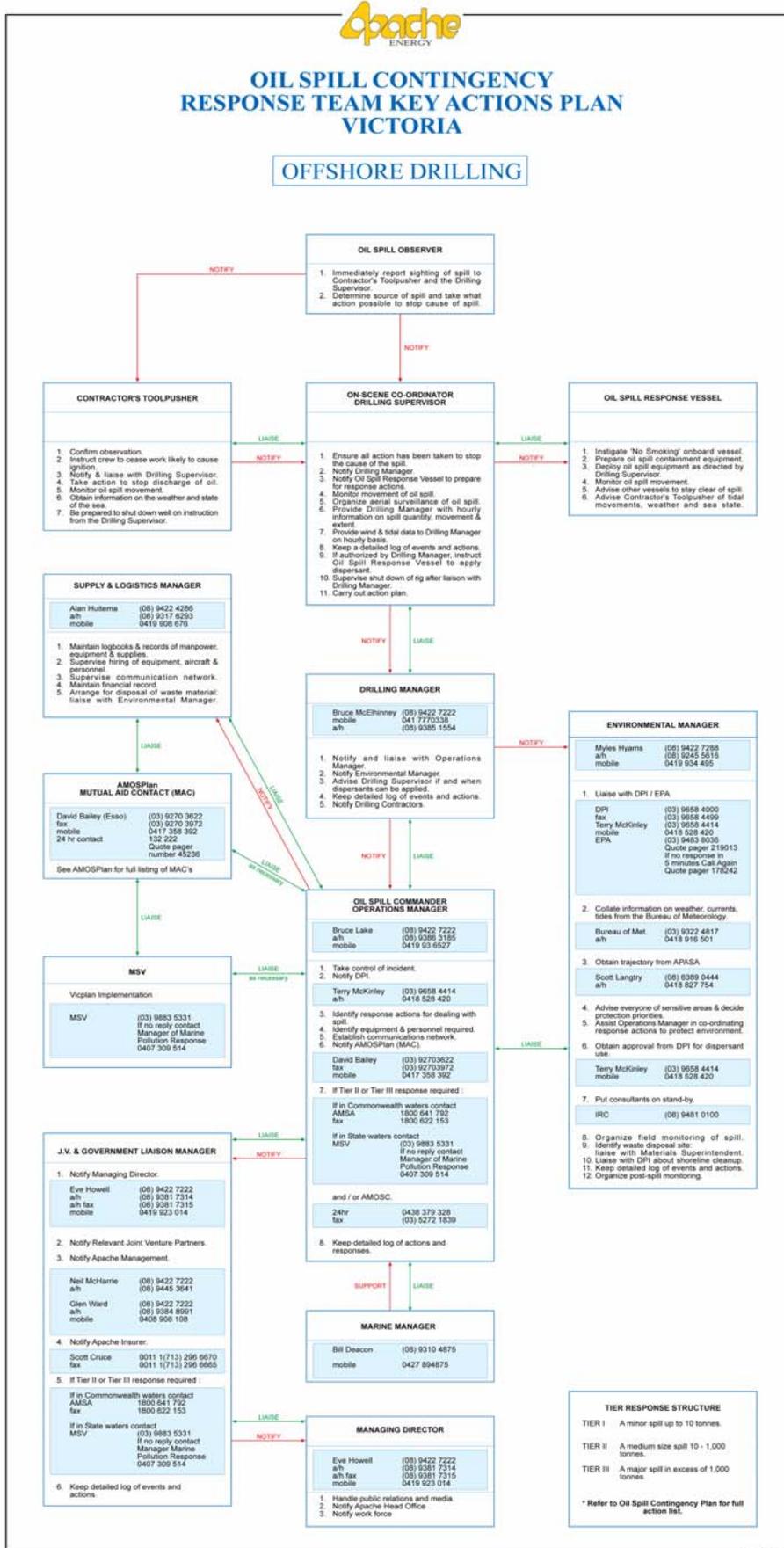


Figure 7.2 Oil Spill Response Team Key Actions Plan – Offshore Victoria



7.5 RESPONSE TEAM PERSONNEL AND ACTIONS

The following actions are to be taken by various personnel involved in response.

Detailed Roles and Responsibilities are attached to the [ER Management Manual](#) and are included in Emergency Response handbooks

7.5.1 All Personnel

- Be alert for signs of oil spills or slicks.
- Eliminate the cause of the spill, if possible.
- Immediately report any spill to either the Supervisor or On-Scene Coordinator at the incident location.

7.5.2 Oil Spill Commander/Incident Controller

The Operations Manager will assume the position of Oil Spill Commander/Incident Controller, delegating responsibilities, support and administrative functions to allow effective planning and execution of response actions. Their responsibilities are as follows:

- Notify DPI of incident.
- Implement entire oil spill response and clean-up operations.
- Liaise with the **On-Scene Coordinator** at the spill location to collect a primary assessment of the spill.
- Collate information on the nature of the spill, prevailing conditions and resources available to combat the spill, in order to define the tier of response and the outside level of response required using [Form REP-01](#), [POLREP](#) and [REP-02 SITEREP Appendix G](#).
- Have all members of the Oil Spill Response Team notified and assembled in the Emergency Control Centre.
- Prepare an incident action plan using Forms [IAP-01](#), [IAP-02](#), [IAP-03 Appendix G](#).
- Brief members of the response team on the nature of the spill, its predicted path, prevailing conditions, response required and resources available to combat the spill.
- Keep the **Managing Director** informed of all actions taken.
- Establish communications network with the assistance of the **Security/Communications Unit**.
- Notify and liaise with the **Environmental Manager**.
- Identify equipment and personnel required for response and instruct **On-Scene Coordinator** where and when they will be deployed.
- Initiate response actions. On advice from the **Environmental Manager**, notify **On-Scene Coordinator** if approval has been granted to apply dispersants.
- Maintain control of response actions and modify as required based on the effectiveness and changing contingencies.
- Notify and liaise with **Joint Venture Liaison Officer** and **Government Liaison and External Affairs Officer**.

- Notify the **AMOSPlan Mutual Aid Contact (MAC)** of the incident and liaise with them until the oil spill is controlled and cleaned up. Request assistance from AMOSC as required.
- Inform Marine Safety Victoria (MSV) of the incident. If a Tier 2 or 3 incident, contact State Marine Pollution Controller (MSV Director of Marine Safety), AMOSC or AMSA as required.
- Keep a detailed log of events and actions using Form [REP-03 Detailed Incident Report Appendix G](#).
- At completion of spill response/clean up operations, authorise cessation of activities and stand down all personnel.

7.5.3 On-Scene Coordinator

The On-Scene Coordinator is responsible for all field operations in oil spill response and clean-up as directed by the Oil Spill Commander/Incident Controller.

The nominated **On-Scene Coordinator** for offshore drilling operations in the Gippsland Basin is the **Drilling Supervisor**.

The responsibilities of the On-Scene Coordinator are as follows:

- Delegate responsibilities, support and administration functions to allow effective planning and execution of response actions.
- Ensure that effective action has been taken to stop the spill. Take further actions as required.
- Ensure that work likely to cause ignition has ceased.
- Collate initial information on the size of the spill and direction of movement.
- Provide an assessment of weather conditions, spill behaviour, position and direction of movement of oil slick. Update on an hourly basis using the relevant data sheet ([Form Appendix G](#)). Inform the **Environmental Manager**.
- Liaise with the **Oil Spill Commander/Incident Controller**.
- Based on the available information on spill size and direction of movement, assist the **Oil Spill Commander/Incident Controller** to make an initial assessment of Apache's capability of containing the spill without assistance.
- Initiate helicopter and surface surveillance.
- Place medical support on alert.
- Advise and liaise with oil spill response vessel or tender vessel. Request initial estimates of current strength, current direction, tidal state and water temperature.
- Organise deployment of available boats, booms and other clean-up equipment as requested by the **Oil Spill Commander/Incident Controller**. Keep **Oil Spill Commander/Incident Controller** informed of progress and effectiveness.
- If authorised by the **Oil Spill Commander/Incident Controller**, instruct vessels and/or helicopter to apply dispersant at defined locations. Monitor and keep **Oil Spill Commander/Incident Controller** informed of effectiveness.
- If spill is related to drilling then the **Drilling Supervisor** of the offshore drilling rig will supervise shutdown of rig after liaison with **Drilling Manager**.
- Commence logistics for field personal for any beach or shoreline clean-up.

- Keep a detailed log of events and actions taken using Form [STA-01 Status Update Appendix G](#).

7.5.4 Managing Director

- Notify Corporate Emergency Services.
- Handle public relations and media inquiries.
- Notify Apache Board.
- Ensure workforce is adequately briefed.
- At completion of spill response/clean-up operations debrief Apache personnel.

7.5.5 Joint Venture Liaison Officer

- Liaise with the **Oil Spill Commander/Incident Controller**.
- Keep the **Managing Director** informed on the status of the oil spill response as directed by the **Oil Spill Commander/Incident Controller**.
- Notify Apache Management Team.
- Notify Joint Venture Partners.
- Notify insurers.
- Maintain a detailed log of notifications and actions taken using [Form STA-01 Status Update Appendix G](#).

7.5.6 Supply & Logistics Superintendent

- Liaise with the **Oil Spill Commander/Incident Controller**.
- Co-ordinate the mobilisation of contract personnel, surveillance aircraft, support vessels, back-up oil spill equipment, dispersants and other supplies and services as directed by the **Oil Spill Commander/Incident Controller**.
- Maintain a record of manpower, equipment and supplies utilised in combating the spill.
- Maintain a daily financial account of expenses.
- Allocate these costs to a separate cost code.
- Assist the Apache AMOSC Crew in organising transport for the disposal of recovered oil.
- Maintain a record of notifications and response actions using Forms [WM-01, WM-05 Workforce Management Forms](#) and [LO-01, LO-02 Logistics Forms Appendix G](#).

7.5.7 Environmental Manager

- Notify and liaise with representatives from Department of Sustainability and Environment (DSE), the Environmental and Scientific Coordinator, Marine Safety Victoria (MSV), and appropriate RCAs and Shire Council(s).
- Collate information on oil characteristics, spill position, weather conditions, current and tides from the **Oil Spill Commander/Incident Controller** and Bureau of Meteorology ([Form Appendix G](#)).
- Request an oil spill trajectory prediction using in-house model (GCOM3D), with regular updates as the spill response proceeds.

- Identify resources at risk, and their relative priorities, through the use of environmental resource maps.
- Liaise with the **Oil Spill Commander/Incident Controller** in terms of action to be taken to protect natural resources.
- Organise sampling of the oil slick.
- If moves to a location where dispersants may be beneficial, obtain the necessary approvals for use of chemical dispersants and advise the **Oil Spill Commander/Incident Controller** when and where they may be used.
- Organise field monitoring of the spill by qualified personnel if it is apparent that the spill will contact the shoreline or other benthic resources.
- If necessary, liaise with the DSE, and the appropriate RCAs and Shire Council(s) regarding the shoreline clean-up method and resources.
- Liaise with the **On-Scene Coordinator** and DSE in setting up a temporary wildlife refuge if necessary.
- Arrange for a post spill survey and report.
- Liaise with the appropriate Shire Council(s), Health Departments and the DSE on the disposal of recovered oil and oily wastes.
- Liaise with the **Supply and Logistics Superintendent** as to how the disposal of recovered oil is to be effected.
- Keep a detailed log of notifications and response actions using Form [STA-04 Status Update Environmental Resources at Risk Appendix G](#).

7.5.8 Contractor's Toolpusher (Drilling)

- Confirm that an oil spill has occurred and define its likely source and cause.
- Ensure that effective action has been taken to stop the spill. Take further actions as required.
- Instruct crew to cease work likely to cause ignition, and ensure that other sources of ignition are eliminated.
- Assign observers to continuously monitor the movement of the oil until instructed that helicopter surveillance has commenced.
- Determine the characteristics of the oil (type, consistency, viscosity) and estimate the volume that was spilt. For continuing spills, the latter estimate must be regularly updated.
- Notify and liaise with the **On-scene Coordinator** at the incident location for actions to be taken.
- For production incident, prepare to shut down operations on instruction from the **On-Scene Coordinator**.

7.5.9 Apache AMOSC Crew

- Liaise with the **On-Scene Coordinator**.
- Co-ordinate the mobilisation of oil spill equipment onto the oil spill response vessel and/or support vessel.
- Co-ordinate the mobilisation of back-up equipment, dispersants, and other supplies and services as directed by the **On-Scene Coordinator**.

- Maintain a record of manpower, equipment and supplies utilised in combating the spill.
- Initiate a daily financial account of expenses.
- Upon advice from the **Environmental Manager** arrange transport for the disposal of recovered oil.
- Act as Field Activities Supervisor if shoreline clean-up becomes necessary.
- Maintain a record of notifications and response actions using [Form STA-01 Status Update Incident Details Appendix G](#).

7.5.10 Oil Spill Response Vessel

- Immediately instigate **No Smoking** on-board the vessel and eliminate other potential sources of ignition.
- Ensure the vessel is kept away from the areas where gas is present.
- Check inventory of response equipment and personnel. Determine tidal state, current strength and direction. Determine distance and time required to steam to the spill location. Inform **On-scene Coordinator**.
- Upon instruction from the **On-Scene Coordinator**, Deploy the boom and oil recovery equipment.
- Upon instruction from the **On-Scene Coordinator**, prepare dispersant application equipment. Apply dispersant only when and where instructed by the **On-Scene Coordinator**.
- Release oil spill movement indicators, eg mats or buoys, at the leading and trailing end of the slick. Prior to nightfall, buoys should be fitted with ignition-proof lights to allow tracking after dark. Report results verbally to **On-Scene Coordinator** at a minimum of hourly intervals and record on the oil spill tracking sheet ([Form Appendix G](#)).

7.5.11 Drilling Supervisor

- Ensure all action has been taken to stop the cause of the spill.
- Notify the **Drilling Manager**.
- Prepare to shut down the drilling rig.
- Assign observers to continuously monitor the movement of the oil spill until instructed that helicopter and surface surveillance has commenced.
- Act as the **On-Scene Coordinator** and the **Oil Spill Commander/Incident Controller** in instigating and carrying out an oil spill response until relieved by Apache personnel.
- Maintain a record of notifications and response actions Form [STA-01 Status Update Incident Details Appendix G](#).

8 RESPONSE STRATEGIES AND DISPERSANT GUIDELINES

8.1 GENERAL RESPONSE STRATEGIES

Pollution response strategies may involve the following principal options:

- Prepare a response but take no immediate action.
- Combat the slick at sea.
- Shoreline deflection and/or clean-up.
- Containment and clean-up of land-based spills.
- Use of dispersants.

Whichever strategy is selected, and it may involve a combination strategies, the limitations of each strategy must be recognised so that a realistic response to an oil spill can be achieved.

8.2 MARINE RESPONSE

The decision path for the determination of oil spill response strategies in the marine environment is illustrated in Figure 8.1. The following need to be considered:

Safety Hazard to Personnel

Possible safety hazard may be due to concentration of hydrocarbons within explosive limits.

Removal of Hazards

Actions to remove or reduce the hazards will depend on the size of the spill and may include:

- Allowing oil to evaporate and spread until conditions are safe.
- Jetting oil away with a fire hose.
- Dispersing oil with dispersants whilst observing appropriate safety precautions.

Visibility of Oil

An oil slick may not be visible for a variety of reasons such as:

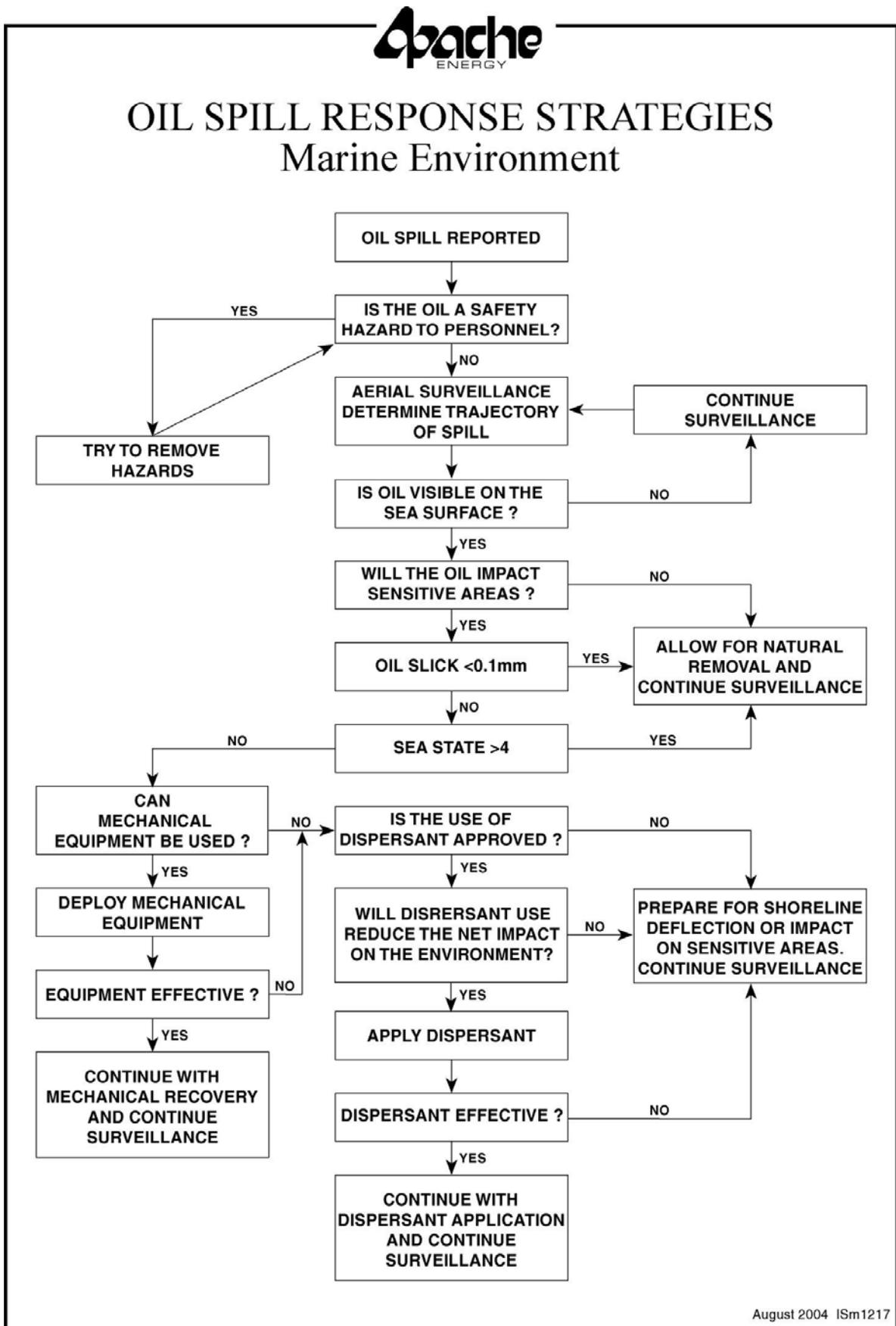
- Poor viewing conditions.
- The oil may be floating below the sea surface.
- The observer may be looking in the wrong area.

Oil Slick Thickness

Table 8.1 represents a guide to the relation between the appearance, thickness and volume of floating oil. Note this is only a guide and other, more reliable methods should be used in addition to determine the size of the spill. Importantly, oil will not be uniformly distributed over the sea surface.

Note that the character of the oil is important in determining the most appropriate response strategies. In exploration, the character of the oils may be anticipated, but may not be known. It is important therefore to monitor any crude oil slick and to report observations to the Drilling Superintendent (Senior Drilling Engineer – in charge of project) and to relevant Government Agency or Industry personnel (DPI, AMSA or AMOSC).

Figure 8.1 Oil Spill Response Strategies – Marine Environment



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Table 8.1 Appearance, Thickness & Volume of Floating Oil

Oil Type	Appearance	Approximate Thickness	Approximate Volume (m ³ /km ²)
Oil Sheen	Silvery	> 0.0001 mm	0.1
Oil Sheen	Iridescent	> 0.0003 mm	0.3
Crude/Fuel Oil	Black/Dark Brown	> 0.01 mm	100
Oil in Water Emulsions or "Mousse"	Brown/Orange	> 1 mm	1000

Table 8.2 Offshore Response Matrix

Estimated Time Until Impact	<48 hours				>48 hours			
	I	II	III	IV	I	II	III	IV
Immediate Response Strategies								
Monitor:Natural Processes	R	F			R	R	C	C
Containment and Recovery		NA	NA	NA		NA	NA	NA
(a) Weir Skimmers		NA	NA	NA		NA	NA	NA
(b) Oleophilic Skimmers		NA	NA	NA		NA	NA	NA
(c) Vacuum Skimmers		NA	NA	NA		NA	NA	NA
Dispersant Application		C	C	C		C	C	C
Physical Break-up		F	F			R	F	
Sorbent Recovery	F	F	F	F	NR	F	F	
Shoreline Protection	R	R	R	R	NR	R	R	R
Secondary Response Strategies(Day 2 and beyond)								
Natural Processes	R	F			R	R	C	
Containment and Recovery	NR	R	R	R	NR	R	R	R
(a) Weir Skimmers	NR	R	R	R	NR	R	R	R
(b) Oleophilic Skimmers	NR	R	R	R	NR	R	R	R
(c) Vacuum Skimmers	NR	R	R	R	NR	R	R	R
Dispersant Application	NR	C	C	C	NR	C	C	C
Physical Break-up	NR	F			NR	F		
Sorbent Recovery	NR	R	R		NR	F		
Shoreline Protection	R	R	R	R	NR	R	R	R

Key

- R Recommended - preferred option.
- F Feasible, but not preferred option. Assessment needed.
- NA Feasible but not available because of location of resources or other logistics constraint.
- C Conditional. Possibly useful but may have adverse effects. Assessment and approval required.
- NR Not required. Oil not expected to persist.

	Not recommended - either not feasible, not safe or has significant adverse effects.
--	---

NR	Not recommended and not required in any case.
----	---

Oil Group

- I Very light crudes and condensates.
- II Diesel and light crudes.
- III Tropical diesel, marine diesel, and medium crude.
- IV Bunker C Fuel oils, heavy crudes.

Table 8.3 Operational Constraints for Offshore Response Options

Response Strategy		Constraint				
		Sea State ⁽¹⁾	Current (Knots) ⁽²⁾	Wind (Knots)	Oil Viscosity ⁽³⁾	Other
Boom	Containment	3-4	1.0	14-22	-	Vessel availability
	Deflection	3-4	2.0	14-22	-	
Skimmers	Weir	1	1.0	7	<1000	Recovered waste oil storage availability
	Disc	2-3	1.0	11-14	<1000	
	Mop/Belt	3-4	1.0	14-22	>1000	
	Vacuum	1	1.0	7	-	
Physical Breakup ⁽⁴⁾		-	-	-	-	Oil type
Dispersant	Vessels	4	-	22.0	<2000	-
	Aircraft	5	-	27.0	<2000	Range
Monitoring		-	-	-	-	Visibility

(1) Beaufort scale.

(2) 1 Knot = 0.5m/second or 1.8 km per hour approximately.

(3) cSt = Centistokes.

(4) This method should not be used on fresh spills of light crude or condensate. All light oils should be allowed to weather for at least for a few hours.

Sea State

Sea State 4 has been selected as the cut off point for the use of mechanical equipment because above this value the sea will have sufficient power to disperse the oil naturally without requiring the aid of dispersants (Table 8.4). Furthermore, the efficiency of mechanical equipment such as booms and skimmers can be limited in sea states greater than 4. It should also be noted that deploying oil spill combat equipment in rough sea conditions will be a safety hazard to the combat personnel.

Table 8.4 Sea and Swell Scales

State of Sea			Swell	
	Description	Height (m)	Description	Height (m)
0	Calm (glassy)	0	No swell	0-2
1	Calm (rippled)	0-0.1	Low swell, short or average length	
2	Smooth (wavelets)	0.1-0.5	Moderate swell, long	
3	Slight	0.5-1.25	Moderate swell, short	
4	Moderate	1.25-2.5	Moderate swell, average length	2-4
5	Rough	2.5-4	Moderate swell, short	
6	Very Rough	4-6	Heavy swell, short	
7	High	6-9	Heavy swell, average length	>4
8	Very High	9-12	Heavy swell, long	
9	Phenomenal	>14	Confused swell	

8.2.1 No Immediate Action - Surveillance Only

This option may be taken where the movement of oil is away from the mainland and is being dispersed by the prevailing conditions. The main action is surveillance and predictive trajectories of the spill.

Response actions should be directed at preparing equipment and personnel, while monitoring the movement of the oil through surface and aerial surveillance, and a computer tracking model. The scale of the preparations will vary with the spill, but would include notifying the Oil Spill Response Team and the on-site response personnel to prepare a response.

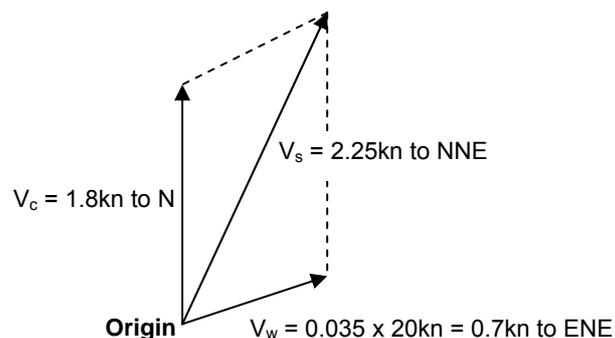
Aerial Surveillance

Aerial surveillance of oil slicks at sea is more reliable than observation from ships, but the following points should be noted:

- The observer should be trained in aerial surveillance of oil spills.
- On-scene estimates of the quantity of oil spilt are often incorrect.

Aerial surveillance can be supplemented by determining the trajectory of an oil spill by estimating the vectorial addition of the surface current and wind components. This calculation can be carried out using the following method:

- On paper, plot the location of the spill (origin).
- Draw a scaled line (V_c) from the origin in the direction of the current flow. Length = current velocity in knots.
- Draw a second scaled line (V_w) from the origin in the direction that the wind is flowing. Length = $0.035 \times$ wind speed in knots.
- Draw a dashed line parallel to V_w starting at the tip of V_c , and a second dashed line parallel to V_c starting at the tip of V_w .
- A line from the origin to the intersect of the two dashed lines indicates the slick vector (V_s). Length = speed in knots.



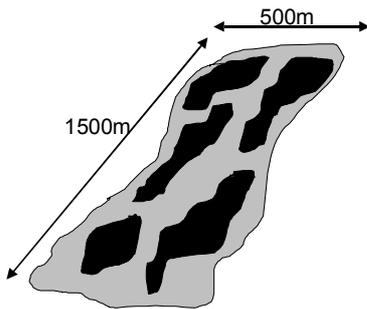
Estimating Slick Volume

The surface area of the slick can be estimated by:

1. Flying the length and breadth of the slick and equating the time taken to fly over the slick and the aircraft speed.
2. Calculating the slick area (ie length \times breadth).
3. Multiplying the area by the percentage of the slick that is oil (ie not clean water).
4. The areas covered by the various oil thicknesses should be calculated.
5. Calculate oil volumes using Table 8.5.

Table 8.5 Guidelines for Estimation of Slick Volume

Appearance of Film	Volume of Oil per km ²		
	m ³	tonnes (t)	barrels (bbl)
Barely Visible (except under some light conditions)	0.05	0.04	0.31
Silvery Sheen	0.10	0.09	0.43
Rainbow – Iridescence. Bright bands of colour	0.30	0.24	1.89
Dull Colours still visible but are dull	1.00	0.85	4.29
Dark Black or Brown (or very dark colour)	2.00	1.70	12.40



Example

Area = 1.5km x 0.5km = 0.75km².

40% of slick is black oil. So area of black oil is 40% of 0.75km² = 0.3km².

Using Table 8.5, volume in black oil is approximately: 2 x 0.3 = 0.6m³.

60% of slick is sheen. So area of sheen is 60% of 0.75km² = 0.45km².

Using Table 8.5, volume of oil in the sheen is approximately:

0.05 x 0.45 = 0.0225m³.

Note that the sheen contains very little oil and estimated volume, in this example, is about 0.6m³ of oil or oily emulsion.

8.2.2 Combat the Slick at Sea

This strategy may include the use of containment and recovery techniques, mechanical dispersion, shoreline protection and deflection, and, in some circumstances, the use of chemical dispersants. The following Section should be read in conjunction with Tables 8.3 and 8.4.

Containment and Recovery

The first approach to a spill that is moving towards shallow intertidal areas or shorelines should be containment and recovery before it can spread.

Booms should be deployed to prevent the spread of oil and to concentrate it in readiness for removal by skimmers and sorbents. Boom and skimmer equipment should be selected on the basis of performance under the prevailing conditions, capacity, and how rapidly they can be deployed. Tables 8.6 and 8.7 indicate the performance, under particular conditions, of booms and skimmers owned by Apache or some of those that are regionally available through AMOSPlan and AMOSC. The MOSES list in Appendix F provides a full list of available equipment.

Booms can be effective during calm to moderate sea conditions (up to sea state 4), but require careful handling and placement. The effectiveness of the equipment will be seriously hampered during rough weather, therefore, other responses should also be considered. The escape of oil from a boom can be expected even under relatively suitable conditions, so that a number of lines of defence should be established.

Booms are usually deployed in two major ways to contain or deflect oil: i) towed by vessels at sea or ii) moored in shallow or enclosed waters. The most important factors limiting the efficiency of booms is the water velocity and resultant turbulence at the barrier surface. Booms cannot contain oil against water velocities greater than about 0.7 knots acting at right angles to the boom. Thus, the vessels towing booms in water currents exceeding this speed must manoeuvre in a way that reduces the velocity across the boom. Booms may be towed using one or two vessels, with the oil recovery unit either deployed from one of these or from a third vessel that follows behind.

It may be practical to moor a boom either to act as a barrier, or to divert the oil away from shallow water areas. Booms should be placed at an angle to the current flow where current speeds are high (Table 8.8). Numerous anchoring points should be used to maintain the correct angle and prevent pockets forming. Oil escape can be induced by turbulence along a boom, therefore, the profile of the boom should be smooth and without projections.

If oil does reach the shoreline, containment and recovery of oil may be possible in designated coastal sites with relatively low sensitivity, to prevent the spread to more sensitive locations.

Mechanical Dispersion

Evaporation and dispersion of oil can be assisted by propeller wash from tugs and small craft. In the event of a small incident where the oil is not approaching sensitive resources, this technique can be utilised as the main response to combating the incident.

Table 8.6 Performance Criteria for Booms

Boom type	Area of Use	Time to Deploy	Oil Type	Deployment Method	Source (WA)	Source (Vic)
<p>Jackson Pollution Net 1 m height, 500 mm freeboard. Fine mesh net supported by floats – principally used to trawl for semi-solid oil</p>	<p>Offshore Sea state 2-3 Waves to 1m</p>	<p>Rapid</p>	<p>Heavy or emulsified oil only - will not retain light crude/diesel</p>	<p>Towed between two vessels.</p>	<p>Apache (300 m) Woodside (600 m) Chevron (500 m)</p>	
<p>Versatech Zoom Boom 750 mm height, 250 mm freeboard. Self inflating, highly compatible boom.</p>	<p>Offshore/inshore Sea state 2 Waves to 1 m Wind to 10 kn</p>	<p>Rapid & easy to deploy (5 min per 25 m, 2 persons)</p>	<p>All oils</p>	<p>Moored or towed between two vessels.</p>	<p>Apache (400 m) Chevron (700 m)</p>	<p>AMOSC (3000 m in 25 m sections)</p>
<p>Gamlen Boom 1 m height, 400 mm freeboard. Solid flotation boom intended for fixed mooring in sheltered areas.</p>	<p>Harbour/inshore only Sea state 1</p>	<p>Rapid but difficult to handle & store (5 min per 20 m, 2 persons)</p>	<p>All oils</p>	<p>Moored.</p>	<p>Woodside (100 m)</p>	
<p>Ro-boom 1.5 m height, 500 mm freeboard. Reel mounted, heavy duty boom.</p>	<p>Offshore/inshore Sea state 5 Waves to 3 m Wind to 20 kn</p>	<p>Moderate - each section requires manual inflation (30 min per 200 m, 4 persons)</p>	<p>All oils</p>	<p>Moored. Requires large vessel (weight of boom = 3500 kg, powerpack = 1700 kg)</p>		<p>AMOSC (3000 m in 200 m sections)</p>
<p>Vikoma Coastal Pack Height 1 m, 600 mm freeboard. Reel mounted boom of 2 continuous chambers. Lower chamber pumped with water, upper chamber inflated.</p>	<p>Offshore/inshore Sea state 3 Waves to 2 m Wind to 15 kn</p>	<p>Rapid but puncture will cause total loss of boom. (10 min per 300 m, 2 persons)</p>	<p>All oils</p>	<p>From vessel. Reel and powerpack mounted on vessel. Needs continuous power for pumps.</p>	<p>Woodside (300 m)</p>	
<p>Hoyle Shore Guardian 600 mm height, 300 mm freeboard. Sectional polyurethane boom with upper air chamber and two lower water ballast chambers.</p>	<p>Inshore - as seal to the water/shore interface</p>	<p>Rapid & portable. (15 min per 10 m)</p>	<p>All oils</p>	<p>Shoreward end of containment or deflection boom or as shallow water seal.</p>	<p>Woodside (200 m) Chevron (100 m)</p>	<p>AMOSC (2000 m in 25 m sections)</p>
<p>SeaCurtin ReelPak Boom Self-inflating boom stored on a reel. 46 cm float diameter with 59 cm skirt.</p>	<p>Offshore. Sea state 5 Waves to 3.7 m Wind to 30 kn</p>	<p>Rapid. (7 min per 400 m)</p>	<p>All oils</p>	<p>Moored or towed.</p>	<p>Apache (400 m)</p>	
<p>Sorbent boom Surface floating absorbent material – useful on leeward side of shore booms to absorb escaped oil.</p>	<p>Inshore, protected waters</p>	<p>Rapid & portable</p>	<p>All oils</p>	<p>Moored.</p>	<p>Apache (100 m) Chevron (1000 m)</p>	

Table 8.7 Performance Criteria for Skimmers

Equipment	Suitable conditions	Oil viscosity	Deployment	Recovery rate *	Source (WA)	Source (Vic)
Vicoma Komara 12 MK II Skimmer Draft 20 cm, weight 62 kg. Portable oleophilic disc skimmer for coastal/harbour use	Sea state 1-2 depending on oil viscosity	Most effective on medium viscosity oil (100-1000 cst)	Positioned in oil concentrated by barriers. Attended by vessel or shore power & storage	14,000 L/hr High oil/water ratio in calm conditions	Apache (1) Woodside (1)	AMOSC (4)
GT 185 Skimmer Draft 50 cm, weight 165 kg Screw-auger floating weir for harbour or ship-side (with side trawling boom)	Sea state 1 waves 0.5 m wind 8 kn	Most effective on medium viscosity oil (100-1000 cst)	Positioned in oil concentrated by barriers. Attended by vessel or shore power & storage	up to 6,000 L/hr Low oil/water ratio (1:4) for light crude	Chevron (1)	AMOSC (2)
OMI 140 Oil Mop Nil draft, weight 115 kg Portable power unit driving a loop of oleophilic rope.	Sea state 3 waves 1-2 m wind 15-20 kn Among debris	Wide range, but most effective on light to medium viscosity oil (100-1000 cst)	Rope mop positioned on water by pulleys Power unit on shore or vessel	up to 6,000 L/hr High oil/water ratio	Chevron (1)	AMOSC (1)
OM240/260 trailer mounted rope mop machine Trailer mounted power unit driving a loop of oleophilic rope	Sea state 3 waves 1-2 m wind 15-20 kn Among debris	Wide range, but most effective on light to medium viscosity oil (100-1000 cst)	Rope mop positioned on water by pulleys. Power unit on shore or vessel.	up to 13,000 L/hr High oil/water ratio		AMOSC (4)
Ro-Vac Vacuum unit Weight 360 kg High capacity vacuum cleaner for shore-line clean-up	Sea state 3	Most effective on light to medium viscosity oil (10-1000 cst)	Power unit mounted on trolley riding on pneumatic tyres for beach use.	up to 12,000 L/hour Low oil/water ratio	Chevron (1)	AMOSC (4)

Note: In practice, skimmer performance does not approach maximum rates unless they can be deployed in calm water and in thick layers of oil.

Table 8.8 Maximum Deployment Angles to Flow Direction at Different Current Strengths for Anchored Booms to Prevent Escape of Oil.

Current Strength (knots)	Max. Angle (Degrees)
0.7	90
1.0	45
1.5	28
2.0	20
2.5	16
3.0	13

8.3 SHORELINE RESPONSE

8.3.1 Overview

The aims of shoreline response strategies are to:

- protect sensitive shorelines from the impact of oil;
- clean oil impacted shorelines;
- rehabilitate oil-affected biological communities; and
- monitor oiled shorelines when oil cannot be removed.

Priorities for shoreline protection and cleanup are set in consultation with DSE and other relevant authorities. The SA for shoreline cleanup will vary according to the shorelines impacted. In most cases the DSE will be the SA for shoreline response.

Generally, any large-scale cleanup will be undertaken as part of a State-led response, ie Tier 2 or 3 response. Usually a Shoreline Coordinator (SC) will be appointed by the IC to direct the shoreline response.

8.3.2 Shoreline Protection

Shorelines can be protected through either marine strategies (Section 8.2) or by inshore or onshore protection methods. Options for shoreline protection strategies are shown in Table 8.9.

In situations where oil cannot be prevented from reaching the shore, attempts should be made to deflect the oil away from sensitive areas to designated collection beaches, or high energy rock faces. The deployment of shore booms should be regarded as a priority.

Once onshore, floating oil should be contained and collected as quickly as possible to prevent it from reaching uncontaminated areas. If appropriate, booms can be used to hold the oil against the shore during clean-up. The principle means of clearing any oil may be by physical clean-up by either manual and/or mechanical methods. Consideration may also be given to leaving the oil to degrade naturally.

Diversion and containment booms must be deployed in good time to be in place before oil arrives. This requires that transport is available to deliver equipment and personnel into shallow water areas.

Table 8.9 Protection Methods for Shoreline Types

Shoreline Type		Method of Protection				
		Booms		Earth or Other Barriers	Beach Treatment Agents	Inshore Use of Dispersant
		Deflection	Exclusion			
A	Exposed Bedrock Cliff and Seawalls					F
B	Exposed Bedrock Platform or Reef	F	F			F
C	Sheltered Bedrock Platform or Reef	R	F		F	F
D	Exposed Boulder/ Cobble and Rip rap	F	F		F	F
E	Sheltered Boulder/ Cobble and Rip rap	R	F	F	F	F
F	Pebble Beaches	R	R		F	F
G	Sand Beaches	R	R	R	F	F
H	Intertidal Mud/ Sand Flats	R	R			F ⁽¹⁾
I	Mangroves	R	F			F ⁽¹⁾
J	Salt marshes	R	R			F ⁽¹⁾
K	Seagrass (Shallow/Intertidal)	R				F ⁽¹⁾
L	Shallow/Intertidal Corals	R	F			
M	Natural Inlets/ Channels	R	R	R		
N	Marinas/ Artificial Waterways	R	R	F	F	F

Key

R Recommended - preferred option.

F Feasible, but not preferred option. Assessment needed.

NA Feasible but not available because of location of resources or other logistics constraint.

C Conditional. Possibly useful but may have adverse effects. Assessment and approval required.

NR Not required. Oil not expected to persist.

 *Not recommended - either not feasible, not safe or has significant adverse effects.*

(1) CAUTION: Dispersants should not be used on or close to these shorelines. If used it is preferable that they are used over deep water with good water exchange.

8.3.3 Shoreline Assessment

Shoreline assessment is undertaken in order to:

- determine whether cleaning is required;
- quantify the amount and character of oil present;
- confirm priorities for cleaning in consultation with the appropriate authorities; and
- determine the type of cleanup required for each oiled beach segment.

8.3.4 Shoreline Cleanup Strategies

Shoreline cleanup strategies must be developed in consideration of:

- the type of cleanup required for each oiled beach segment.
- substrate type and shoreline type;
- exposure to wave action;
- biological, social or economic resources;
- access available;
- nature of the oil (viscosity etc);
- amount of oil present;
- distribution of oil on the beach, and in the sediments;
- available equipment and labour; and
- available storage areas.

8.3.5 Temporary On Site Waste Storage

On site storage of waste may present a number of problems and care must be taken in the siting of waste storage areas. Local authorities and waste management contractors must be consulted. The following methods should be used if specialised storage containers are not available.

Oil Sediment: No Free Oil

Should be stored above the high tide mark in pits no deeper than 1m. The storage site should avoid vegetated areas and low-lying areas.

Oily Sediment or Debris: Some Free Oil

A shallow pit lined with plastic. Edges should be elevated above sediment level. Depth of pit should not be such that intrusion of sediment water occurs. Can be stored in plastic bags; no more than one third full, and stored above the high tide mark. Can use 200L drums; these should not be filled to the top (two thirds full is sufficient). Drums should be covered if possible to avoid the entry of rainwater with consequent overflow.

Free Oil: Oily Debris

Can utilise storage pits and drums as per oily sediment/some free oil, except that greater care is needed in the siting of temporary storage pits.

Unless sediment water is encountered, pits should be deeper than above and left no more than two thirds full if possible. Storage pits should be covered.

Table 8.10 Summary of Considerations for Cleanup of Various Coastal Types

Shoreline Type ⁽¹⁾		Comment
A	Exposed Bedrock Cliff and Seawalls	Generally considered to be of low sensitivity. Oil not likely to be persistent and wave reflection may prevent oil impact. May 'self clean' but oil may refloat and impact other areas if not cleaned up.
B	Exposed Bedrock Platform or Reef	
C	Sheltered Bedrock Platform or Reef	Oil persistence depends on degree of exposure, porosity of rock and extent of fissures and cracks in the platform. Cleanup activities largely dependent on environmental effects of cleanup.
D	Exposed Boulder/ Cobble and Rip rap	Oil likely to penetrate sediment. Biological diversity highly variable. Persistence of oil is dependent on amount of fine material between boulders or cobble and exposure.
E	Sheltered Boulder/ Cobble and Rip rap	
F	Pebble Beaches	Generally of low biological diversity and abundance. Oil may penetrate into sediment and required vigorous cleaning.
G	Sand Beaches	Generally, low sensitivity. Low viscosity oils may percolate, or be reworked, into sediment. Oil persistence dependent on substrate penetration/burial and seasonal beach dynamics. Seek advice.
H	Intertidal Mud/ Sand Flats	Oil not likely to penetrate wet sediments. Biologically may be diverse. Ensure that environmental advice is sought. Cleanup, if attempted, should be done with care, using manual methods. Protection a priority.
I	Mangroves	Oil may persist in sediments for years. Biologically diverse and often important habitat for birds. Some manual cleanup - with expert advice only. High Protection priority.
J	Salt marshes	
K	Seagrass (Shallow/Intertidal)	Cleanup is highly dependent on substrate type but seagrasses are easily damaged by cleanup. Seek expert advice. High Protection priority.
L	Shallow/Intertidal Corals	Sensitive to damage by oil and cleanup. Seek advice. High protection priority.
M	Natural Inlets/ Channels	Urgent assessment. Priority for protection and cleanup is dependent on freshwater water outflow and tidal exchange, character of adjacent shorelines and presence of sensitive resources (eg birds, marine mammals or fish spawning areas). Generally high protection priority.
N	Marinas/ Artificial Waterways	

(1) Shoreline type codes are as per Table 8.9.

Table 8.11 Shoreline Oil Spill Cleanup Matrix

Cleanup Methods	Shoreline Type ⁽¹⁾													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Natural Processes	R	R	F	F	F	R	F	R	C	C	C	C	C	R
Manual Cleanup	F	F	R	R	R	R	R	C	C	C	C	C	R	R
Trenching				F	F	F	F							
Mechanical Sediment Removal						F	R	C						
Mech. Sediment Reworking						R								
Water Washing (Deluge)		F	F	F	F	R	F	F	F	F	F	C	C	
Water Washing (Low P) ⁽²⁾		F					F	R	F	F	F	C	C	
Water Washing (High P) ⁽²⁾	C	C	C	C	R	F								F
Hot Water Washing (Low P) ⁽²⁾	C													F
Hot Water Washing (High P) ⁽²⁾	C													F
Sand Blasting/Steam Cleaning	C													F
Vacuum Recovery	F	F	F	F	F	F	R	R	C	C	C	C	R	C
Excavation, Cleaning and Replacement of Sediment				F	F	F								
Cutting Oiled Vegetation	C	C	C	C	C	C	C		C	C			C	C
Chemical Cleaning	C	C	C	C	C	C								C
Bioremediation	Nutrient Enhancement				C	C	C	C		C	C			
	Microbial Addition				C	C	C	C	C	C	C	C	C	

Key

R Recommended - preferred option.

F Feasible, but not preferred option. Assessment needed.

NA Feasible but not available because of location of resources or other logistics constraint.

C Conditional. Possibly useful or may be considered but may have adverse effects or result in damage. Assessment and approval required.

NR Not required. Oil not expected to persist.

 *Not recommended - either not feasible, not safe or has significant adverse effects.*

(1) See Table 8.9.

(2) Low P = <50 PSI, High P = >50 PSI

8.4 DISPERSANT GUIDELINES

8.4.1 Overview

Dispersing an oil spill may aid the dilution of the oil and may, in turn, reduce the economic and ecological impact associated with untreated oil contacting sensitive resources that lie in its path. Dispersants should be used when there is a net environmental benefit, ie when the potential harm done by dispersed oil is less than from untreated oil.

Chemical dispersants break up surface slicks and result in oil becoming mixed into the upper layers of the water column, ie 0-5m depths. Dispersants should be used to:

- reduce the fire risk posed by spills of light to moderate crude oils or diesel; and
- facilitate the breakup of spills of heavy oils.

The decision to use or continue to use dispersant must satisfy two important criteria:

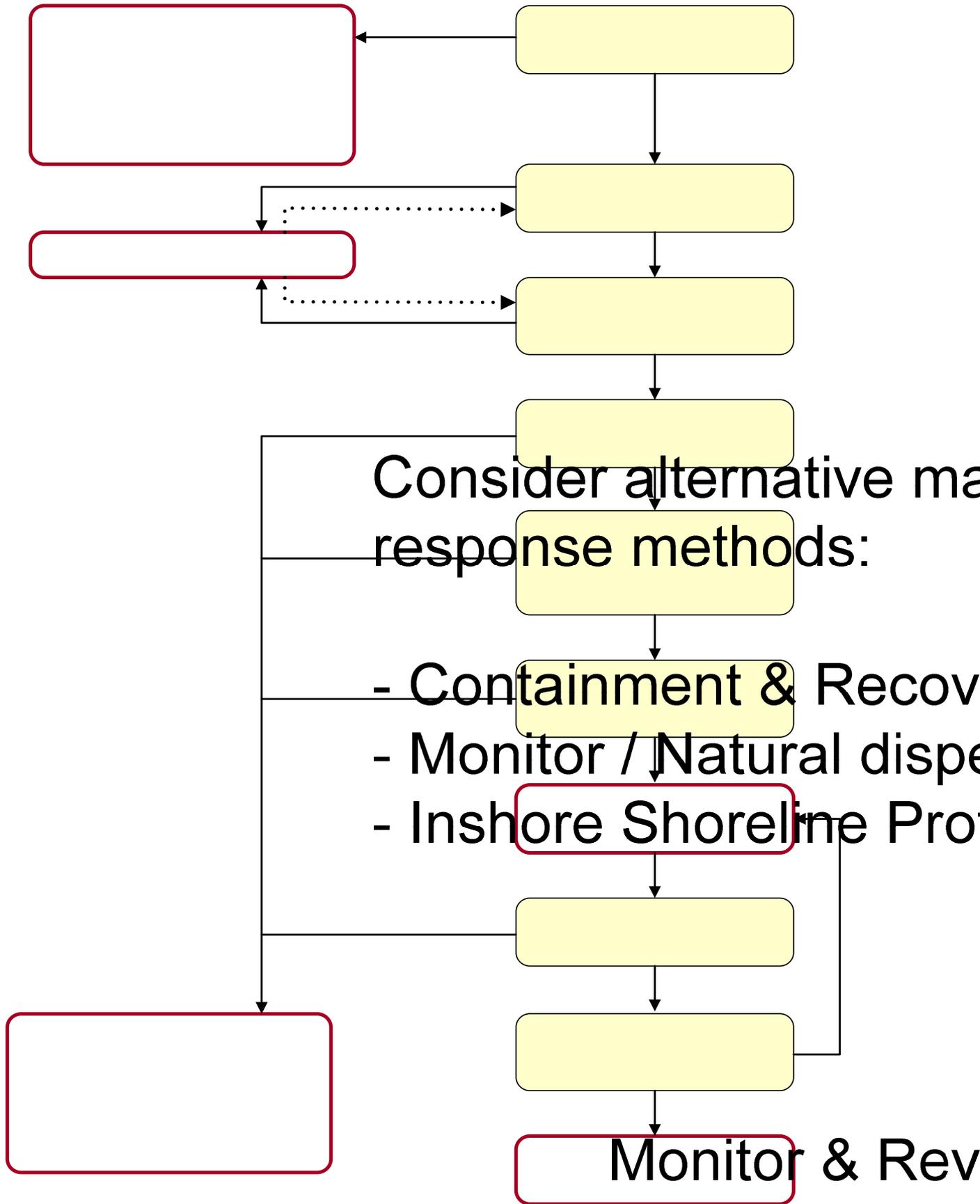
- the water depth, distance from sensitive resources and water exchange rate will be sufficient to either safely dilute the dispersed oil prior to reaching the resources to be protected, or result in relatively short term exposure at harmful concentrations.
- the spilled oil is amenable to dispersion.

Except for safety reasons, dispersants should not be used unless permission has been given by DPI or other relevant agency, as shown in Table 8.12. Figure 8.2 shows the guidelines for dispersant use in Victorian jurisdiction.

Table 8.12 Agencies Required to Approve the Use of Dispersants

Location	Source of Spill	Agency
Commonwealth Waters	MODU	DPI
	Supply Vessel	AMSA
Victorian State Waters	MODU	DPI
	Supply Vessel	MSV

Figure 8.2 Dispersant Strategy Guidelines



8.4.2 Methods of Application

Dispersant mixtures should be applied at an optimum droplet size of 500 to 700 microns and sprayed at a pressure that allows the droplets to fall like soft rain drops. Excessive droplet sizes and spray pressures will force the dispersant through the oil, while a light spray of insufficient droplet size will not provide sufficient mixing energy.

Methods include:

Fire Monitor Systems

For dispersants applied from a vessel mounted spray system, further energy can be provided by vessel wash, or a vessel mounted fire monitor. Dispersant should be introduced into the water stream at between 1:20 and 1:10 dispersant:water, depending on the dispersant to be used.

Supply Vessel Spray Boom

The support vessel will be equipped with dispersant and dispersant spray booms. Generally, dispersant will be applied from vessels only if the slick trajectory is tracking towards the Victorian coastline and is likely to reach these shoreline.

Helicopter Spray Bucket

Dispersant application by helicopter allows more precise application onto concentrated patches of oil. A helicopter and spray bucket can be brought to the MODU if spraying of slicks is required. These can be accessed via the regional AMOSPlan MAC.

Fixed Wing Aircraft

Fixed wing dispersant spray aircraft are available through a National Plan contract. These can be acquired through AMSA or via MSV (who in turn will request aircraft through AMSA).

8.4.3 Application Constraints

The application of dispersants is constrained by the following factors:

- Experience indicates that, even under ideal situations, dispersant effectiveness may be low due to such factors as the arrangement of the oil on the surface. Accordingly, other actions, such as deployment of booms and skimmers, should be considered in conjunction with dispersant application in order to protect inshore areas.
- Dispersant must be applied as soon as possible after the spill has occurred as the effectiveness of a dispersant diminishes over time as the viscosity of the oil increases. In general, it is unlikely that dispersants will be effective on oil which has weathered for longer than one or two days.
- Spotter aircraft are required to assist vessels to locate the oil (unless slick is thick), and spraying time of aircraft may be limited if slick is a long way offshore.
- As dispersant must be applied to surface slicks, treatment can only be carried out in daylight when the slicks are visible.

8.4.4 Health and Safety

Due consideration should be given to safety at all times when handling dispersants. Personnel must be familiar with instructions on the safe use of dispersants. Support Vessel Masters must ensure that crews are not exposed to dispersants sprayed from aircraft. At no time should dispersants be used to wash skin or clothing.

Dispersants approved for use in Australian waters are presented in Table 8.13.

Table 8.13 Dispersants Approved for use in Australian Waters

Dispersant	Type	Dilutable	Dose Rate (D:Oil)	Comment
BP-AB	1 (Hydrocarbon)	no	1:5	BP-AB cannot be used diluted and should not be sprayed using aircraft
Ardrox 6120	3	yes	Neat: 1:25	By vessel or aircraft
			Dilute	Vessel only
Corexit 9527	3	yes (up to 1:9)	Neat: 1:25	By vessel or aircraft
			Dilute	Vessel only
Corexit 9550	3	yes (up to 1:9)	Neat: 1:25	By vessel or aircraft
			Dilute	Vessel only
Dasic Slickgone NS	3 (Hydrocarbon)	yes (up to 1:9)	Neat	By vessel or aircraft
			Dilute	Vessel only. Monitor effectiveness of dilute or educted dispersants closely
Shell VDC	3	yes (up to 1:9)	Neat	By vessel or aircraft
			Dilute	Vessel only
Tergo R.40	3	yes (up to 1:9)	Neat: 1:20	By vessel or aircraft
			Dilute	Vessel only

Source: Australian Marine Oil Spill Centre (AMOSC). Refer to Appendix H - Material Safety Data Sheets

9 CHARACTERISTICS OF OIL

In an oil spill response the physical and chemical characteristics of the spilled oil as well as an understanding of its weathering properties and amenability to dispersants should be taken into account. The information below is a summary based on studies commissioned by Apache on the types of oil handled in its operations. Definitions of oil characteristics are given in Table 9.1.

9.1 TYPES AND CHARACTERISTICS OF OILS PRODUCED AND USED

The types of hydrocarbons which may be spilled into the marine environment from Apache operations are:

9.1.1 Crude Oil

If oil is encountered at Fur Seal-1 it is expected to be of a similar nature to the surrounding producing oil fields. Oil qualities used in the Environment Plan (EP) oil spill modelling analysis were sourced from the Automated Data Inquiry for Oil Spills (ADIOS) from AMSA, with the modelled crude oil having an API gravity of 46.4. Some of the properties of this type of crude are presented in Table 9.2.

The formulation of this oil indicates that it is also likely to emulsify (take up water to form a water in oil emulsion), given the strong wind conditions and associated wave action at the location. Emulsification would slow the rate of evaporative loss in the event of a spill.

9.1.2 Condensate

Condensate may be produced during an uncontrolled event or during a well test. The condensate is likely to evaporate completely within a week on the sea surface and will not be persistent. Low viscosity, interfacial tension and pour point would likely make the condensate amenable to chemical dispersant, should it be required.

9.1.3 Diesel Fuel

Diesel fuel is a middle distillate fuel with a typical API gravity of between 30°-32°. Diesel is generally light although it varies in its pour point and hence, volatility. Diesel spreads rapidly at sea and so, although classed as a 'persistent oil', any slick tends to break up quickly. During evaporative weathering, low molecular weight aliphatic and aromatic hydrocarbons and phenols are lost from the oil, leaving higher concentrations of less volatile, higher molecular weight hydrocarbons. Diesel does not form a stable oil in water emulsion and is amenable to dispersants.

9.1.4 Lubricating Oil

Lubricating oils spread rapidly, and tend to emulsify at sea resulting in an increased slick volume. Emulsions may become viscous if weathered and this may reduce the effectiveness of skimmers.

9.1.5 Bunker Oil

No bunker (heavy fuel oil) is produced or stored at Apache's facilities, however, tankers carry bunker oil as fuel. Bunker oil has an API gravity of 10 making it a heavy weight oil. Fresh bunker oil has a flash point of 80°C and a pour point of 24°C.

Table 9.1 Definitions of Oil Characteristics

Property	Definition
Density	Mass per unit volume of a substance. Temperature-dependent. Oil will float on water if the density of the oil is less than that of the water. The density of spilled oil will increase with time, as the more volatile (and less dense) components are lost. After considerable evaporation, density of some crude oils may increase enough for the oils to sink below water surface. Low density oils have low specific gravity, high API gravity.
Flash Point	Temperature to which the fuel must be heated to produce a vapour/air mixture that is ignitable when exposed to an open flame under specified test conditions. Flash point is an extremely important factor in relation to the safety of spill clean-up operations. Many freshly spilled crude oils also have low flash points until the lighter components have evaporated or dispersed.
Viscosity	Measure of a fluid's resistance to flow; the lower the viscosity of a fluid, the more easily it flows. Like density, viscosity is affected by temperature such that as temperature decreases, viscosity increases. Viscosity affects the rate at which spilled oil will spread, the degree to which it will penetrate shoreline substrates, and the selection of mechanical spill countermeasures equipment.
Pour Point	The lowest temperature at which the oil will just flow, under standard test conditions.
Interfacial Tension	Force of attraction between the molecules at the interface of two fluids. At the air/liquid interface, this force is referred to as surface tension. The surface tension of an oil, together with its viscosity, affects the rate at which an oil spill spreads.
Emulsions	A water-in-oil emulsion is a stable dispersion of small droplets of water in oil. When formed from crude oils spilled at sea, these emulsions can have very different characteristics from their parent crude oils which in turn has important implications for behaviour of the oil and its clean-up.
Saturates	Alkanes with structures of C_nH_{2n+2} (aliphatics) or C_nH_{2n} in the case of cyclic saturates (alicyclics). Small saturates ($<C_{18}$) are the most dispersible components of oils. Large saturates (waxes) can produce anomalous evaporation, dispersion, emulsification, and flow behaviours.
Aromatics	Hydrocarbon compounds that have at least one benzene ring as part of their chemical structure. The small aromatics (one and two rings) are fairly soluble in water, but also evaporate rapidly from spilled crude oil. Larger aromatics show neither of these behaviours to any extent.
Resins and Asphaltenes	Hydrocarbons composed of condensed aromatic nuclei which may carry alkyl and alicyclic systems containing heteroatoms such as nitrogen, sulphur, and oxygen. Metals such as nickel, vanadium, and iron are also associated with asphaltenes. Both groups do not appreciably evaporate, disperse or degrade, and both groups stabilise water-in-oil emulsions when they are present in quantities greater than 3%.
Waxes	Waxes are predominantly straight-chain saturates with melting points above 20°C.
Volatile Organic Compounds	Benzene, toluene, ethylbenzene, and xylenes (BTEX), and substituted benzenes are the most common volatile organic compounds, making up to a few percent of the total mass of some crude oils. BTEX are hazardous, carcinogenic and neurotoxic.
Toxicity	Toxicity to aquatic organisms is measured in laboratory tests and reported as: LC_{50} : Median lethal concentration is the estimated concentration of a compound that will cause death to 50% of the test population in a specified time after exposure. In most instances, LC_{50} is statistically derived by analysis of mortalities in various test concentrations after a fixed period of exposure. EC_{50} : Median effective concentration is used when an effect other than death is the observed endpoint. EC_{50} is the estimated concentration of the compound in water that will have a specific effect on 50% of the test population in a specified time after exposure.
WAF	(Water Accommodated Fraction) Mix of oil in seawater used for laboratory toxicity testing.

Source: Jokuty et al. (2000) A catalogue of crude oil and product properties. Environmental Technology Centre Databases (www.etccentre.org/spills/oil_intr.htm)

Table 9.2 Properties of Crude Oil

Adios Oil Database

OK Cancel GIPPSLAND, AMSA

Physical Parameters **Distillation Cuts**

Density (kg/m³) 795.60
 measured at temperature (K) 333.15

API Gravity 46.40

Emulsion Water Content (fraction) 0.7400

Oil Type
 Crude
 Refined

Viscosity

Dynamic Viscosity 1 (kg/cm-s) 0.000005 at temperature 1 (K) 0.00
 Dynamic Viscosity 2 (kg/cm-s) 0.000000 at temperature 2 (K) 0.00
 Kinematic Viscosity 1 (m²/s) 0.000002390 at temperature 1 (K) 293.00
 Kinematic Viscosity 2 (m²/s) 150.000000000 at temperature 2 (K) 4,313.10

Interfacial Tension

Oil-Water (N/m) 0.00000 at temperature (K) 0.00
 Oil-Seawater (N/m) 0.00000 at temperature (K) 0.00

Flash Point

Minimum Temperature (K) 0.00 Maximum Temperature (K) 0.00

Adios Oil Database

OK Cancel GIPPSLAND, AMSA

Physical Parameters **Distillation Cuts**

Cut #	Liquid Temperature (K)	Vapor Temperature (K)	Cumulative Fraction
1	0.00	295.05	0.011
2	0.00	343.15	0.116
3	0.00	373.15	0.211
4	0.00	403.15	0.312
5	0.00	453.15	0.426
6	0.00	508.15	0.511
7	0.00	543.15	0.602
8	0.00	593.15	0.714
9	0.00	653.15	0.812
10	0.00	693.15	0.902
11	0.00	733.15	0.950
12	0.00	0.00	0.000
13	0.00	0.00	0.000
14	0.00	0.00	0.000
15	0.00	0.00	0.000

Table 9.3 Properties of Diesel

DIESEL FUEL	Fresh	Weathering		
		1-3 hrs	1 day	1 week
Physical Characteristics:				
API gravity (classification)	33.2 (mid distillate)			
Density (g/mL) @ 20° C	0.855	ND	0.856	0.860
Viscosity (cP) @ 20° C	3.62	ND	4.0	5.4
Interfacial Tension (mN/m)	34.5	ND	32.6	31.4
Flash Point (°C)	78.9	ND	91.1	118.3
Pour Point (°C)	6	ND	18	12
Boiling Point (°C)				
Chemical Characteristics:				
Saturates (% by weight)	63.1	ND	64.2	63.6
Aromatics (% by weight)	34.9	ND	33.4	33.7
Resins (% by weight)	1.7	ND	1.7	1.5
Asphaltenes (% by weight)	0.2	ND	0.7	1.2
Waxes (% by weight)	ND	ND	ND	4.2
Weathering:				
% loss after laboratory weathering	-	0	3	23
Persistent in the environment	Moderate			
Forms oil in water emulsions	No	no	no	no
- Effectiveness of demulsifier				
Toxicity (laboratory tested):				
tropical clownfish (<i>Amphiprion clarkii</i>)	Low	ND	low	low
inland silverside fish (<i>Menidia beryllina</i>)	Moderate	ND	low-mod.	low-mod.
tropical prawn (<i>Penaeus vannamei</i>)	Moderate - High	ND	mod.-high	mod.-high
mysid shrimp (<i>Mysidopsis bahia</i>)	Moderate - High	ND	mod.-high	mod.-high
sea urchin larvae (<i>Arbacia punctulata</i>)	Low	ND	low	low
sand dollar/sea urchin larvae (<i>Dendraster excentricus/Strongylocentrotus purpuratus</i>)	Moderate - High	ND	low	low
Amenable to Dispersant:	Yes	yes	no	no

(ND = no data available, mod. = moderate)

9.2 WEATHERING OF OIL

Changes in physical/chemical properties of oil during weathering affect spreading, dispersion and emulsification of the crude or refined oil. When crude oil is released on or near the sea surface, it spreads horizontally in an elongated pattern oriented in the direction of the wind and surface water currents. The centre of the mass of the drifting slick may move at a rate of approximately 3 to 4 percent of the wind speed with a 20- to 30- degree shift to the left (southern hemisphere) in trajectory due to Coriolis force.

Crude oils tend to form two phases during spreading:

- a thick phase (1-20 mm thick) consisting of viscous partly emulsified oil.
- a thin sheen (0.001 to 0.01 mm thick).

In addition, the leading edge and central axis of the drifting slick tend to be thicker than the interior. A thick slick usually breaks up into small patches as the oil weathers, especially under the influence of the wind; the patches or streaks usually move down-wind faster than the thinner portions of the slick, eventually leaving them behind.

During evaporative weathering, low molecular weight aliphatic and aromatic hydrocarbons and phenols are lost from oils, causing an increase in the density, flash point, pour point, viscosity and interfacial tension of the remaining oil residues.

9.3 LABORATORY TESTING OF DISPERSANTS

No laboratory testing of dispersants was conducted by Apache for generic Gippsland crude as part of this OSCP. It is assumed that the dispersants presented in Table 8.13 would be effective on a range of crude oil types found in the Gippsland Basin.

10 WASTE MANAGEMENT

10.1 GENERAL

During an oil spill clean-up, the disposal of waste material must not pose any threat to the environment. There are no general rules for the disposal of wastes as the type and amount of waste generated will depend on the spill itself and its location. A range of disposal methods are available and these are outlined in Table 10.5 as a guide to the appropriate choice.

The disposal techniques in order of preference are:

- recovery, recycling, reprocessing;
- landfarming;
- land fill; and
- incineration.

The establishment of a temporary waste handling base will allow time for the separation of waste, the selection of suitable disposal routes and may allow the use of local facilities with limited turn-over. The Environmental Manager should be consulted as to the suitability of waste storage, disposal method and disposal location. It is the responsibility of the Supply and Logistics Superintendent to organise any equipment necessary for the transport and disposal of waste.

10.2 TYPES OF WASTE PRODUCED

The list below gives the types of waste which may be generated in oil spill:

- liquid oily waste, predominantly oil;
- solid oily waste such as oiled shoreline debris and absorbents;
- used oils such as hydraulic and motor oils;
- oily water;
- hazardous wastes such as chemicals and solvents;
- inert materials such as plastic, wood and paper;
- putrescible wastes;
- drums;
- batteries; and
- 'mousse'.

Note also that oil collected from the sea can contain debris such as plastics, seaweed, flotsam, dead birds and other animals which may make collection and disposal difficult.

10.3 WASTE SEGREGATION

Wherever possible, wastes should be segregated in accordance with the preferred segregation shown in Table 10.1.

For large spills or those where it is not possible to effectively segregate wastes in the field, the broader 'field' segregations can be used.

It may be required to separate oil from associated water, sediment and debris, in order to minimise volumes. It is preferable that this is not attempted on the spill site. If this is necessary a number of methods may be used (Table 10.2). These should only be attempted under the supervision of a DSE officer or other qualified person.

Table 10.1 On Site Segregation of Wastes

Field Segregation		Preferred Segregation
Liquid	Oils	Non emulsified oils
		Emulsified oils
	Wastewater	Water from temporary storage
		Water from heat or gravity separation of emulsions
Water from chemically demulsified oil		
Solid	Oils	High pour point oils
		High viscosity emulsions
		Tar balls
	Oily debris	Oil mixed with cobble or sand
		Oil mixed with wood, vegetation, plastics or sorbents

10.4 TEMPORARY STORAGE OF COLLECTED OIL AND OILY DEBRIS

10.4.1 Overview

Wastes awaiting disposal must be stored in an environmentally acceptable manner, ie no odour, groundwater pollution or runoff from the site.

It is recommended that a temporary waste handling base be established if an oil spill occurs. This base will receive, separate and store all waste collected prior to dispatch for permanent disposal. If space is limiting, several smaller designated sites can be used. Drums, leak-proof skips and ISO containers can be used to store smaller volumes of spilt oil.

10.4.2 Site Selection

Selection of the site for the handling base will be dependent on the location of the spill and ease of access. Although fast tanks should be used whenever possible, temporary holding pits dug into the ground are an option for temporary storage of oil and oily wastes. Long narrow pits are the most practical shape and they must be lined with a heavy gauge oil-impermeable plastic. If possible, the trenches should be narrower than the plastic lining so that the plastic extends past the edges of the trench to avoid seepage. If the trench is wider than the plastic, two sheets of plastic should be welded together to allow overlap and to prevent seepage. A bund wall should be made around the trench using the dirt extracted from the trench.

10.4.3 Design of Handling Base

The size of the base and the facilities included will be dependent on the size of the spill. The layout of the base should cater for easy collection, sorting, processing and dispatch. Suggested sections within the handling base to separate materials are presented in Table 10.2.

Table 10.2 Separation and Handling of Wastes

Sections Within Handling Base	Additional Requirements
Inert materials	
Hazardous waste materials	Segregate, label and place on pallets within bunded walls.
Cleaning area	For equipment and rubber gear
Empty drums storage area	
Plastic bags with solid oil waste	Place within lined pad and bunded area
Evaporation pit	Place within lined pad and bund, preferably shallow and wide.
Liquid oily waste pit	Place within lined pad and bund
Recyclable materials	e.g. glass, cans, metals, paper, oils, solvents
Putrescible wastes	
Drums with liquid waste (non-oil)	Place on pallets and bund
Wood storage area	
Trash compactor	
Receiving/data processing office	

10.5 WASTE TRANSPORT

The transport of waste material will be required at sea, from sea to land and on land.

10.5.1 Offshore

Small tankers, barges or towed flexible containers (eg 'Dracones') can be used for moving collected oil from the skimming vessels to the shore station. Watertight containers can be used on barges and lifted to shore using cranes. Pumps may also be used to transfer oil from tankers and barges (especially if holding tanks have been used) to containers on shore. Available equipment is listed in Appendix E.

10.5.2 Onshore

Table 10.3 lists some of the equipment available for transport and storage of wastes along shorelines. Available equipment is listed in Appendix E.

Attention should be given to the prevention of leaching or spillage of oil from vehicles or containers. Vehicles should be sealed using plastic sheeting.

Skips and other containers should also be sealed prior to use. Any container used for storage must be covered if rain is possible, to avoid overflow.

Table 10.3 On Site Storage and Handling of Wastes

Waste Type	Container	Handling	
Liquid Oils and Wastewater	200L drums	Onshore	Half fill only. Care needed in handling.
	Fast tank ⁽¹⁾	Onshore	Can be used for transport on truck with care.
	Vacuum trucks	Onshore	Should not be used on volatile oils.
	Skips	Onshore	Bottom drainage hole needs to be plugged.
	Large flexible bags/containers, eg Flexidam ⁽¹⁾	Offshore and onshore	Onshore should be loaded onto flat-bed trucks prior to filling.
	Barges and Dracones ⁽¹⁾	Offshore	Not suitable for use inshore.
Solid Oils and Oily Debris	200L drums	Onshore	Half fill only. Care needed in handling.
	Skips	Onshore	Bottom drainage hole needs to be plugged.
	Plastic bags	Onshore	Half fill only. Should be transported or handled using Bobcat or Front-end Loader.

(1) Available via MAC, MSV, AMOSC or AMSA.

(2)

10.6 WASTE SEPARATION AND DISPOSAL

10.6.1 Waste Separation

Waste separation is usually undertaken offsite at a designated waste processing area. A number of preliminary treatment options may be used to separate stored waste. These are shown in Table 10.4

Table 10.4 Separation and Disposal of Waste Materials

Waste Type	Separation Method
Non emulsified oils	N/A
Emulsified oils	Heat treatment, Gravity separation ⁽¹⁾ Demulsifiers ⁽²⁾
Water from temporary storage areas	N/A ⁽³⁾
Water from heat or gravity separation	N/A ⁽³⁾
Water from chemically demulsified emulsion	N/A
High pour point oils	N/A
High viscosity emulsions	N/A
Tar balls	Sieve to remove sand ⁽¹⁾
Oil and sediment	Collect oil leaching from storage pits or piles ⁽¹⁾
	Wash with water or solvent
Oil mixed with wood or other debris	Collect oil leaching from storage pits or piles ⁽¹⁾
	Wash with water

(1) May be undertaken at the point of collection (shoreline).

(2) May be undertaken at the point of collection but is not preferred.

(3) Should not be undertaken on site.

10.6.2 Waste Disposal

Waste must be disposed of in accordance with Victorian regulations. In the event of likely shoreline contact, Apache will work with the DPI and DSE in preparing a Waste Management Plan to determine likely disposal sites for recovered oil and oily wastes. Waste disposal options and disposal sites are outlined in Table 10.5.

Table 10.5 Disposal Methods and Regional Sites

Type of Material	Service Provider/ Disposal Site (1)	Possible Disposal Method
Liquid Oil Waste (oil with some water)	Industrial Waste Services	Recycle
Oily Water (water with some oil)		Oil-water separator
Oil-Water Emulsions		Demulsify/ recycle oil
Solid Oily Waste	Municipal tip operators	Landfill (Oil content <30ppm)
Non Oily, Non Putrescible Waste Materials		Landfill or Recycle where possible: <ul style="list-style-type: none"> • paper • drums • batteries • glass • aluminium/metals
Putrescible Wastes		Incineration Landfill
Hazardous Wastes (other than oil)	Industrial Waste Services	This should not be produced. Contact Environmental Manager

11 TERMINATION OF RESPONSE

The decision to terminate the response will be made by the **Oil Spill Commander/Incident Controller** in conjunction with the appropriate authorities.

Upon conclusion of the response, the following tasks are to be undertaken by the appropriate response team member:

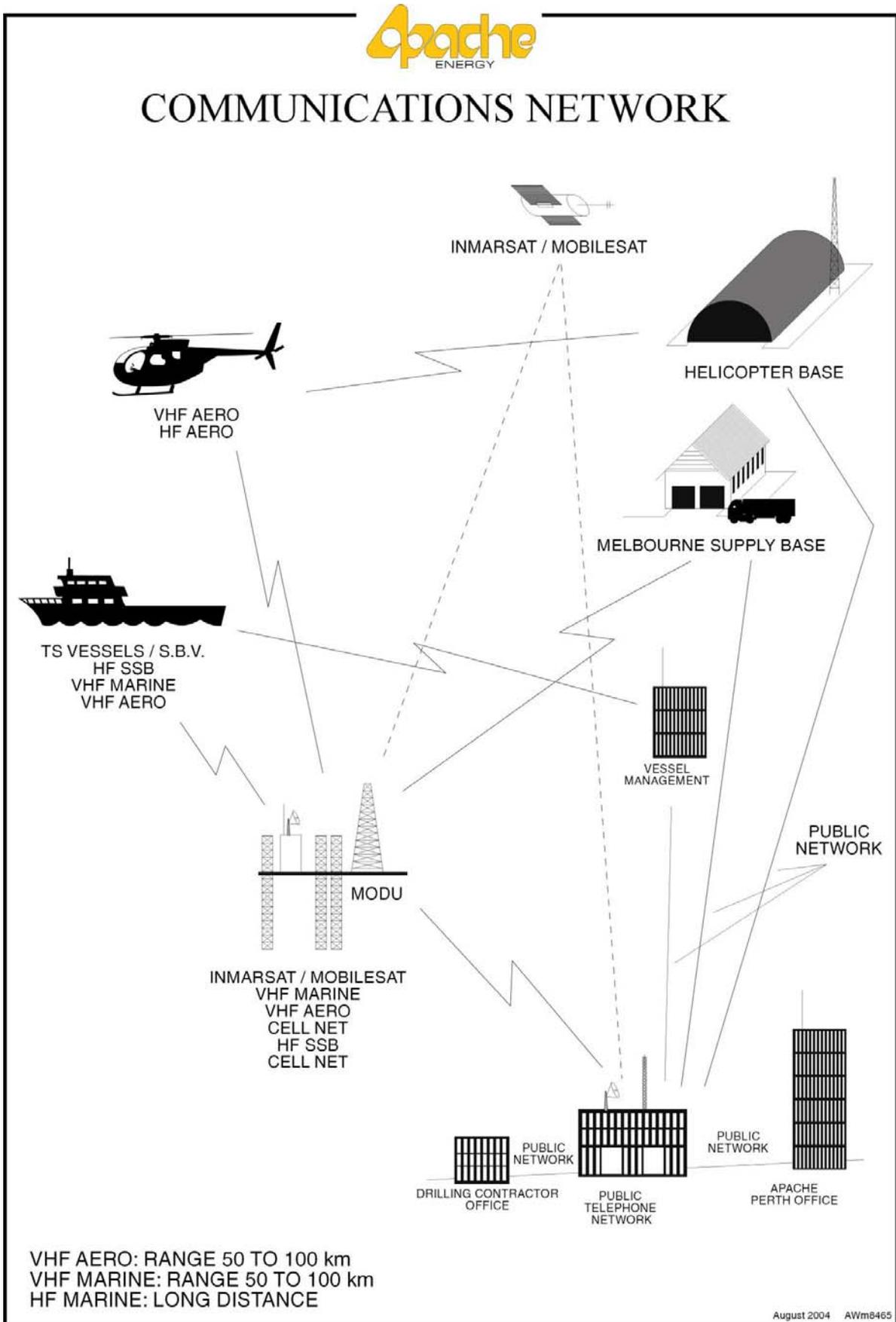
- Advise all relevant contractors and Apache personnel.
- Advise all relevant government authorities.
- Prepare detailed reports and collate all documents.
- Undertake an inventory of consumables and prepare accounts.
- Arrange for the return of equipment.
- Arrange for the refurbishment of consumed equipment.
- Conduct an investigation into the cause of the incident.
- Assess environmental monitoring requirements.

APPENDIX A COMMUNICATION SYSTEM

Figure A.1 shows the communications system for Drilling Activities.

- The drilling rig is fitted with a satellite communication system for voice and facsimile communications.
- The rig is fitted with a helicopter non-directional beacon (NDB). The unit provides the helicopter pilot with an aid to navigation during adverse weather conditions.
- The supply boats and rig have short range communication via the normal marine VHF frequencies and long range SSB radios for ship to shore.
- Both helicopters and rig can communicate via aero VHF.

Figure A.1 Offshore Drilling Communications Network



**APPENDIX B
DIRECTORY**

EMERGENCY RESPONSE TELEPHONE

[AE-00-ZF-025.20](#)

APPENDIX C DESCRIPTION OF ENVIRONMENT

C.1 Metocean Conditions

Climate and Oceanography

The climate of the Gippsland Basin can be described as moist cool temperatures with warm summers with a regular winter-spring rainfall. The region is located on the northern edge of the westerly wind belt known as the “Roaring Forties”. Winds often freshen to gale force from the north and north-west, ahead of approaching fronts during all seasons. Once the fronts have passed they swing abruptly south-west behind the front at similar speeds and abate until they again freshen ahead of the next front. Additionally, low pressure systems can generate wind systems known as the “East Coast Lows”, which consist of strong south easterly winds. The currents within the area include components due to tides and wind stress. As a function of this in the open waters, tides generally result in an elliptical movement of the water mass (URS, 2003).

The East Australian current brings warmer waters into Bass Strait and influences water temperatures. Sea surface temperatures for Bass Strait range from 16 to 18°C in February and 12 to 14°C in August (Middelton, 1995).

Wave energy is relatively low, particularly in the broader shelf area in the Gippsland Basin. However, stalled low-pressure systems in the Tasman Sea during the summer can generate higher wave energy at this time. Intermittent upwelling occurs along parts of the east Gippsland coast (URS, 2003).

Bathymetry

VIC/P54 is located in relatively shallow water depths in relation to other offshore permits within Bass Strait. Water depth ranges from 40m in the northern section of the permit to 60m in the southern section with a gradual gradient from shallow to deeper waters.

C.2 Biological Environment

Overview

The nearshore fauna of Bass Strait is characterised by distinct species assemblages of reef fishes, echinoderms, gastropods and bivalves (URS, 2003). Deeper waters biological assemblages of Bass Strait are poorly known. Between 1979 and 1984 the Museum of Victoria sampled benthic organisms and fauna in the eastern Bass Strait. Three hundred and fifty three species of invertebrates were collected, half of which were crustaceans and the rest polychaetes and Molluscs (Poore, 1995).

As part of the Patricia-Baleen development for VIC/L21, CEE Consultants (2001) undertook a marine seabed survey and described four general seafloor habitat types. These included:

- medium sand and shell grit supporting sea pens, occasional sponges and colonial ascidians;
- shell accumulations consisting of large predominantly bivalve shells including scallops;
- sponge garden consisting of large sponges and bryozoans at approximately 50m water depth; and
- introduced New Zealand screw shell aggregations.

CEE (2001) concluded that these habitat types are likely to be widespread in eastern Bass Strait.

Fish

The pelagic water species found in Bass Strait are largely of cool temperate water species, common to Southern Australian seas (ANZECC, 1998).

Many commercially important fish species are found in Bass Strait. Some of the common species caught by commercial fisherman in Bass Strait are listed in Table C.1. Many of these commercial catch species are fished in waters much deeper than that found within the permit area.

Table C.1 Commercially Significant Fish Species for Bass Strait

Fish Species	Depth predominantly fished at
Orange roughy (<i>Hoplostethus atlanticus</i>)	>500m
Eastern gemfish (<i>Rexea solandri</i>)	200 – 500m
Tiger flathead (<i>Neolpatycephalus richardsoni</i>)	<50 – 250m
Blue grenadier (<i>Macruronus novaezelandiae</i>)	300 – 600m
Redfish (<i>Centroberyx spp.</i>)	<50 – 300m
School whiting (<i>Sillago spp.</i>)	<50-150m
Warehou (<i>Serirolella spp.</i>)	50 – 550m
Ling (<i>Genypterus spp.</i>)	250 – 550m
John dory (<i>Zeus faber</i>)	50 – 200m
Silver trevally (<i>Pseudocaranx dentex</i>)	<50 – 150m
Ocean perch (<i>Helicolenus percoids</i>)	350 – 550m
Various shark species	<50 - >500m

Cetaceans and Seals

Forty three species of whales and dolphins occur in Australian waters (Bryden *et al.*, 1998), with approximately 50% of these reported from Victorian waters.

Southern right whales (*Eubalaena australis*), migrate from sub-Antarctic feeding grounds to their breeding grounds close to Victoria and other areas of Southern Australia. Bass Strait is a known migration pathway for this species (EA, 2001).

A localised, seasonal aggregation of the Blue whale (*Balaenoptera musculus*) has been reported off the Victorian and South Australian border (Gill, 2000). Observations from this work suggest that the blue whales aggregate in this area during summer and autumn to feed on krill associated with the cool-water upwelling along the continental shelf. This species migrates through Bass Strait in November and December (EA, 2001).

Little is known of the distribution of feeding grounds, migration paths and calving areas of the other species of whales and dolphins found in Bass Strait. Humpback whales have been reported from Bass Strait, and pass through the Strait on their way to calving areas off Queensland or to their sub-Antarctic feeding areas (EA, 2001).

The Australian fur-seal (*Arctocephalus pusillus*) occurs throughout Bass Strait. There are numerous breeding colonies near Wilson Promontory, Philip Island and King Island. There are no breeding grounds within VIC/P54 or in the immediate surrounding waters (Bryden et al., 1998).

The seals moult, breed and rest on land, and tend to come ashore on rock platforms, reefs or rocky beaches. They utilise artificial structures including Bass Strait oil and gas infrastructure and mooring buoys, as resting locations.

Endangered and Vulnerable Species

A search of the EPBC Act Protected Search Tool identified that a total of potentially 5 marine species were listed under the EPBC Act database as being endangered or vulnerable that may occur within the proposed permit. These are listed in Table C.2 below. The proposed drilling sites are not considered a habitat that is critical to the survival of these species. Similarly there are no listed threatened ecological communities as defined in the EPBC Act in the vicinity of the drill sites. There are, however, numerous species of listed threatened fish species and listed migratory marine species that may be found within the region of VIC/P54.

Table C.2 Endangered and Vulnerable Species under the EPBC Act

Species	Listing	Likely presence in the Area
Blue Whale (<i>Balaenoptera musculus</i>)	Endangered marine species	Possible (passing through area)
Southern right whale (<i>Eubalaena australis</i>)	Endangered marine species	Possible (passing through area)
Humpback whale (Megaptera novaeangliae)	Vulnerable marine species	Possible (passing through area)
Grey white shark (<i>Carcharodon carcharias</i>)	Vulnerable marine species	Possible
Whale Shark (<i>Rhincodon typus</i>)	Vulnerable marine species	Unlikely

Some of the species listed above may migrate through or temporarily forage within VIC/P54, however it is unlikely that the drilling programme will adversely affect populations of this species. The small area in which the drilling will take place is unlikely to function as a critical habitat for any of these listed species.

Of the whales listed in Table C.2, the Southern right whale is known to calve close to the western Victorian coast between May and September (EA, 2001). Blue whales aggregate and feed in waters off the western Victorian coast and individuals of both species may pass through VIC/P54.

Listed and Migratory Species

The blue and southern right whales are two migratory species, listed under the EPBC Act, which migrate through eastern Bass Strait (EA, 2001). Other migratory marine species that may migrate through the area according to the EPBC Act Protected Search Tool are listed in Table C.3 below. It is highly unlikely that the proposed drilling programme will have a detrimental effect on any of these species because of the temporary nature of the drilling program and its distance from recognised calving and feeding grounds.

Migratory seabirds listed under the EPBC Act are known to occupy the Islands of Bass Strait and the nearby coastline and may pass through VIC/P54 during the time of the drilling program. However due to the lack of suitable roosting and breeding habitats they are not expected to occur within the permit. Foraging activities are undertaken by these species on the open ocean throughout Bass Strait. Migratory seabirds that may migrate through the permit area are also listed in Table C.3.

The little tern (*Sterna albifrons*) is a listed migratory species under the EPBC act that has rookeries near Tamboon Inlet and Sydenham Inlet located at least 70 km NE from the Fur Seal-1 drill site.

Table C.3 Migratory Species under the EPBC Act that may occur within VIC/P54

Species	Listing	Likely Presence During Drilling
Antarctic Minke Whale, Dark-shouldered Minke Whale (<i>Balaenoptera bonaerensis</i>)	Migratory marine species	Possible
Brydes's whale (<i>Balaenoptera edeni</i>)	Migratory marine species	Possible
Pygmy Right Whale (<i>Caperea marginata</i>)	Migratory marine species	Possible
Killer whale, Orca (<i>Orcinus orca</i>)	Migratory marine species	Unlikely
Sperm whale (<i>Physeter macrocephalus</i>)	Migratory marine species	Possible
The little tern (<i>Sterna albifrons</i>)	Migratory seabird species	Possible
Amsterdam Albatross (<i>Diomedea amsterdamensis</i>)	Migratory seabird species	Unlikely
Antipodean Albatross (<i>Diomedea antipodensis</i>)	Migratory seabird species	Unlikely
Tristan Albatross (<i>Diomedea dabbenena</i>)	Migratory seabird species	Unlikely
Southern Royal Albatross (<i>Diomedea epomophora</i>)	Migratory seabird species	Unlikely
Wandering Albatross (<i>Diomedea exulans</i>)	Migratory seabird species	Unlikely
Gibson's Albatross (<i>Diomedea gibsoni</i>)	Migratory seabird species	Unlikely
Northern Royal Albatross (<i>Diomedea sanfordi</i>)	Migratory seabird species	Unlikely
Northern Giant-Petrel (<i>Macronectes halli</i>)	Migratory seabird species	Unlikely
Buller's Albatross (<i>Thalassarche bulleri</i>)	Migratory seabird species	Unlikely
Shy Albatross (<i>Thalassarche cauta</i>)	Migratory seabird species	Unlikely
Grey-headed Albatross (<i>Thalassarche chrysostoma</i>)	Migratory seabird species	Unlikely
Campbell Albatross (<i>Thalassarche impavida</i>)	Migratory seabird species	Unlikely
Black-browed Albatross (<i>Thalassarche melanophris</i>)	Migratory seabird species	Unlikely
Salvin's Albatross (<i>Thalassarche salvini</i>)	Migratory seabird species	Unlikely
White-capped Albatross (<i>Thalassarche steadi</i>)	Migratory seabird species	Unlikely

Other listed species identified by the EPBC Act Protected Search Tool as species that may inhabit the area includes:

- 20 species of Pipefish;
- 4 species of Seahorse;
- 1 species of Seadragon (*Phyllopteryx taeniolatus*);
- 2 species of Pipehorse;
- 1 species of fur seal (*Arctocephalus pusillus*); and
- 19 other species of cetaceans (whales and dolphins).

Areas of Environmental Significance

The Victorian coastline, approximately 32km from the drilling sites, is described as having extensive beaches interrupted by occasional rocky headlands such as Point Hicks and Cape Conran. Immediately to the north of the permit is the eastern extremity of Ninety Mile Beach. There are no mangrove forest, coral reefs or extensive wetland lagoons along the exposed coastline directly opposite the proposed drill site locations.

There are no known areas of regional environmental significance in the immediate vicinity of the proposed drill sites.

There are some environmentally sensitive areas situated in or adjacent to estuaries located along the Gippsland coastline. These areas on the coastline are listed below and shown in Figure C.1. They include:

- Gippsland Lakes, a designated Ramsar Wetland. The lakes are estuarine and linked to the ocean via a narrow opening at Lakes Entrance.
- Point Hicks Marine National Park.
- Croajingolong National Park.
- Australian fur seal colony near Little Ram Head.
- Australian fur seal haul out site at Beware Reef.
- Ninety Mile Beach Marine National Park near Seaspray.
- The Ewing Morass State Game Reserve.
- Little Tern Rookery sites at Tamboon and Sydenham Inlet.

Heritage

There are no areas listed or proposed for nomination on the Register of the National Estate in the immediate vicinity of VIC/P54. Similarly there are no World Heritage Properties nearby. The closest World Heritage Property is located in south-western Tasmania. The nearest Ramsar wetland is located at Lakes Entrance approximately 40km NW from VIC/P54.

C.3 Socio-Economic Environment

Fisheries

No recreational fishing activity is undertaken in the permit area with recreational fishing activity being restricted to the coastal waters of the near shore area.

Advice on commercial fishing activities undertaken within Commonwealth managed fisheries was requested from the Australian Fisheries Management Authority (AMFA). Historical AMFA logbook data for 2002 and 2003 indicated that vessels in the Gillnet, Hook and Trap (GHT) and the South East Trawl (SET) fisheries reported operating in the area of the proposed wells. The data indicated that up to 27 vessels reported deploying fishing gear up to 486 times during one calendar month in the area (pers. comm. John Adams AMFA, 2004)

The GHT fishery covers the taking of Commonwealth managed species of demersal scalefish and demersal shark species off south-eastern Australia and within VIC/P54.

Operators in the GHT fishery use a variety of fishing methods including demersal gillnets, drop lines, demersal longlines and traps. Scalefish hook operators use various hook and line methods to target scalefish, principally blue eye trevalla, ling and blue warehou.

The SET fishery consists of trawl and non trawl components. The SET fishery covers the area of the Australian Fishing Zone extending southward from around NSW, Victorian and Tasmanian coastlines to Cape Jervis in South Australia.

The main markets is fresh fish supplied to the eastern seaboard and some export components. The main fishing methods are Otter trawl, Danish seine, and some midwater trawl.

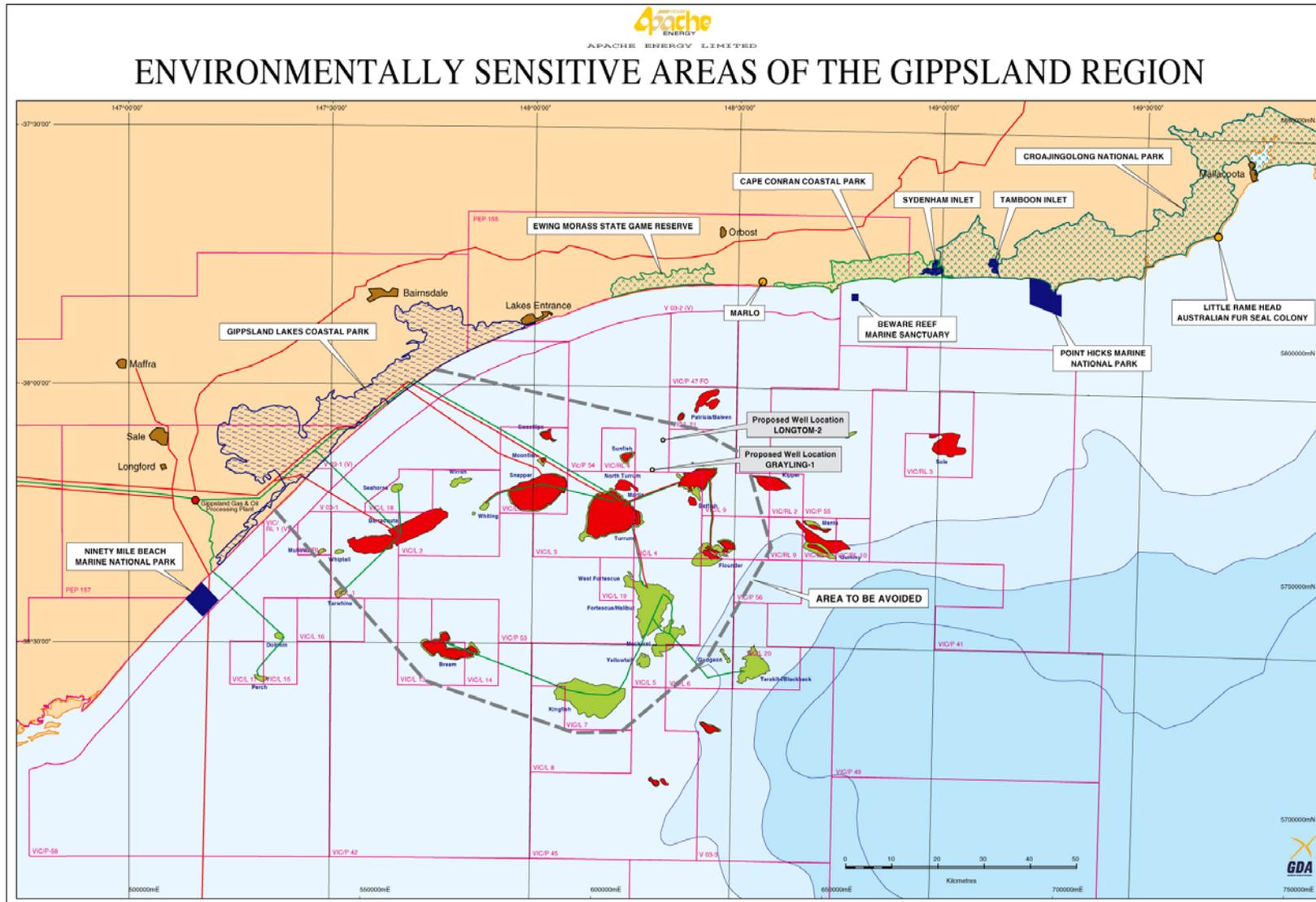
The SET fishery is one of Australia's oldest commercial fisheries. Many species taken routinely in the SEF have distributions that extend well beyond the SEF management boundaries. Around 400 species are caught in the SEF and over 120 species of finfish and invertebrates are routinely landed, reflecting the variety of different habitats in which the fishery operates.

The following commercial fishing interest groups have been nominated by AMFA as being active within the waters of VIC/P54:

- South East trawl Fishing Industry Association;
- Lakes Entrance Fisherman's Co-operative;
- South East Fishery Association; and
- San Remo Fisherman's Co-operative.

Apache will consult with these fishing groups to notify them of the proposed drilling program.

Figure C.1 Areas of Environmental Significance in the Vicinity of VIC/P54



Oil and Gas Industry

Since the discovery in 1965 of hydrocarbons in the offshore Gippsland Basin, the region has continued to be a significant petroleum province supplying both Victoria's domestic gas demand and the nation's oil requirements. Oil production from the Gippsland Basin peaked in 1985 at a production rate of 450,000 barrels of oil per day. Presently oil production from the Gippsland Basin accounts for 17% of Australia's crude oil production (DPI website).

The Esso and BHPBP Joint Venture has been the dominant oil and gas producer in the Gippsland Basin since the early successful discoveries in the mid 60s. Their major oil and condensate producers include the Bream, Flounder, Fortescue, Halibut, Kingfish, Tuna, West Kingfish and the West Tuna fields. These eight fields are now responsible for producing more than 67% of liquid hydrocarbons in the Gippsland Basin. The Barracouta, Marlin, and Snapper fields are the key natural gas fields within the Basin. All of these production fields are joined by a network of pipelines to the eighteen offshore production facilities and transported via pipelines to the Longford gas processing and oil stabilisation plants near Sale.

Other producers in the Basin include OMV Australia with its Patricia – Baleen gas fields in the VIC/L21 production license, adjacent to the proposed drill sites. The Patricia – Baleen development was commissioned in December 2002. Natural gas is transported from this offshore development via a subsea pipeline to its onshore Gas Plant.

Seismic and drilling activities are undertaken as a regular occurrence within the Gippsland Basin. The Esso/BHPBP joint venture completed in 2003, a large 3D seismic survey over its northern section of acreage resulting in further exploration drilling being undertaken in the Basin (BHPBP website). Other exploration companies active in the Gippsland Basin include Santos and Bass Strait Oil Company Ltd (BSOC), who are proposing to undertake the drilling of its Moby prospect in VIC/P47 east of Apache's proposed Longtom-2 and Grayling-1 well sites in the later part of 2004.

Shipping

The southern section of Bass Strait is heavily utilized by passing shipping traffic emanating from Port Phillip Bay or the Southern Australian waters as well as vessel traffic sailing from Eastern Australian waters. Shipping traffic traversing the Tasmania/eastern seaboard route also passes by this area.

A designated Oil and Rig Exclusion zone exists around the current operating petroleum facilities. Under the Petroleum (Submerged Lands) Act, 1967, unauthorized vessels larger than 200 tons gross tonnage are not permitted within this area. Designated Shipping traffic channels occur to the south of this exclusion zone. To the south of Esso/BHPBP's Kingfisher B platform a Traffic Separation Scheme exists which delineates ship traffic into separate one direction lanes for vessels heading north eastwards and those heading south westwards.

The Fur Seal-1 well locations are well to the north of any major vessel channels and are within the designated Oil and Rig Exclusion zone.

Population Centers

The closest populated centers to the drill sites are the coastal towns of Marlo, greater than 40km to the north east of Fur Seal-1 and Lakes Entrance, greater than 35km north west of Fur Seal-1. The small tourism townsite of Marlo has an estimated population base of about 300 residents with Lakes Entrance, one of the largest fishing ports of the region, has a population of some 5,300.

APPENDIX D MODELLING OF OIL SPILLS

D.1 Background

The interaction of the prevailing tide and wind at the time of a spill is fundamental in determining the oil spill trajectory. Factors controlling hydrodynamic flow in the region are used to model spill trajectories. For the Gippsland Basin Apache has used a 3-dimensional ocean current model (HYDROMAP) to predict currents within the vicinity of the proposed wells. An oil spill behaviour model (OILMAP) has then been used to predict the fate of hydrocarbon spills as they are transported by the modelled currents and prevailing winds. A geographic information system within OILMAP maintains information on the spill trajectory path and its impact on any areas of environmental significance in the region.

The modelling system forms part of Apache's oil spill contingency plan and response system. Should a spill occur, the model would be run in conjunction with field surveillance to provide forewarning of the habitats that may be contacted.

In order to conduct a thorough environmental impact assessment it is necessary to model the behaviour of potential oil spill scenarios associated with the drilling program. Oil spill modelling is done as a standard component of Apache's environmental risk assessment process prior to the drilling of all wells. The results of the oil spill modelling process are used in conjunction with the project description and the environmental description to identify the risks associated with an accidental discharge of hydrocarbons. The methods and criteria used in modelling a spill from the well locations are discussed below.

D.2 The Characteristics of Oil

As part of Apache's responsibilities to assess risks associated with the drilling program and to develop management practices and contingency plans to limit environmental impacts, Apache has sought to quantify risks of exposure to surrounding environmental resources from accidental oil spills from the proposed drilling sites.

A conservative assessment was undertaken using the surface location of the Longtom-2 drill site (closest to the mainland) and the situation of a potential hydrocarbon spill scenario (even though Longtom-2 is expected to be a possible gas field with Grayling-1 a potential oil field). If oil is encountered at either of Longtom-2 or Grayling-1 it is expected to be of a similar nature to the surrounding producing oil fields. Oil qualities used in the oil spill modelling were sourced from the Automated Data Inquiry for Oil Spills (ADIOS) from the Australian Maritime Safety Authority (AMSA) with the modelled crude oil having an °API gravity of 46.4.

As well as the potential from an oil spill resulting from an oil discovery, there is also the possibility of a diesel spill resulting from the use of diesel on the drilling rig and support vessels. Diesel fuel is a middle distillate fuel with an °API gravity of 33.2. About 23% of the mass of Australian diesel fuel spilled on water in tropical conditions will weather within five days on the sea surface (Neff *et al.* 2000). During evaporative weathering, low molecular weight aliphatic and aromatic hydrocarbons and phenols are lost from the oil, leaving higher concentrations of less volatile, higher molecular weight hydrocarbons. Diesel does not form stable oil in water emulsion and is amenable to dispersants.

Toxicity testing has identified diesel as being toxic to the marine species tested, with some species of sea urchin larvae and crustaceans being the most sensitive. Diesel fuel appears to retain its toxicity during weathering due to the slow loss of light ends. In addition, the additives used to improve certain properties of diesel (e.g. ignition quality, flow improvers) contribute to the toxicity of the diesel oil.

Any oil or diesel spilled into the ocean at any of the two proposed drill sites is likely to undergo significant weathering prior to making landfall contact and is therefore unlikely to seriously impact any sensitive marine habitats.

D.3 Modelling Criteria

Apache conducted a quantitative assessment of the risk of exposure to the adjacent shorelines from defined hydrocarbon spills, accounting for seasonal environmental conditions (winds, currents, temperature) that have historically occurred in the locality during the proposed drilling period of October to November.

The risk assessment made use of the ocean-circulation model, HYDROMAP to represent surface circulation over the drill site area under the influence of winds and tides, which would be the major forces acting over the inner shelf location of the well. Data from HYDROMAP were used as input to modelling of the trajectories and fates of defined oil spills, using the OILMAP spill trajectory and fates model. The modelling took into account the specific characteristics of diesel and the modelled crude.

OILMAP model generates 100 hypothetical spills for each scenario. Each individual spill ran under randomly selected conditions of wind and sea-surface current conditions taken from the appropriate 2 month HYDROMAP run. The trajectory and fate of each spill was used to generate statistical probabilities that locations on the water surface or shoreline would be contacted by oil (based on the proportion of spills arriving) and the minimum time before this may occur (the shortest time for any of the spills).

A stochastic (random-sampling) process was followed to identify potential and more likely outcomes from the defined spills and discharges. This involved random sampling from 3 years of historic records of the wind conditions, hind-casts of corresponding tidal currents for the study region during the months of October to November and allowance for larger-scale drift currents that occur in the study area.

HYDROMAP is an ocean/coastal circulation model that simulates the flow of ocean currents within a model region due to forcing by astronomical tides, wind stress and bottom friction, efficiently anywhere on the globe. HYDROMAP employs a step-wise-continuous-variable-rectangular gridding strategy, allowing up to six levels of resolution. The term “step-wise-continuous” means that calculation of current vectors across boundaries between successively smaller and larger grids is managed in the same model time step. To simulate ocean circulation over any area of interest, the model must be provided with the following basic data:

1. Measured bathymetry for the area on a dynamic nested grid of variable resolution, which defines the shape of the seafloor;
2. The amplitude and phase of tidal constituents, which are used to calculate sea heights over time at the open boundaries of the model. Changes in sea heights are used, in turn, to calculate the propagation of tidal currents through the model region.

A more detailed presentation of the model can be found in Isaji and Spaulding (1984) and Owen (1980).

HYDROMAP was set up to simulate water circulation over a model domain that extended from 146° 20' E to 152° E and from 14° 35' S to 37° 29' S (Figure D.1).

Figure D.1 NCEP Wind Stations



Bathymetric data were derived from the Geoscience Australia 15-arcsecond national database, which has a nominal resolution of approximately 250 m.

Tidal heights at the open boundaries of the model were calculated for real times using the latest Schwiderski Global tidal constituents, which provide worldwide estimates of the dominant tidal constituents at a horizontal scale of 1 degree. The model then calculated sea heights and resulting tidal currents for locations within the region by propagation of constant water mass over the three-dimensional shape of the domain.

HYDROMAP predictions for tidal propagation were verified by comparison to sea height elevations predicted for Lakes Entrance by the National Tidal Facility from measurements made directly at that site. The predictions were found to be in very close agreement with the expected variation in tides (Figure D.2). Table D.1 shows the settings that were used to model the hydrodynamic circulation.

Figure D.2 Comparison between the predicted (blue line) and measured (red line) tidal variation at Lakes Entrance, as reported by the National Tidal Facility, between the 10th – 17th January, 2002.

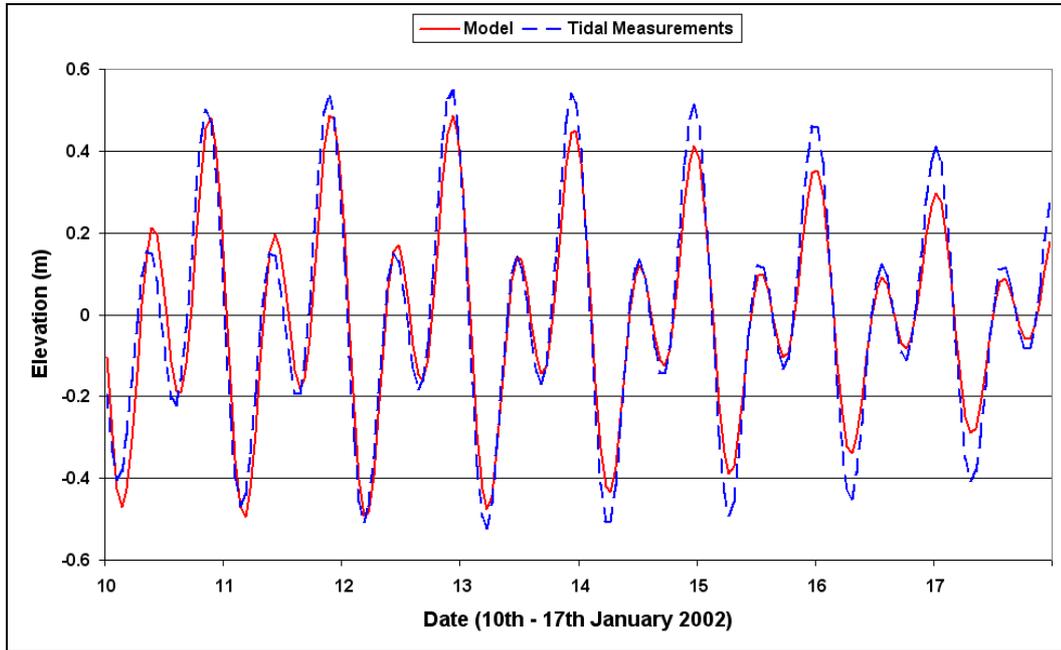


Table D.1 Summary of model settings used to model hydrodynamic circulation

Model dimensions	3 (latitude, longitude and depth).
Output depth layer	Surface layer
Model domain size	470 km (N-S) x 500 km (E-W)
Resolution	Variable, step-wise
Bathymetric data	15 arc seconds (derived from Geoscience Australia data set)
Tidal data	8 tidal constituents: M ₂ , S ₂ , K ₁ , O ₁ , N ₂ , K ₂ , P ₁ , Q ₁ from the Schwiderski Global data set

Historic wind conditions for the region were derived from archived data from the NCEP model re-analysis program, which is operated by NOAA. This data is output of a global atmospheric model which uses real observations for local correction. The data is output for stations located approximately 160 km apart. Data from multiple stations (Figure D.1) surrounding Longtom-2 covering a 10-year period (1994-2003) were input to represent the temporal and spatial patterns in wind conditions.

Figure D.3 shows yearly and monthly wind roses of the NCEP data at station 7335 used in this study. Winds during October to November periods are typically strong and variable in direction but most frequently from the west to southwest. The most common wind speeds from any direction are in the 25-30 knot range. Maximum and average recorded wind speeds over the sample period were similar for all months of the drilling window at 38-41 knots and 13-14 knots, respectively.

An assessment of geotropic (density driven) currents affecting the area (source: Global Ocean Observation System web-site) indicated that these currents are dynamic and variable within and between years for October-November. In addition the area experiences significant wave energy and frequent storms. The contribution of these sources to the potential spread and trajectory of oil slicks was accounted for by using a relatively high horizontal dispersion rate (an index of the physical turbulence) of $10\text{m}^2/\text{s}$. This conservatively high rate would ensure that the area affected by individual slicks would not be underestimated.

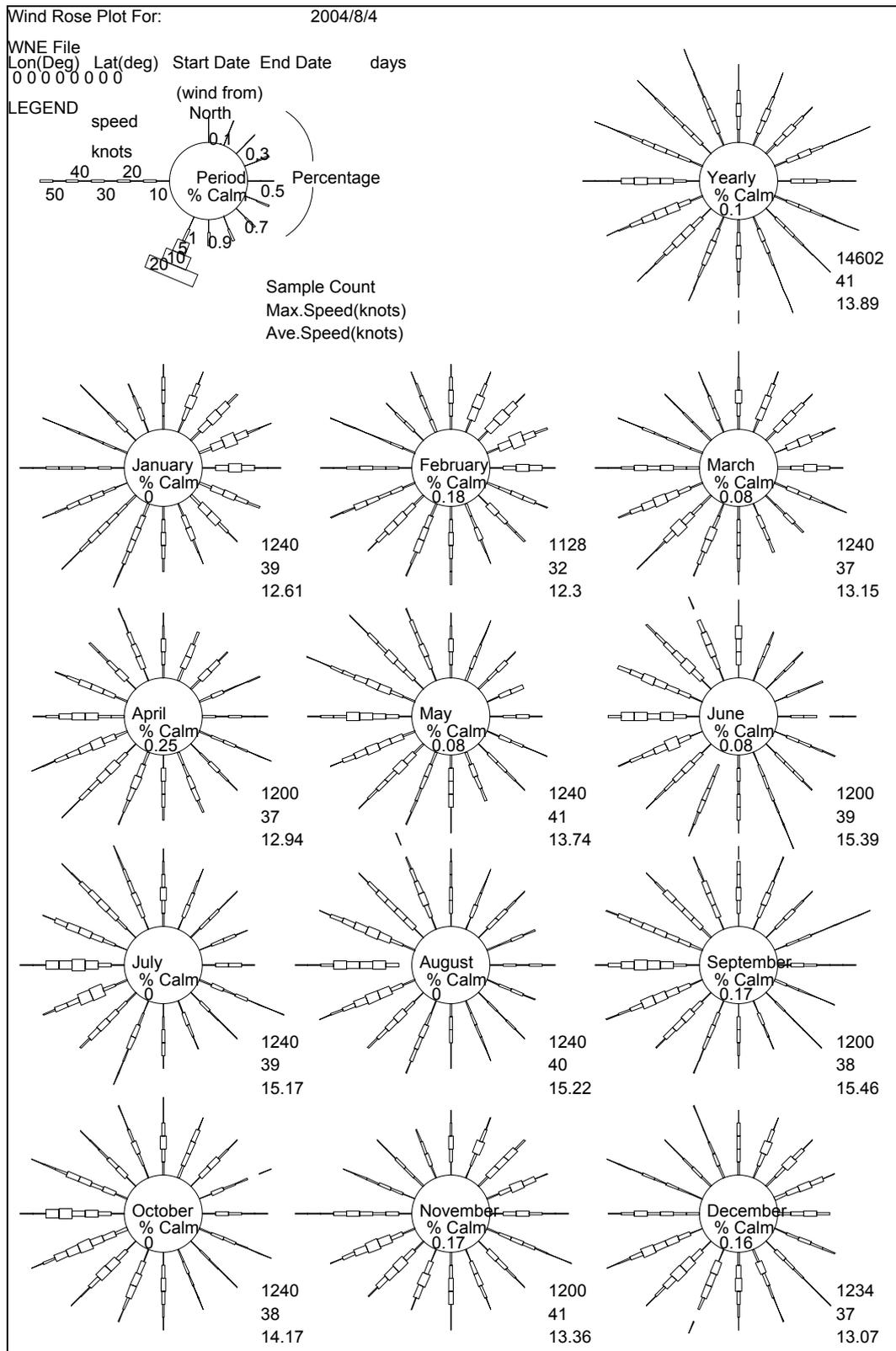
Mean sea temperatures in the drilling area range between 13°C in winter to 18°C in summer (Australian Oceanic Data Centre website - www.aodc.gov.au). A temperature of 16°C was used to represent October to November conditions.

D.4 Oil Spill Modelling

Oil spill trajectories have been run for the largest spill volume of diesel and crude, being 80,000 L of diesel from a ruptured fuel tank and 600,000 litres of crude oil from a blow out, respectively. These two scenarios are representative of the worst-case situation. The spill location is the proposed surface location of the Longtom-2 well. For the 80,000 L diesel scenarios, the spill is instantaneous whereas for the 600,000 L crude spill the spill release time is 6 hours. For scenarios, the trajectory and fate of diesel or crude is modelled for 96 hours. A representative crude has been used as the simulated oil for the crude oil spill.

The trajectory, weathering and dispersion of oil spills were predicted using the OILMAP model. OILMAP is a computerised modelling system for predicting the physical and chemical fates and effects of hydrocarbon spills on the ocean. OILMAP incorporates a suite of models that predict the behaviour of hydrocarbon slicks on the sea surface. The OILMAP model simulates the transport of the hydrocarbon slicks within a model domain using time- and space-varying data for the speed and direction of water currents, and time-varying data for the speed and direction of the wind. The distribution and mass balance of particular hydrocarbon types are predicted over time based on the physical characteristics of the specific oil type and the prevailing weather conditions. For this latter purpose, OILMAP includes algorithms that account for hydrocarbon spreading, evaporation, emulsification, entrainment, and shoreline interactions. If hydrocarbon strands on shorelines (as defined in the OILMAP GIS), details are recorded on the quantity, time to contact and resources at the strand location. Predictions of the OILMAP model have been validated worldwide and in Australia by field observations and by hind-casting past hydrocarbon spills.

Figure D.3 Monthly/Yearly Wind Rose Diagrams for NCEP Station 7355 (1994 – 2003)



The analysis considered the following spill scenarios:

- 600,000 L of generic Gippsland crude (source ADIOS database, registered by AMSA) released over 24 hours to represent a loss of well control;
- 80,000 L of marine diesel (source ADIOS database, registered by AMSA) spilled at the surface over 6 hours, to represent a ruptured fuel tank of a support vessel; and
- 8,000 L of marine diesel (source ADIOS database, registered by AMSA) spilled at the surface as an instantaneous release, representing a refuelling incident.

Each spill was modelled 100 times under randomly selected sequences of the current and wind data for the study area for October-November. A threshold thickness of 100 nm was defined as the minimum thickness for contact episodes to be counted in calculating episodes of water and shoreline exposure. This thickness would appear as a silvery sheen.

D.5 Consequences of an Oil Spill

Large Crude Spill

The stochastic modelling indicated that contact by some part of a slick with the Victorian shoreline was a relatively likely event, if a major oil spill occurred at Longtom-2 during October-November. The most likely path of a slick was predicted to be to the east-northeast and the probability of contact with this shore by some portion of a slick was predicted to be 80% at this time of year, given a duration of up to 7 days (Figure D.4; Table D.2). Locations along the Victorian shoreline between Wingan Inlet and Ninety Mile Beach were predicted to be at > 1% risk of contact within the first week as a result of such an incident. Shorelines that were most likely to receive some oil were those between Marlo and Sydenham Inlet, including Cape Conran.

Oil was predicted to take at least 36-40 hours to reach any part of the coast (Figure D.5; Table D.2). Some degree of weathering would be expected prior to grounding so that some loss of the more toxic light ends could occur prior. However, the formulation of this oil indicates that it is also likely to emulsify (take up water to form a water in oil emulsion), given the strong wind conditions and associated wave action at the location. Emulsification would slow the rate of evaporative loss. The modelling indicated that about 6% of the initial spill could come ashore in the first week under worst-case conditions. This would approximate about 42 tonnes of oil. About 30% of the initial spill would still remain on the water surface after the first week so that additional oil could come ashore over longer durations.

Large Diesel Spill

Surface slicks generated by a large diesel spill, such as from the rupture of a fuel tank on a service vessel, were predicted to persist for up to 48 hours before evaporating, dispersing and entraining. Within that time, slick material was predicted to have the potential to drift onto the Victorian coast (Figures D.6 & D.7). The risk that some diesel would contact any part of the shore was predicted to be about 25%, with individual locations predicted to have up to 6% chance (at Cape Conran). As for the crude spills, the most likely path of slicks was to the east north-east. However, the tendency for diesel to disperse and entrain reduced the length of coastline that was predicted to be at risk of oil contact (at > 100 nm) within the first few days. The worst-case incident, in terms of potential volume on shore was predicted to be about 6 tonnes.

Small Diesel Spill

Surface slicks generated by a small diesel spill were predicted to evaporate, entrain and disperse prior to landfall on any coastline (Figures D.8 & D.9). Therefore, risks of shoreline contact were predicted to be < 1%.

Table D.2 Predicted risks to shoreline from spill scenarios from Longtom-2 during October-November

Spill Scenario	Shoreline sections at risk of contact at > 1%	Probability of contact with any shore from a spill (%)	Minimum Time before shore contact (hr)	Worst case volume on any shoreline (T)	Percentage of initial spill (%)
600,000 L Gippsland Crude	Wingan Inlet to Ninety-Mile Beach, west of Lakes Entrance	80	43	42.5	6.2
80,000 L Diesel	Cape Conran to Lake Tyers	25	36	5.8	6.4
8,000 L Diesel	No contact	< 1	No contact	No contact	No contact

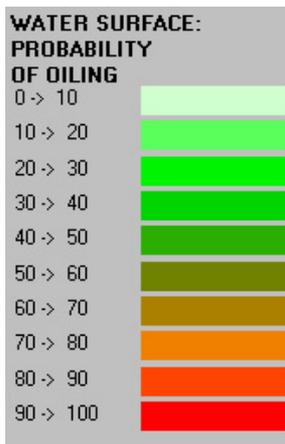
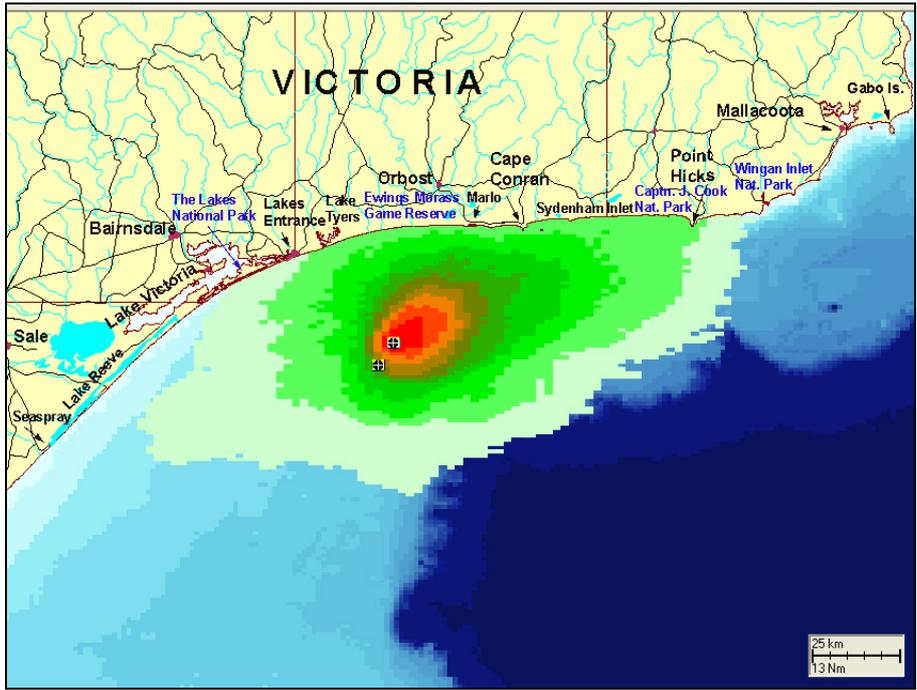


Figure D.4 Probability of contact by surface slicks (at > 100 nm), in the event of a 600,000L spill of Gippsland Crude from Longtom-2 in October-November. Results summarise 100 independent simulations.

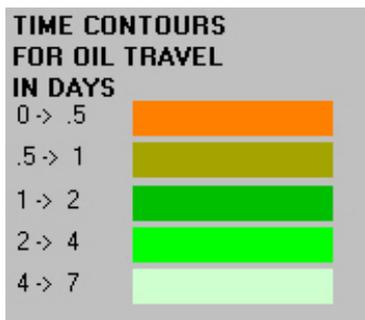
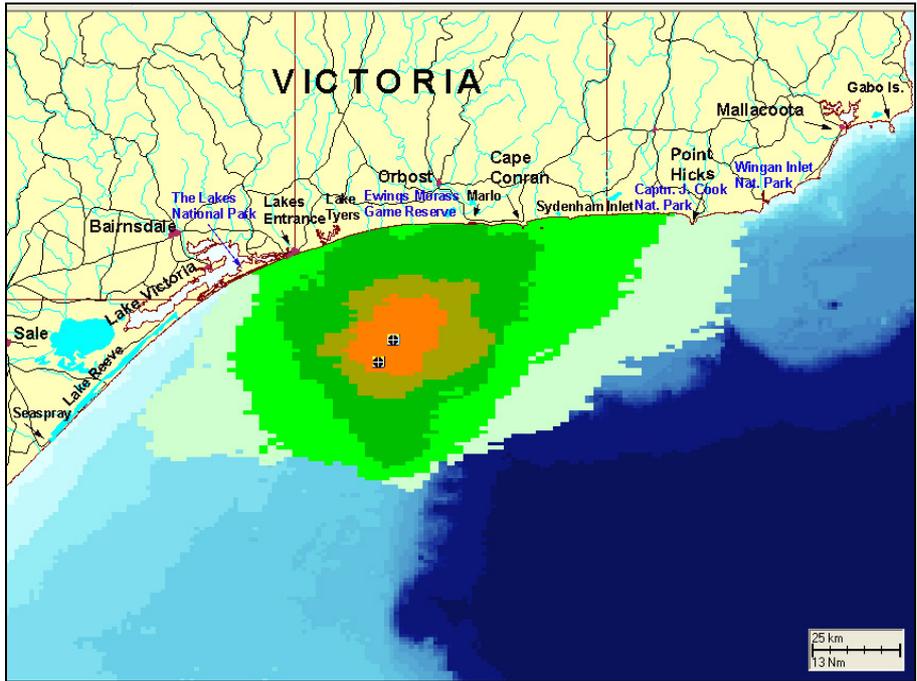


Figure D.5 Predicted minimum time before contact by surface slicks (at > 100 nm), in the event of a 600,000L spill of Gippsland Crude from Longtom-2 in October-November. Results summarise 100 independent simulations.

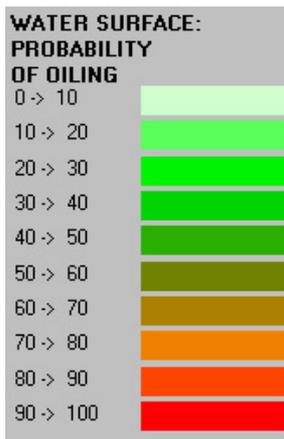


Figure D.6 Probability of contact by surface slicks (at > 100 nm), in the event of an 80,000L spill of Marine Diesel from Longtom-2 in October-November. Results summarise 100 independent simulations.

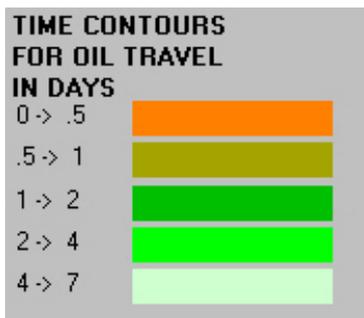


Figure D.7 Predicted minimum time before contact by surface slicks (at > 100 nm), in the event of an 80,000L spill of Marine Diesel from Longtom-2 in October-November. Results summarise 100 independent simulations.

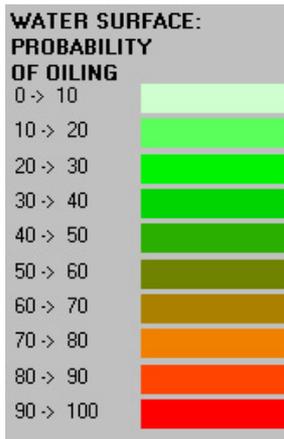


Figure D.8 Probability of contact by surface slicks (at > 100 nm), in the event of an 8,000L spill of Marine Diesel from Longtom-2 in October-November. Results summarise 100 independent simulations.

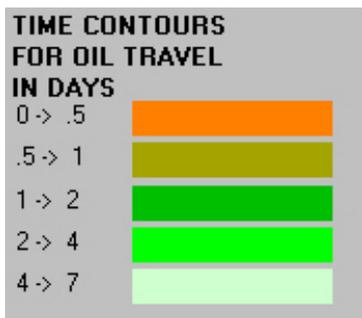


Figure D.9 Predicted minimum time before contact by surface slicks (at > 100 nm), in the event of an 8,000L spill of Marine Diesel from Longtom-2 in October-November. Results summarise 100 independent simulations.

**APPENDIX E APACHE OIL SPILL EQUIPMENT
INVENTORY (WESTERN AUSTRALIA)**

VARANUS ISLAND

LOCATION	DESCRIPTION	QUANTITY	COMMENTS	INSPECTED
VARANUS	OIL BOOM 3 REELS 400M EACH	3 x 400m	MOSES ID PDG111049	2003
VARANUS	HYDRAULIC POWER PACK @ ELEC BLOWERS CHAINS & ANCHORS FOR ABOVE OIL BOOM	1	EQUIPMENT OVERHAULED AND TESTED 2003 MOSES ID PDG111049	2003
VARANUS	400M SEA CURTAIN BOOM AND POWER REEL	1	MOSES ID PDFA111045	2/2003
VARANUS	400M 12/20 ZOOM BOOM C/W TOWING BRACKETS	1	MOSES ID PDHA178	2/2003
VARANUS	SIMPLEX MD 6800 HELICOPTER SPRAY BUCKET	1	MOSES ID PDKA217	2/2003
VARANUS	KOMARA 12K SKIMMER C/W POWER PACK & HOSES	1	MOSES ID PDCA120	2/2003
VARANUS	ABSORBENT BOOM	14 BAGS	14 BAGS	2/2003
VARANUS	ABSORBENT BLANKET	7 ROLLS	1.4M X 40M EACH	2/2003
VARANUS	3 CQR ANCHORS	2		2/2003
VARANUS	DANFORTH ANCHORS	10	SEVERAL ANCHOR ROPES	2/2003
VARANUS	TRACKER MATS	2	WITH MARKER STICKS	2/2003
VARANUS	OIL /WATER SAMPLE B		1 BOX 42 BOTTLES	2/2003
VARANUS	MISC SHOVELS ETC		1 BROOM, 1 SQUEEGY, 1 NYLON LIFTING NET, 3 COILS NYLON ROPE, 20 FOAM FLOATS, 10 STAR PICKETS	2/2003
VARANUS	ARDROX 6120	1200 lts		2/2003
VARANUS	CORREXIT 9527	1000LTS	MOSES ID MODA322	2/2003

LOCATION	DESCRIPTION	QUANTITY	COMMENTS	INSPECTED
VARANUS	MINI OIL SPILL KITS	2 X 240 LTS 2 X 120 LTS	Located East & West Wharf & Refuelling Locations	2/2003
VARANUS	ABSORBENT ROLLS	7	SIMILAR TO BLANKETS	2/2003
VARANUS	BEACH GUARDIAN BOOM COMPLETE	200 M	MOSES ID PDIA111047	2/2003
VARANUS	C.O.R.T. (Collapsible Oil Recovery Tanks)	1 X 1000 Lts 2 X 2000 Lts	MOSES ID PBDA111048	2/2003
VARANUS	28' ALUMINIUM RESPONSE VESSEL	1	Jet Boat Name - Monte Belle	2/2003

DAMPIER

LOCATION	DESCRIPTION	QUANTITY	COMMENTS	INSPECTED
DAMPIER	400M SEA CURTAIN BOOM AND POWER REEL (BDHPM 21832 RPC) INC TOWING GEAR ETC	1	COMMISSIONED MOSES ID PDFA111051	2/2003
DAMPIER	4 MTR SPRAY BOOM C/W SKID MOUNTED DIESEL DRIVEN PUMPS		MOSES ID PALA111052	2/2003
DAMPIER	TERGO R 40	1,000 LTS		2/2003

WELSHPOOL WAREHOUSE

LOCATION	DESCRIPTION	QUANTITY	COMMENTS	INSPECTED
WELSHPOOL	SIMPLEX MD 6800 HELICOPTER SPRAY BUCKET	1	EX AIRLIE EQUIPMENT MOSES ID PDK-A226	N/A

**APPENDIX F MARINE OIL SPILL EQUIPMENT
SYSTEM (MOSES)**

Marine Oil Spill Equipment System (MOSES)

MOSES ID	DESCRIPTION	QTY	STATE	LOCATION	OWNER	CONTACT	PHONE
PDJA212	BOOM SPILLCO	75 m	VIC	ALTONA	MOBIL	Mike Williams	03 9286 5520
PDFA150	BOOM SELF BUOYANT SLICKBAR MKE	800 m	VIC	ALTONA	MOBIL	Mike Williams	03 9286 5520
PDCA125	SKIMMER - DISC KOMARA 12K MK2		VIC	ALTONA	MOBIL	Mike Williams	03 9286 5520
PDAA094	SKIMMER - WEIR MANTA RAY HEAD		VIC	ALTONA	MOBIL	Mike Williams	03 9286 5520
VCAA265	TRAILER - OIL SPILL		VIC	ALTONA	MOBIL	Mike Williams	03 9286 5520
MODA356	Dispersant Type ?	1600	VIC	ALTONA INVENTORY	MOBALT	Mike Williams	03 9286 5520
PDGA168	BOOM INFLATABLE RO-TRAWL 72M		VIC	BARRY BEACH	ESSO	Anton Moore	03 5688 0222
PDHA183	BOOM SELF INFLATING EXPANDI 3000	300 m	VIC	BARRY BEACH	ESSO	Anton Moore	03 5688 0222
PDDA136	SKIMMER - ROPE MOP OMI MK 1-4EE		VIC	BARRY BEACH	ESSO	Anton Moore	03 5688 0222
PDAA089	SKIMMER - WEIR RO-SKIM		VIC	BARRY BEACH	ESSO	Anton Moore	03 5688 0222
MOSA347	SORBENT BOOM	732 m	VIC	BARRY BEACH	ESSO	Anton Moore	03 5688 0222
VCAA262	TRAILER - OIL SPILL		VIC	BARRY BEACH	ESSO	Anton Moore	03 5688 0222
MODA339	Dispersant Corexit 9527	10000	VIC	BARRY BEACH INVENTORY	ESSOBBMT	Anton Moore	03 5688 0222
MODA340	Dispersant Corexit 9527	10000	VIC	BARRY BEACH INVENTORY	ESSOBBMT	Anton Moore	03 5688 0222
MODA341	Dispersant Corexit 9527	28000	VIC	BARRY BEACH INVENTORY	ESSOBBMT	Anton Moore	03 5688 0222
MODA342	Dispersant Corexit 9527	8000	VIC	BARRY BEACH INVENTORY	ESSOBBMT	Anton Moore	03 5688 0222
MODA343	Dispersant Corexit 9527	8000	VIC	BARRY BEACH INVENTORY	ESSOBBMT	Anton Moore	03 5688 0222
MODA344	Dispersant Corexit 9527	8000	VIC	BARRY BEACH INVENTORY	ESSOBBMT	Anton Moore	03 5688 0222
MODA345	Dispersant Corexit 9527	10000	VIC	BARRY BEACH INVENTORY	ESSOBBMT	Anton Moore	03 5688 0222
MODA346	Dispersant Corexit 9527	8000	VIC	BARRY BEACH INVENTORY	ESSOBBMT	Anton Moore	03 5688 0222
WCEA299	BARGE - STORAGE LANCER 25T		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
WCEA300	BARGE - STORAGE LANCER 25T		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
WCEA301	BARGE - STORAGE LANCER 25T		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDIA195	BOOM ACCESSORY BEACH GUARDIAN DEPLOYMENT KIT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDIA196	BOOM ACCESSORY BEACH GUARDIAN DEPLOYMENT KIT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDIA197	BOOM ACCESSORY BEACH GUARDIAN DEPLOYMENT KIT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDIA198	BOOM ACCESSORY BEACH GUARDIAN DEPLOYMENT KIT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDGA163	BOOM ACCESSORY RO-BOOM POWER PACK		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDGA164	BOOM ACCESSORY RO-BOOM POWER PACK		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDGA165	BOOM ACCESSORY RO-BOOM POWER PACK		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555

PDGA166	BOOM ACCESSORY RO-BOOM POWER PACK		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDGA167	BOOM ACCESSORY RO-BOOM POWER PACK		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA233	BOOM ANCHOR KIT SHORE ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA234	BOOM ANCHOR KIT SHORE ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA235	BOOM ANCHOR KIT SHORE ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA236	BOOM ANCHOR KIT SHORE ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA237	BOOM ANCHOR KIT SHORE ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA227	BOOM ANCHOR KIT INCLUDING 12X30KG ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA228	BOOM ANCHOR KIT INCLUDING 12X30KG ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA229	BOOM ANCHOR KIT INCLUDING 12X30KG ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA230	BOOM ANCHOR KIT INCLUDING 12X30KG ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA231	BOOM ANCHOR KIT INCLUDING 12X30KG ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDOA232	BOOM ANCHOR KIT INCLUDING 12X30KG ANCHORS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDIA194	BOOM BEACH GUARDIAN	2000 m	VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDGA162	BOOM INFLATABLE RO-BOOM 1500 (WITH WINDER)	3000 m	VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDGA161	BOOM INFLATABLE RO-SKIM BOOM 1500 (WITH WINDER)	72 m	VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDHA177	BOOM SELF INFLATING VERSATECH ZOOM	3350 m	VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PAKA001	CLEANER INDUSTRIAL - ELECTRIC/STEAM GEN ON TRAILER		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PAKA002	CLEANER INDUSTRIAL - ELECTRIC/STEAM GEN ON TRAILER		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PAKA003	CLEANER INDUSTRIAL - ELECTRIC/STEAM GEN ON TRAILER		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PAKA004	CLEANER INDUSTRIAL - ELECTRIC/STEAM GEN ON TRAILER		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PFAA238	COMMUNICATIONS - BASE STATION VHF/UHF		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PFAA239	COMMUNICATIONS - RADIO TX/RX UHF HANDHELD 3 UNITS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PFAA240	COMMUNICATIONS - RADIO TX/RX UHF HANDHELD 3 UNITS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PFAA243	COMMUNICATIONS - RADIO TX/RX VHF AIRBAND HANDHELD		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PFAA241	COMMUNICATIONS - RADIO TX/RX VHF HANDHELD 3 UNITS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555

PFAA242	COMMUNICATIONS - RADIO TX/RX VHF HANDHELD 3 UNITS		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PFAA244	COMMUNICATIONS - SATELLITE TCS 9200 PHONE/FAX		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
MOFA312	OILED FAUNA KIT PUMP - DISPERSANT TRANSFER DIESEL POWERED		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PALA005	PUMP - DISPERSANT TRANSFER DIESEL POWERED		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PALA006	PUMP - GP TRANSFER DIESEL POWERED		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PALA007	PUMP - GP TRANSFER DIESEL POWERED		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PALA008	PUMP - GP TRANSFER DIESEL POWERED		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PALA009	PUMP - GP TRANSFER DIESEL POWERED		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDCA114	SKIMMER - DISC KOMARA 30K		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDCA115	SKIMMER - DISC KOMARA 30K SKIMMER - ROPE MOP OM 240 DP ON TRAILER		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDDA132	SKIMMER - ROPE MOP OM 240 DP ON TRAILER		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDDA133	SKIMMER - ROPE MOP OM 260 DP ON TRAILER		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDDA134	SKIMMER - ROPE MOP OM 260 DP ON TRAILER		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDDA135	SKIMMER - SUCTION RO-VAC		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
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PDBA101	SKIMMER - SUCTION RO-VAC		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDAA082	SKIMMER - WEIR DESMI 250		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDAA083	SKIMMER - WEIR GT 185		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDAA084	SKIMMER - WEIR GT 185		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDAA085	SKIMMER - WEIR RO-SKIM		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDAA086	SKIMMER - WEIR RO-SKIM		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDCA116	SKIMMER DISC KOMARA 12K MK2		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDCA117	SKIMMER DISC KOMARA 12K MK2		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
MOSA313	SORBENT BOOM 3M OILSORB	1104m	VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
MOSA314	SORBENT PADS 3M 450X450 SPRAY BUCKET DISPERSANT	88 packs	VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDKA215	HELICOPTER SIMPLEX 6810 SPRAY BUCKET DISPERSANT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDKA216	HELICOPTER SIMPLEX 6810 SPRAY UNIT VESSEL MOUNTED		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PALA010	VIKOSPRAY		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PALA032	SPRAY UNIT VESSEL MOUNTED		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555

VIKOSPRAY

PBDA037	TANK - OIL FASTANK 9000 LT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PBDA038	TANK - OIL FASTANK 9000 LT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PBDA039	TANK - OIL FASTANK 9000 LT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PBDA040	TANK - OIL FASTANK 9000 LT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PBDA041	TANK - OIL FASTANK 9000 LT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PBDA042	TANK - OIL FASTANK 9000 LT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PBDA043	TANK - OIL VIKOTANK 13000 LT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PBDA044	TANK - OIL VIKOTANK 13000 LT		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
WCFA308	VESSEL OIL RECOVERY EGMOPOL BARGE		VIC	GEELONG	AMOSC	Duty Officer AMOSC	03 5272 1555
PDH4457	BOOM SELF INFLATING EXPANDI 3000	300 m	VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
WCB4892	DINGHY - SEMI RIGID - ZODIAC PRO 5.3M		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PAN105339	MOTOR OUTBOARD MERCURY 30HP		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PAN4893	MOTOR OUTBOARD YAMAHA 70 HP		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PAL4410	PUMP - DISPERSANT - LOMBARDINI PUNT ALUMINIUM QUINTREX SLOGGER		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
WCA4408	4.5M		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PFA4240	RADIO TRANSCEIVER UHF BRODIE KING		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PDC4413	SKIMMER DISC VIKOMA KOMARA 12K MK3		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PDD4452	SKIMMER ROPE MOP ORI BARRACUDA 2000		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PDK4412	SPRAY BUCKET DISPERSANT HELICOPTER SIMPLEX		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PBD4407	TANK RECOVERED OIL COLLAPSIBLE TRANSPAC		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PBD4415	TANK RECOVERED OIL COLLAPSIBLE TRANSPAC		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
VCA4361	TRAILER BOAT		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
VCA4414	TRAILER BOAT		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
VCA4417	TRAILER BOX TANDEM AXLE		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
VCA4418	TRAILER BOX TANDEM AXLE		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
VCA4419	TRAILER BOX TANDEM AXLE		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
VCA4458	TRAILER BOX TANDEM AXLE		VIC	GEELONG	AMSA	Duty Officer EPG	1800 641 792
PDHA187	BOOM SELF INFLATING EXPANDI 3000	100 m	VIC	GEELONG	SHELL REFINERY	Fred Muller	03 5273 8333
PDHA188	BOOM SELF INFLATING EXPANDI 3000	100 m	VIC	GEELONG	SHELL REFINERY	Fred Muller	03 5273 8333
PDHA186	BOOM SELF INFLATING VERSATECH ZOOM	150 m	VIC	GEELONG	SHELL REFINERY	Fred Muller	03 5273 8333
PDCA129	SKIMMER - DISC KOMARA 12K		VIC	GEELONG	SHELL	Fred Muller	03 5273 8333

					REFINERY		
PALA031	SPRAY UNIT VESSEL MOUNTED VIKOSPRAY		VIC	GEELONG	SHELL REFINERY	Fred Muller	03 5273 8333
VCAA274	TRAILER - OIL SPILL		VIC	GEELONG	SHELL REFINERY	Fred Muller	03 5273 8333
MODA310	Dispersant Dasic Slickgone NS (1t tanks)	102000	VIC	GEELONG INVENTORY	AMOSC	Duty Officer AMOSC	03 5272 1555
MODA311	Dispersant Dasic Slickgone NS (200 lt drums)	48000	VIC	GEELONG INVENTORY	AMOSC	Duty Officer AMOSC	03 5272 1555
MODA350	Dispersant Shell VDC	2000	VIC	GEELONG INVENTORY	AMOSC	Duty Officer AMOSC	03 5272 1555
MODA377	Dispersant Shell VDC	1500	VIC	GEELONG INVENTORY	AMOSC	Duty Officer AMOSC	03 5272 1555
MOD0433	DISPERSANT ARDROX 6120	9000	VIC	GEELONG INVENTORY	AMSA	Duty Officer EPG	1800 641 792
MOD0389	DISPERSANT BP AB	2600	VIC	GEELONG INVENTORY	AMSA	Duty Officer EPG	1800 641 792
MOD0435	DISPERSANT COREXIT 9527	600	VIC	GEELONG INVENTORY	AMSA	Duty Officer EPG	1800 641 792
MODA373	Dispersant Shell VDC	2000	VIC	GEELONG INVENTORY	SHELLGEE	Fred Muller	03 5273 8333
VCA5001	TRAILER BOX TANDEM AXLE		VIC	LAKE ENTRANCE GIPPSLAND PORTS LAKES ENTRANCE	AMSA	Duty Officer EPG	1800 641 792
MODA353	Dispersant Corexit 9527 BARGE - OIL RECOVERY GIPPSLAND 003	6000	VIC	INVENTORY	ESSOLONG	Roger Went	03 5149 6494
WCEA305	800T BOAT - BOOM/SLEDGE DEPLOYMENT		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
WCAA289	SENTINEL		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDIA202	BOOM BEACH SHORE GUARDIAN	500 m	VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
PDIA203	BOOM BEACH SHORE GUARDIAN	500 m	VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDGA169	BOOM INFLATABLE SEA SENTINEL	1000 m	VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
PDGA170	BOOM INFLATABLE SEA SENTINEL	1000 m	VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDHA184	BOOM SELF INFLATING EXPANDI	500 m	VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDBA102	SKIMMER - SUCTION RO-VAC		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
PDBA103	SKIMMER - SUCTION RO-VAC		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
PDBA105	SKIMMER - SUCTION RO-VAC		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDBA106	SKIMMER - SUCTION RO-VAC		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDAA088	SKIMMER - WEIR GT 185		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
PDAA091	SKIMMER - WEIR GT 185		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDAA092	SKIMMER - WEIR RO-SKIM		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDAA090	SKIMMER - WEIR SLURP		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
MOSA351	SORBENT BOOM	1500 m	VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDKA219	SPRAY BUCKET DISPERSANT HELICOPTER SIMPLEX 6810		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PALA020	SPRAY UNIT VESSEL MOUNTED VIKOSPRAY		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PBDA048	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222

PBDA049	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
PBDA050	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
PBDA051	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
PBDA052	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
PBDA053	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PBDA054	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PBDA055	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PBDA056	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PBDA057	TANK - OIL FASTANK 9000 LT		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
VCAA261	TRAILER - OIL SPILL		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
VCAA263	TRAILER - OIL SPILL		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
VCAA264	TRAILER - OIL SPILL		VIC	LONG ISLAND	ESSO	Jean Talbot	03 5970 7524
PDBA104	VACUUM SYSTEM DRUM VAC		VIC	LONG ISLAND	ESSO	Anton Moore	03 5688 0222
MODA348	Dispersant Corexit 9527	10000	VIC	LONG ISLAND INVENTORY	ESSOLIP	Jean Talbot	03 5970 7524
MODA349	Dispersant Corexit 9527	40000	VIC	LONG ISLAND INVENTORY	ESSOLIP	Jean Talbot	03 5970 7524
PDKA220	SPRAY BUCKET DISPERSANT HELICOPTER SIMPLEX 6810		VIC	LONGFORD	ESSO	Roger Went	03 5149 6494
PDKA221	SPRAY BUCKET DISPERSANT HELICOPTER SIMPLEX 6810		VIC	LONGFORD	ESSO	Roger Went	03 5149 6494
MODA352	Dispersant Corexit 9527	28000	VIC	LONGFORD INVENTORY	ESSOLONG	Roger Went	03 5149 6494
PDO10786	ANCHOR KIT SMALL 15KG SET OF 5		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
WCE4983	BARGE LANDING CLAM 12M BOOM - INFLATABLE - SKIMMEX CURTAIN		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDG4975	650MM	90 m	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDI4977	BOOM BEACH SKIMMEX SHORELINE	450 m	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDI12494	BOOM BEACH STRUCTURFLEX LAND SEA	200 m	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDJ11636	BOOM BEACH STRUCTURFLEX LAND SEA BOOM INFLATABLE SKIMMEX CURTAIN	160 m	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDI4974	300MM BOOM INFLATABLE SKIMMEX CURTAIN	35 m	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDI4976	370MM	90 m	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDF4978	BOOM SELF BUOYANT AUST POL D2	200 m	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDF5153	BOOM SELF BUOYANT PACIFIC GP 500 BOOM SELF INFLATING VERSATECH	675 m	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDH4847	ZOOM 12/18 CLEANER HIGH PRESSURE WATER	325 m	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAK4994	SILVAN 100MX		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
WCB4365	DINGHY - SEMI RIGID - ZODIAC PRO 5.3M		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PEA4357	GENERATING SET PORTABLE 3 KVA		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PEA4373	GENERATING SET PORTABLE 3 KVA		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792

PDN4214	LOCKER - EQUIPMENT - ALUMINIUM		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDN4228	LOCKER - EQUIPMENT - ALUMINIUM		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDN4244	LOCKER - EQUIPMENT - ALUMINIUM		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDN4254	LOCKER - EQUIPMENT - ALUMINIUM		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAL4982	PUMP - DISPERSANT SYSTEM - SILVAN		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAL12209E	PUMP DISPERSANT FIXED WING	1	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAL5010	PUMP DISPERSANT SYSTEM WSL		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAL5011	PUMP DISPERSANT SYSTEM WSL		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAL5013	PUMP DISPERSANT SYSTEM WSL		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAL5014	PUMP DISPERSANT SYSTEM WSL		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAH4284	PUMP GENERAL PURPOSE HONDA WD 20X		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAH4286	PUMP GENERAL PURPOSE HONDA WD 20X		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAH4290	PUMP GENERAL PURPOSE HONDA WD 20X		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAH4292	PUMP GENERAL PURPOSE HONDA WD 20X		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAH4973	PUMP RECOVERED OIL TRANSFER 20X		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAM10976	ELASTEK S3E		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
WCA4986	PUNT ALUMINIUM QUINTREX SLOGGER 4.5M		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PFA4951	RADIO TRANSCEIVER UHF MOTOROLA HT440		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PFA4952	RADIO TRANSCEIVER UHF MOTOROLA HT440		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PFA4953	RADIO TRANSCEIVER UHF MOTOROLA HT440		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PFA4954	RADIO TRANSCEIVER UHF MOTOROLA HT440		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PFA4956	RADIO TRANSCEIVER UHF MOTOROLA HT440		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PFA4957	RADIO TRANSCEIVER UHF MOTOROLA MAXAR		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PFA4949	RADIO TRANSCEIVER VHF AIR ICOM ICA20		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PFA4950	RADIO TRANSCEIVER VHF AIR ICOM ICA20		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PFA4985	RADIO TRANSCEIVER VHF GME		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDE4429	SKIMMER - BELT - SHARK SERIES 5000		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDB10776	SKIMMER - SUCTION - VIKOMA SHOREVAC		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792

PDA4942	SKIMMER - WEIR - DOUGLAS SKIMPAK		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDD4962	SKIMMER ROPE MOP MOPPIT		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDD4958	SKIMMER ROPE MOP OMI 140		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDD4960	SKIMMER ROPE MOP OMI 140		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDD4961	SKIMMER ROPE MOP OMI 140		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDD4964	SKIMMER ROPE MOP OMI 260		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PDB4963	SKIMMER SUCTION VIKOMA VIKOVAC TANK RECOVERED OIL COLLAPSIBLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PBD4989	TRANSPAC TANK RECOVERED OIL COLLAPSIBLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PBD4990	TRANSPAC TANK RECOVERED OIL COLLAPSIBLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PBD4991	TRANSPAC TANK RECOVERED OIL COLLAPSIBLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PBD4992	TRANSPAC TANK RECOVERED OIL COLLAPSIBLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PBD10731	TRANSPAC TANK RECOVERED OIL FLEXIDAM 10000LT	1	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PBD10732	TRANSPAC TANK RECOVERED OIL FLEXIDAM 10000LT	1	VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PBD105406	TRANSPAC TANK RECOVERED OIL TOWABLE CANFLEX 10T		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAO4423	TOWER FLOODLIGHTS CLARK		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAO4427	TOWER FLOODLIGHTS CLARK		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
VCA4374	TRAILER BOAT		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
VCA4980	TRAILER BOAT SINGLE AXLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
VCA4238	TRAILER BOX SINGLE AXLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
VCA4966	TRAILER BOX SINGLE AXLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
VCA4967	TRAILER BOX SINGLE AXLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
VCA4231	TRAILER BOX TANDEM AXLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
VCA4965	TRAILER BOX TANDEM AXLE		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
VCA4970	TRAILER TANDEM AXLE MARCO		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
WCF4969	VESSEL OIL RECOVERY MARCO CHARLIE WINCH BOOM RECOVERY MARCO		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
PAF4215	POWER BLOCK		VIC	MELBOURNE	AMSA	Duty Officer EPG	1800 641 792
MOD0433	DISPERSANT ARDROX 6120	4800	VIC	MELBOURNE INVENTORY	AMSA	Duty Officer EPG	1800 641 792
MOD0389	DISPERSANT BP AB	20800	VIC	MELBOURNE INVENTORY	AMSA	Duty Officer EPG	1800 641 792
VCAA252	TRAILER - OIL SPILL		VIC	NEWPORT	CALTEX	Hem Kumar	03 9287 9620
PDFA156	BOOM SELF BUOYANT GAMLEN	80 m	VIC	NEWPORT	SHELL	John Zen	03 9392 1236
VCAA275	TRAILER - OIL SPILL		VIC	NEWPORT	SHELL	John Zen	03 9392 1236
MODA375	Dispersant Shell LTX	4000	VIC	NEWPORT INVENTORY	SHELLNEW	John Zen	03 9392 1236

VCA5000	TRAILER BOX TANDEM AXLE		VIC	PAYNESVILLE GIPPSLAND PORT	AMSA	Duty Officer EPG	1800 641 792
VCA4999	TRAILER BOX TANDEM AXLE		VIC	PORT WELSHPOOL	AMSA	Duty Officer EPG	1800 641 792
PDO11646	ANCHOR KIT SMALL 15KG SET OF 5		VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PDF5111	BOOM SELF BUOYANT AUST POL D2 BOOM SELF BUOYANT STRUCTURFLEX GP	200 m	VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PDF106020		195 m	VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PAF5115	REELS - BOOM STORAGE & RECOVERY		VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PDA11037	SKIMMER WEIR FOILEX MINI		VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PBD5077	STORAGE CONTAINER - ALUMINIUM TANK RECOVERED OIL COLLAPSIBLE		VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PBD5113	TRANSPAC TANK RECOVERED OIL COLLAPSIBLE		VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PBD5114	TRANSPAC TANK RECOVERED OIL FLEXIDAM		VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PBD11967	10000LT TANK RECOVERED OIL FLEXIDAM	1	VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PBD11968	10000LT	1	VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
VCA5076	TRAILER BOX SINGLE AXLE		VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
VCA5117	TRAILER BOX TANDEM AXLE		VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
VCA5118	TRAILER BOX TANDEM AXLE		VIC	PORTLAND	AMSA	Duty Officer EPG	1800 641 792
PDO10966	ANCHOR KIT LARGE 100KG SET OF 4		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
WCE5147	BARGE LANDING TROCHUS 15M BARGE RECOVERED OIL ALUMINIUM		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
WCE4263	MALEA BOOM INFLATABLE VIKOMA HIGH INTEG		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PDG4265	1500	600 m	VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PDG6083	BOOM INFLATABLE VIKOMA HIGH SPRINT BOOM SELF INFLATING VERSATECH	250 m	VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PDH4279	ZOOM 12/18 BOOM SWEEP SELF BUOYANT GIANT	300 m	VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PDJ4280	TROILBOOM		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PAN106261	MOTOR OUTBOARD HONDA 25HP		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PAL5008	PUMP DISPERSANT SYSTEM WSL		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PAL5009	PUMP DISPERSANT SYSTEM WSL		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PAL5012	PUMP DISPERSANT SYSTEM WSL		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PAL5104	PUMP DISPERSANT SYSTEM WSL		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
WCA4266	PUNT ALUMINIUM KAYFA 5.2M PUNT ALUMINIUM QUINTREX SLOGGER		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
WCA4259	4.5M		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PFA4455	RADIO TRANSCEIVER VHF ICOM ICM11		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PFA5109	RADIO TRANSCEIVER VHF STANDARD		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792

PDA5470	SKIMMER WEIR DESMI 250 SPRAY BUCKET DISPERSANT		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PDK4257	HELICOPTER SIMPLEX TANK RECOVERED OIL FLEXIDAM		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PBD105337	10000LT TANK RECOVERED OIL FLEXIDAM	1	VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PBD105338	10000LT TANK RECOVERED OIL FLEXIDAM	1	VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
VCA4256	TRAILER BOAT TANDEM AXLE		VIC	WESTERNPORT	AMSA	Duty Officer EPG	1800 641 792
PDGA448	BOOM - VIKOMA HI-SPRINT	500 m	VIC	WESTERNPORT	MARINE BOARD OF VICTORIA		03 9655 3399
VCDA443	CARAVAN - INCIDENT SUPPORT UNIT		VIC	WESTERNPORT	MARINE BOARD OF VICTORIA		03 9655 3399
PDCA445	SKIMMER - DISC KOMARA 12K MK1		VIC	WESTERNPORT	MARINE BOARD OF VICTORIA		03 9655 3399
PDDA446	SKIMMER - ROPE MOP OMI MKII-9		VIC	WESTERNPORT	MARINE BOARD OF VICTORIA		03 9655 3399
PDCA444	SKIMMER DISC KOMARA 12K MK2		VIC	WESTERNPORT	MARINE BOARD OF VICTORIA		03 9655 3399
WCEA447	VESSEL - HULL (VIKOMA SEAPACK)		VIC	WESTERNPORT	MARINE BOARD OF VICTORIA		03 9655 3399
MOD0433	DISPERSANT ARDROX 6120	5000	VIC	WESTERNPORT INVENTORY	AMSA	Duty Officer EPG	1800 641 792
MOD0389	DISPERSANT BP AB	19600	VIC	WESTERNPORT INVENTORY	AMSA	Duty Officer EPG	1800 641 792
MOD0435	DISPERSANT COREXIT 9527	2600	VIC	WESTERNPORT INVENTORY	AMSA	Duty Officer EPG	1800 641 792
VCAA260	TRAILER - OIL SPILL		VIC	YARRAVILLE	BP	Warren Bolger	03 9680 5640
WCAA291	BOAT - ALUMINIUM WITH SKIMMER		VIC	YARRAVILLE	MOBIL	Trish Kerin	03 9286 5666
VCAA269	TRAILER - OIL SPILL		VIC	YARRAVILLE	MOBIL	Trish Kerin	03 9286 5666
MODA366	Dispersant Corexit 9527	5100	VIC	YARRAVILLE INVENTORY	MOBYARR	Trish Kerin	03 9286 5666
MODA367	Dispersant Shell VDC	4000	VIC	YARRAVILLE INVENTORY	MOBYARR	Trish Kerin	03 9286 5666

APPENDIX G DOCUMENTATION

G.1 The Need for Documentation

It is important that information generated during a spill response is accurately recorded, transmitted, acted upon and, ultimately, stored for future use. Information encompasses:

- Tracking of documents.
- Incident details (reporting).
- Response actions taken.
- Instructions given.
- Details about the use of chemicals.
- Use of equipment.
- Costs incurred.

This information is recorded in a number of forms and each form specifies the information required and the person who is to receive the information. The information on these documents may be needed and used in support of:

- Spill response planning;
- Tier determination.
- Recording and monitoring the Incident Action Plan.
- Determining priorities.
- Allocation of resources.
- Response management;
- Tracking resources.
- Tracking activities.
- Displaying information about the weather, sea-state or behaviour of the oil.
- Workforce management.
- Documentation of costs;
- Equipment use.
- Equipment hire.
- Labour hire and use.

All forms and the information they contain is given to the Finance and Administration Section for collation and filing. After the incident the information may be required for:

- Cost recovery.
- Allocation of cause/liability for damages.
- Post spill assessments.
- Response performance.
- Environmental damage and recovery.

The Forms supplied do not constitute an exhaustive set and other forms may be developed as needed. Similarly, use of the supplied Forms is not compulsory. However, it is strongly advised that Forms used should have similar content, purpose, title and numbering so that they are recognised by receiving agencies.

G.2 Forms

Types of Form

Two types of Form are provided in this Appendix:

- Notification Forms
- Other Incident Management Team (IMT) Forms

Notification Forms

The following external reports to the regulatory agency are to be completed by the Drilling Manager and are required to notify appropriate Government agencies.

- POLREP - This form (REP 01) is used for the initial reporting of an oil spill event to the appropriate Government Agencies.
- SITREP - This form (REP 02) is used for all subsequent reporting to appropriate Government Agencies.

The following internal reports are to be completed by the Drilling Supervisor:

- The Oil Spill Detailed Incident Report for Tier 1 Spills used for reporting Tier 1 (less than ten (10) tonnes).
- The Oil Spill Detailed Incident Report for Tier 2/3 Spills used for reporting Tier 2 or 3 (greater than ten (10) tonnes).

Other Incident Management Team (IMT) Forms

IMT forms, listed in Table E.2 are designed for use during an oil pollution response. Not all Forms will be needed for a particular response and additional Forms may need to be designed as required.

Table E.3 indicates when and where the IMT Forms might be used. In a small response, eg a Tier 1 or lower Tier 2 only a few will be required. In a larger (upper Tier 2 or tier 3) or more prolonged response more documentation may be required.

Table E.3 also indicates which IMT Role is likely to use the various forms. It is recommended that "Kits" or "Form-Packs" be prepared for each of the Section Officers and other key IMT members.

Tracking Incident Management Forms

All forms used during an incident should be given a Reference Number that denotes the person who filled out the form, and the order in which the various forms are released. Most forms already have a space for time and date, but a record of the sequence of forms from a particular source can ensure that forms are not lost.

Completed forms should be numbered with an alpha-numeric Reference Number showing source and number, eg IC 03 denotes the third form issued by the Incident Controller. Note these numbers should be sequential and without regard for the type of form or correspondence issued.

Table E.4 indicates the abbreviations for the IMT roles.

Table G.1 List of Incident Management Team Forms

Form No.	Title	Purpose
Reporting and Message Forms		
REP 01	Marine Pollution Incident Report Form (POLREP).	Report details of the incident for initial assessment and planning.
REP 02	Marine Pollution Situation Report (SITREP).	Report current status of the response and incident.
REP 03	Oil Spill Detailed Incident Report.	Detailed incident reporting form to be sent to ERT and relevant authorities.
REP 04	Message Form.	Memos, faxes, telephone call messages.
REP 05	Message Cover Sheet.	Used to preface documents for despatch or for messages to be relayed to a large number of people.
Incident Control		
IC 01	IMT Key Role Allocation and Contacts.	Documents the names and contact details of IMT members. An equivalent status Board is also used (<i>ref. Table E.3</i>).
IC 02	Contact List.	Lists IMT members and contact numbers.
Incident Action Plan Forms		
IAP 01	Incident Action Plan Part 1: Strategy.	Aim, Objectives and Strategies
IAP 02	Incident Action Plan Part 2: Tactics.	Tactics (methods), resources required and deployments.
IAP 03	Incident Action Plan: Deployment.	
Status and Resource Tracking Forms		
STA 01	Status Update: Incident details.	To document and authorise inputs and changes to the respective Status Boards (<i>ref. Table E.3</i>).
STA 02	Status Update: Weather.	
STA 03	Status Update: Tides/Sunrise/Sunset.	
STA 04	Status Update: Environmental Resources at Risk.	The forms may be used as an alternative to the use of Status Boards in lower Tiered responses or where wall space for Status Boards is limited.
STA 05	Status Update: Meeting Schedule.	
STA 06	Status Update: Media Schedule.	
STA 07	Status Update: Equipment Deployment.	The Forms allow the tracking of activities, equipment and personnel resources and document activities of the Operations Section Units.
STA 08	Status Update: Personnel Deployment.	
STA 09	Wildlife Status.	
STA 10	Status Update: Media/ Public Bulletins.	Once Status boards have been updated these forms would be sent to the Records Unit/ Finance and Administration Section for filing.

Table G.1 List of Incident Management Team ICS Forms – Continued

Form No.	Title	Purpose
Workforce Management Forms		
WM 01	Labour Registration Form.	Used to determine the most suitable allocation of personnel to Tasks.
WM 02	Personnel Assignment Form.	Used to assign personnel to Section/ Units/ Tasks.
WM 03	General Work Order Form.	Provides authority, guidelines and instructions for undertaking specific Tasks.
WM 04	Workplace Incident Form.	Used to report incidents that relate to OH&S, work effectiveness, equipment faults, or other occurrence that require remedial action.
WM 05	Personal or Section/ Unit Log.	To record Personal, Section or Unit work activities.
Logistics Forms		
LO 01	Resource Requisition/Allocation Form.	Request resources (personnel, equipment, other materials) and track their acquisition, allocation and delivery.
LO 02	Equipment Tracking Log.	To track supply and return of equipment from Logistics Section or stores.
Specialist Forms (Numbered according to Section and Unit)		
OA 01	Aerial Observation Report Form.	To record aerial surveillance flight observations.
OS 01	Shoreline Oiling Assessment Form.	Document oil distribution on specific shorelines.
OS 02	Shoreline Status Tracking Form.	Track shoreline assessment and cleanup activities.
OW 01	Waste Tracking Form.	Track waste generated, transported and stored.
LC 01	Radio Communications Allocation.	Logs the allocation of equipment and frequencies to IMT Sections and Units.
LM 01	Medical Resources.	Lists the Medical resources available to the IMT and details contact details.
OSTM	Oil Spill Trajectory Model Form.	Form to be filled out and sent to AMSA in order to get Oil Spill Trajectory run of spill.

Table G.2 Abbreviations for Incident Management Team Roles

Abbreviation	Incident Management Team role
Incident Control and Support	
SMPC	State Marine Pollution Controller (Victoria)
ERGC	Executive response Group Coordinator
IC	Incident Controller
ISO	Incident Safety Officer

Abbreviation	Incident Management Team role
MLO	Media Liaison Officer
ESC	Environment and Science Coordinator
AOCM	Advanced Operations Centre Manager (denote location also)
Planning Section	
PO	Planning Officer
SitC	Situation Coordinator
ResC	Response Coordinator
EC	Environment Coordinator
ConC	Consultation Coordinator
RPC	Response Planning Coordinatpr
Operations Section	
OO	Operations Officer
MC	Marine Coordinator
AC	Aviation Coordinator
SC	Shoreline Coordinator
WC	Wildlife Coordinator
OHSC	Occupational Health and Safety Coordinator
WMC	Waste Management Coordinator
Logistics Section	
LO	Logistics Officer
PC	Procurement Coordinator
SerC	Services Coordinator
TC	Transport Coordinator
CC	Communications Coordinator
MM	Medical Manager
SAM	Staging Area Manager (denote location also)
Finance and Administration Section	
FAO	Finance and Administration Officer
AdmC	Administration Coordinator
FC	Finance Coordinator
RecC	Records Coordinator
ICCM	Incident Control Centre Manager
Other	
AMSA	Australian Maritime Safety Authority
AMOSC	Australian Marine Oil Spill Centre

Table G.3 Use of Incident Management Team ICS Forms

Form No.	Form Name/Title	Incident Management Team Role (See Table 4)													
		IC	MLO	PO	OO	MC	AC	SC	WMC	OHSC	W C	LO	CC	FA O	
REP 01	Pollution Incident Report Form (POLREP).	Y												Y	
REP 02	Situation Report (SITREP).	Y												Y	
REP 03	Oil Spill Detailed Incident Report	Y												Y	
REP 04	Message Form.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
REP 05	Message Cover Sheet.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
IC 01	IMT Structure and Staffing	Y		Y										Y	
IC 02	Contact List	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
IAP 01	Incident Action Plan Part 1.	Y	Y	Y										Y	
IAP 02	Incident Action Plan Part 2.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
IAP 03	Incident Action Plan Part 3.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
STA 01	Status Update: Incident Status	Y		Y										Y	
STA 02	Status Update: Weather.	Y		Y										Y	
STA 03	Status Update: Tides/Sunrise/Sunset.	Y		Y										Y	
STA 04	Status Update: Environmental Resources at Risk.	Y		Y										Y	
STA 05	Status Update: Meeting Schedule.	Y		Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	
STA 06	Status Update: Media Schedule.	Y	Y	Y										Y	
STA 07	Status Update: Equipment Deployment &Support.	Y		Y	Y	Y	Y					Y		Y	
STA 08	Status Update: Personnel Deployment &Support.	Y		Y	Y	Y	Y					Y		Y	
STA 09	Status Update: Wildlife Response.	Y		Y	Y	Y	Y	Y			Y			Y	
STA 010	Status Update: Media/ Public Bulletins.	Y	Y	Y										Y	
WM 01	Labour Registration Form.	Y			Y						Y	Y		Y	

		Incident Management Team Role (See Table 4)												
		IC	MLO	PO	OO	MC	AC	SC	WMC	OHSC	W C	LO	CC	FA O
WM 02	Personnel Assignment Form.	Y			Y						Y	Y		Y
WM 03	General Work Order Form.	Y			Y	Y	Y	Y	Y	Y	Y	Y		Y
WM 04	Workplace Incident Form.	Y			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
WM 05	Personnel or Section/ Unit Log	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LO 01	Resource Requisition/Allocation Form.	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LO 02	Equipment Tracking Log	Y		Y	Y	Y	Y	Y	Y		Y	Y		Y
OA 01	Aerial Observation Report Form	Y		Y	Y		Y							Y
OS 01	Shoreline Oiling Assessment Form.	Y		Y				Y						Y
OS 02	Shoreline Status Tracking Form.	Y		Y				Y						Y
OW 01	Waste Tracking Form.	Y		Y	Y	Y		Y	Y		Y			Y
LC 01	Radio Communications Allocation	Y		Y								Y	Y	Y
LM 01	Medical Support Plan Proforma/Tracking Log	Y	Y								Y		Y	

G.3 Status Boards

Status Boards are display boards which contain information of general use. In the Incident Control Centre or Advanced Operations Centres they would normally be placed on the wall (in A0 or A1 size) and either laminated or covered in plastic. They are regularly updated.

Table G.4 List of Status Boards

Status Board		Status Update
No.	Incident Details	Form Reference
SB 01	Status Update: Incident details	STA 01
SB 02	Status Update: Weather.	STA 02
SB 03	Status Update: Tides/Sunrise/Sunset.	STA 03
SB 04	Status Update: Environmental Resources at Risk.	STA 04
SB 05	Status Update: Meeting Schedule.	STA 05
SB 06	Status Update: Media Schedule.	STA 06
SB 07	Status Update: Equipment Deployment.	STA 07
SB 08	Status Update: Personnel Deployment.	STA 08
SB 09	Wildlife Status	STA 09
SB 10	Status Update: Media/ Public Bulletins.	STA 10

G.4 Blank Forms

Please refer to the following pages for all of the blank forms listed in Table G.3.

POLREP

POLREP

REP 01

MARINE POLLUTION REPORT

DATE/TIME OF REPORT: _____

DATE/TIME OF INCIDENT: _____

LOCATION OF INCIDENT: _____

LATITUDE: _____ LONGITUDE: _____

ORIGINAL REPORT SOURCE: _____

CONTACT: PHONE: _____ FAX: _____ MOBILE: _____

NATURE OF INCIDENT & SPILL SOURCE: _____

POINT OF DISCHARGE FROM SOURCE: _____

IDENTITY & POSITION OF ADJACENT VESSELS (IF SOURCE UNKNOWN): _____

CAUSE OF DISCHARGE: _____

OIL TYPE OR DESCRIPTION: _____

NATURE & EXTENT OF POLLUTION: _____

MOVEMENT & SPEED OF POLLUTION: _____

HAS DISCHARGE STOPPED: _____

POLREP – (CONT'D)

WEATHER/SEA/TIDE CONDITIONS: _____

COMBAT RESPONSE AGENCY: _____

STATUTORY AGENCY: _____

INITIAL RESPONSE ACTION: _____

SAMPLES TAKEN: YES/NO _____

PHOTOGRAPHS/VIDEO TAKEN: YES/NO _____

ADDITIONAL INFORMATION: _____

REPORT PREPARED BY: _____

AGENCY: _____

PHONE: _____ FAX: _____ MOBILE: _____

THIS FORM TO BE COMPLETED WITH AS MUCH OF THE ABOVE INFORMATION AS POSSIBLE (REGARDLESS OF THE SIZE OF THE SPILL) AND FAXED TO:

DPI ON (03) 9412 4183 AND

AMSA ON (03) 5272 1839

FOR ANY ADDITIONAL INFORMATION

PLEASE ADD EXTRA PAGES AS REQUIRED

PAGE 2 OF 2

SITREP

SITREP

REP 02

MARINE POLLUTION SITUATION REPORT

PRECEDENCE: URGENT IMMEDIATE STANDARD

DATE/TIME: _____

SITREP No. _____

POLREP REFERENCE: _____

INCIDENT: _____

LOCATION: _____ LAT: _____ LONG: _____

REPORT PREPARED BY: _____

AGENCY: _____

PHONE: _____ FAX: _____ MOBILE: _____

REPORT

1. Summary of event since last report (Initial POLREP or last SITREP): _____

2. Expected developments: _____

3. Areas threatened: _____

4. Planned course of action: _____

SITREP – (CONT'D)

5. Details of assistance required: _____

6. Other pertinent information: _____

THIS FORM TO BE COMPLETED WITH AS MUCH OF THE ABOVE INFORMATION AS POSSIBLE AND FAXED TO:

DPI ON (03) 9412 4183 AND

AMSA ON (03) 5272 1839

AND ANY OTHER RELEVANT SUPPORT AGENCIES AS APPROPRIATE

FOR ANY ADDITIONAL INFORMATION

PLEASE ADD EXTRA PAGES AS REQUIRED

FINAL SITREP:

YES

NO

PAGE 2 OF 2

REP 03

OIL SPILL DETAILED INCIDENT REPORT

FOR TIER 1 SPILLS

SPILLS LESS THAN 10 TONNES

DATE: _____ REPORT TIME: _____

SPILL OBSERVER: _____ REPORTED TO: _____

TIME AND DATE SPILL OCCURRED _____ HRS ____ / ____ / ____

1. LOCATION OF THE SPILL: _____

2. TYPE OF OIL: _____ API GRAVITY: _____

3. ESTIMATE OF THE QUANTITY OF THE SPILL AND A DESCRIPTION OF THE APPEARANCE OF THE SLICK: _____

4. PARTICULARS OF ANY DAMAGE CAUSED AS A RESULT OF THE SPILL: _____

5. APPARENT SOURCE/CAUSE OF THE SPILL: _____

6. ACTION TAKEN TO CONTROL SPILL: _____

7. HAS DISCHARGE BEEN STOPPED: YES NO

8. WEATHER/SEA/TIDE CONDITIONS AT TIME OF SPILL: _____

9. ANY OTHER PERTINENT INFORMATION: _____

THIS FORM SHOULD BE COMPLETED IN AS MUCH DETAIL AS POSSIBLE AND FAXED TO THE PERTH EMERGENCY RESPONSE TEAM

OIL SPILL DETAILED INCIDENT REPORT (B)

FOR TIER 2 & 3 SPILLS

GREATER THAN 10 TONNES

DATE: _____ REPORT TIME: _____

1. SPILL OBSERVER: _____ REPORTED TO: _____

2. TYPE OF OIL: _____ API GRAVITY: _____

3. APPARENT SOURCE/CAUSE: _____

4. TIME AND DATE SPILL OCCURRED: _____ HRS ____ / ____ / ____

5. LOCATION OF SPILL: _____ LAT: _____ LONG: _____

6. IS SPILL CONTINUING?: YES/NO

7. IF YES, ESTIMATED RATE OF RELEASE: _____ (M³/DAY) _____ (bbl/DAY)

8. VOLUME OF DISCHARGE: A) ESTIMATED _____ M³ _____ bbl
B) KNOWN _____ M³ _____ bbl

9. SIZE OF SPILL: (PLOT ON CHART) _____

10. RATE AND DIRECTION OF SLICK MOVEMENT: _____

11. OIL SLICK TYPE: CONTINUOUS _____ WINDROWS _____
APPEARANCE ON WATER _____

12. ESTIMATED AVERAGE THICKNESS _____

METEOROLOGICAL DATA

13. TEMPERATURE: AIR _____ °C WATER _____ °C

14. WIND SPEED _____ KNOTS DIRECTION _____

15. PRECIPITATION: _____ 16. VISIBILITY: _____

17. FORECAST: _____

OCEANOGRAPHIC DATA

18. TIDE STATE: _____

19. CURRENTS: SPEED _____ DIRECTION _____

20. SEA STATE: 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6+ _____

21. AVERAGE WAVE HEIGHT: _____ METRES PERIOD _____ SECONDS

22. REMARKS: _____

THIS FORM SHOULD BE COMPLETED IN AS MUCH DETAIL AS POSSIBLE AND FAXED TO THE PERTH EMERGENCY RESPONSE TEAM

REP 04

MESSAGE

Incident		Ref. No.	
Precedence	Urgent <input type="checkbox"/>	Immediate <input type="checkbox"/>	Standard <input type="checkbox"/>
Mode	Telephone <input type="checkbox"/>	Fax <input type="checkbox"/>	Memo <input type="checkbox"/> E-mail <input type="checkbox"/>
Date/	____ / ____ / ____	Time	____ : ____ (24 hr)

To:	Name	
	Position	
	Contact No.	

From:	Name	
	Position	
	Contact No.	

Message
Attachments? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes Note No of Pages Attached: _____

REP 05

MESSAGE COVER SHEET

Incident			Ref. No.	
Precedence	Urgent <input type="checkbox"/>	Immediate <input type="checkbox"/>	Standard	<input type="checkbox"/>
Date	____ / ____ / ____		Time	____ : ____ (24 hr)
Attachment			No of Pages	

From	Name		Position		
	Contact No		Reply Required?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Send Copy To	Distribution Order	Message /Comments / Instructions	Initials
ERT Coordinator			
Incident Controller			
Planning			
Logistics			
Operations			
Finance & Admin			
Media Liaison			
Emergency Response Coordinator			
Government Liaison			
Status Board Update			
Advisers (List)			
Others (List)			
Records (For filing)			

IC 01

MT KEY ROLE ALLOCATION AND CONTACTS			Date:
Incident		Ref. No.	

Role	Primary Assignment			Relief/ Second Assignment		
	Name	Agency	Contact	Name	Agency	Contact
Incident Control						
Incident Controller						
Incident Safety Officer						
Media Liaison Unit						
Media Liaison Officer						
Planning Section						
Planning Officer						
Response Planning Coordinator						
Situation Coordinator						
Resource Coordinator						
Environment Coordinator						
Consultation Coordinator						
Operations Section						
Marine Coordinator						

TURN OVER FOR PAGE 2 OF KEY ROLE ALLOCATION AND CONTACT SHEET

PAGE 2 OF KEY ROLE ALLOCATION AND CONTACT SHEET

Aviation Coordinator						
Shoreline Coordinator						
Wildlife Coordinator						
OH&S Coordinator						
Waste Coordinator						
Logistics section						
Procurement Coordinator						
Services Coordinator						
Transport Coordinator						
Medical Coordinator						
Staging Area Mgr.						
Communications Coordinator						
Finance and Administration Section						
Administration Coordinator						
Finance Coordinator						
Records Coordinator						
ICC Manager						

IAP 01

INCIDENT ACTION PLAN PART 1: STRATEGY

Incident		Ref. No.	
Plan for the Period	From _____ / _____ / _____	To	_____ / _____ / _____

Date	_____ / _____ / _____	Time	_____ : _____ (24 Hour)
Status	Draft <input type="checkbox"/>	Approved <input type="checkbox"/>	IC Signature _____

Response Aim/ Policy	
-----------------------------	--

Objectives (In Order of Priority)	Strategies (In Order of Priority)	
1.		
2.		
3.		

TURN OVER FOR PAGE 2 OF INCIDENT ACTION PLAN 1

PAGE 2 OF INCIDENT ACTION PLAN 1

Objectives (In Order of Priority)	Strategies (In Order of Priority)	
4.		
5.		
6.		

ATTACHMENTS CHECKLIST	
IMT Organisation	Attach Forms <u>IC 01</u> and <u>IC 02</u>
Tactics and Deployments	Attach Forms <u>IAP 02</u> and <u>IAP3</u> from each Section and Operational Unit: <i>Planning Section</i> <i>Operations Section</i> <i>Marine Unit</i> - Aviation Unit <i>Shoreline Unit</i> - Wildlife Unit <i>OH&S Unit</i> <i>Waste Management Unit</i> <i>Logistics Section</i> <i>Communications Unit</i> <i>Finance and Admin Unit</i>
Resources Requirements	Attach Forms LO 01 and LO 02 from each Section and Operational Unit.

IAP 02

INCIDENT ACTION PLAN PART 2: TACTICS

Incident		Ref. No.	
Section or Unit			
Plan for the Period	From	____ / ____ / ____	To ____ / ____ / ____

Date	____ / ____ / ____	Time:	____ : ____ (24 Hour)
Status	Approved <input type="checkbox"/>	Section Officer Signature	

Objective	No.		
Strategy	No.		
Tactics		Resource Requirement <i>(Forms LO 01 to be attached)</i>	

Objective	No.		
Strategy	No.		
Tactics		Resource Requirement <i>(Forms LO 01 to be attached)</i>	

TURN OVER FOR PAGE 2 OF INCIDENT ACTION PLAN 2

PAGE 2 OF INCIDENT ACTION PLAN 2

Objective	No.	
Strategy	No.	
Tactics		Resource Requirement <i>(Forms LO 01 to be attached)</i>

Objective	No.	
Strategy	No.	
Tactics		Resource Requirement <i>(Forms LO 01 to be attached)</i>

IAP 03

INCIDENT ACTION PLAN PART 3: DEPLOYMENT

Incident		Ref. No.	
Section or Unit			
Plan for the Period	From	____ / ____ / ____	To
		____ / ____ / ____	

Date	____ / ____ / ____	Time:	____ : ____ (24 Hour)
Status	Approved <input type="checkbox"/>	Section Officer Signature	

Facility/ Deployment	Location	Resources Required
<i>E.g.:</i> <ul style="list-style-type: none"> • Advance Operations Centre (AOC). • Canteen. • Decontamination Centre. • Ablutions. • Ambulance/ First Aid Centre 	Map may be attached or sketched on reverse side of this form.	List and attach Form LO 01.

TURN OVER FOR PAGE 2 OF INCIDENT ACTION PLAN 3

MAP

Scale: _____

Key



Ablutions



**Advanced
Operations Centre**



Canteen/ Rest Area



**Decontamination
Centre**



**First Aid Centre/
Ambulance**



Heli-pad



Incident Control Centre



Media Centre/ Activity



Temporary Storage



Waste Storage Area

STA 01

STATUS UPDATE: INCIDENT DETAILS

Incident		Ref. No.	
Date	____ / ____ / ____	Time	____ : ____ (24 hr)
Name of Vessel(s)/ Facility			
Location of Vessel/Facility	Latitude		Longitude
	Geographic		
Volume of Oil Spilled	Total		
	Est. Weathering		
	On Shore		
	At Sea		
Volume of Oil Remaining (at risk of being spilled)			
Spill Source Control Status	Controlled <input type="checkbox"/> Continuing <input type="checkbox"/> Other _____		
Shorelines impacted	Location/Beach Name/Sector/Segment	Length Oiled (km)	
Other Details			

TURN OVER FOR PAGE 2 OF STA 01

Other Details Continued

Instructions for Completing Form STA 01
<p><i>This Form should be completed by any person receiving an official update on the incident.</i></p> <p><i>Details should be confirmed by ERG Coordinator, Incident Controller, Planning Officer, or Situation Coordinator before being delivered to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>Once confirmed the ICC Manager will ensure that the corresponding Status Board is updated.</i></p>

STA 02

STATUS UPDATE: WEATHER

Incident		Ref. No.	
Date	____ / ____ / ____	Time	____ : ____ (24 hr)

CURRENT CONDITIONS				
Wind	Speed		Direction	
Air Temperature	Maximum		Minimum	
Precipitation:	Rain <input type="checkbox"/> Snow <input type="checkbox"/> Other _____			
Waves	Height		Period	
Currents	Speed		Direction	
Water Temperature	____ °C	Other		

FORECAST 24 HOURS				
Wind	Speed		Direction	
Air Temperature	Maximum		Minimum	
Precipitation:	Rain <input type="checkbox"/> Snow <input type="checkbox"/> Other _____			
Waves	Height		Period	
Currents	Speed		Direction	
Water Temperature	____ °C	Other		

FORECAST _____ HOURS				
Wind	Speed		Direction	
Air Temperature	Maximum		Minimum	
Precipitation:	Rain <input type="checkbox"/> Snow <input type="checkbox"/> Other _____			
Waves	Height		Period	
Currents	Speed		Direction	
Water Temperature	____ °C	Other		

Other Details Continued

Instructions for Completing Form STA 02
<p><i>This Form should be completed by any person receiving an official update on weather/ sea states.</i></p> <p><i>Details should be confirmed by ERG Coordinator, Incident Controller, Planning Officer, or Situation Coordinator before being delivered to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>Once confirmed the ICC Manager will ensure that the corresponding Status Board is updated.</i></p>

STA 03

STATUS UPDATE: TIDES/ SUNRISE/ SUNSET

Incident		Ref. No.	
Date	____ / ____ / ____	Time	____ : ____ (24 hr)

CURRENT CONDITIONS

Tides	Highs	_____m	_____Hrs	Lows	_____m	_____Hrs
		_____m	_____Hrs		_____m	_____Hrs
Sunrise/Sunset	Sunrise ____ : ____ AM			Sunset ____ : ____ PM		

TOMORROWS CONDITIONS

Tides	Highs	_____m	_____Hrs	Lows	_____m	_____Hrs
		_____m	_____Hrs		_____m	_____Hrs
Sunrise/Sunset	Sunrise ____ : ____ AM			Sunset ____ : ____ PM		

MONTHS TIDE TABLES

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Other Details Continued

Instructions for Completing Form STA 03
<p><i>This Form should be completed by any person receiving an official update on the tides/ sunset/ sunrise.</i></p> <p><i>Details should be confirmed by ERG Coordinator, Incident Controller, Planning Officer, or Situation Coordinator before being delivered to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>Once confirmed the ICC Manager will ensure that the corresponding Status Board is updated.</i></p>

Other Details Continued

Instructions for Completing Form STA 04
<p><i>This Form should be completed the Coordinator of the Environment Unit (within the Planning section), or the Environment and Science Coordinator.</i></p> <p><i>Details should be confirmed by Environment and Science Coordinator (ESC), or on scene Environment Coordinator r before being delivered to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>Priorities <u>must</u> be confirmed by the Incident Controller, in consultation with the ESC, before this form is released to the ICC Manager or records Unit.</i></p> <p><i>Once confirmed the ICC Manager will ensure that the corresponding Status Board is updated.</i></p>

Other Details Continued

Instructions for Completing Form STA 05
<p><i>This Form should be completed by the Planning Officer.</i></p> <p><i>Details should be confirmed by ERG Coordinator, Incident Controller, or Planning Officer, before being delivered to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>Once confirmed the ICC Manager will ensure that the corresponding Status Board is updated.</i></p>

STA 06

STATUS UPDATE: MEDIA SCHEDULE

Incident		Ref. No.	
Date	____ / ____ / ____	Time	____ : ____ (24 hr)

Date/ Time	Type/ Purpose/ Topics	Location	Personnel Required

Other Details Continued

Instructions for Completing Form STA 06
<p><i>This Form should be completed by the Media Liaison Officer.</i></p> <p><i>Details should be confirmed by, Incident Controller before being delivered to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>Once confirmed the ICC Manager will ensure that the corresponding Status Board is updated.</i></p>

Instructions for the Completion of STA 07	
Equipment type	Booms <i>Recovery Devices (Skimmers)</i> <i>Storage Containers</i> Aircraft <i>Vehicles</i>
<i>Item</i>	<i>As above if multiple equipment types are being logged on the same Status Board. Otherwise, type of unit (e.g. weir skimmer, helicopter, fixed wing aircraft etc)</i>
<i>Description</i>	<i>Specific item, or details about the item's capacity/ application. Also aircraft type (no of seats/engines).</i>
<i>Location</i>	<i>Area of deployment and/ or base for deployment (e.g. staging Area).</i>
<i>Status</i>	<i>Indicate the current use of the item e.g., active, in storage, inoperable/undergoing maintenance etc.</i>
<i>Contact</i>	<i>The name and contact number of the IMT member in charge of the item. Usually a Unit Coordinator or Section Officer.</i>
<p><i>This Form should be completed by the relevant Operation Unit Coordinator.</i></p> <p><i>Details should be confirmed by, Incident Controller or Operations Officer before being delivered to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>Once confirmed the ICC Manager will ensure that the corresponding Status Board is updated.</i></p>	

Instructions for the Completion of STA 08	
<i>Location)</i>	<i>Current deployment i.e. Sector, Segment, Vessel, AOC, Staging Area.</i>
<i>Number</i>	<i>The number of persons in the Team/Group.</i>
<i>Affiliation/ Contractor</i>	<i>Dept./ Note the employer of particular Team/Group e.g., Government Agency, Contractor, Company.</i>
<i>Assigned Task</i>	<i>Task assigned, e.g., shoreline cleanup, marine response, waste transport, waste storage and disposal etc.</i>
<i>ETA / Deployed</i>	<i>Indicate the expected time of arrival, otherwise list as "on site".</i>
<i>Assigned Group</i>	<i>The name of the Unit to which the person(s) is/are assigned, or the contact number of the relevant Supervisor or Unit Coordinator in charge of the Team/Group</i>
<p><i>This Form should be completed by the Planning Officer after consultation with all Section officers.</i></p> <p><i>The Form may also be used by section officers to provide data to the Planning Officer..</i></p> <p><i>The Planning Officer will provide the completed form to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>The ICC Manager will ensure that the corresponding Status Board is updated.</i></p>	

Other Details Continued

Instructions for Completing Form STA 09
<p><i>This Form should be completed the Coordinator of the Environment Unit (within the Planning section), or the Environment and Science Coordinator.</i></p> <p><i>Details should be confirmed by Environment and Science Coordinator (ESC), or on scene Environment Coordinator before being delivered to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>Priorities <u>must</u> be confirmed by the Incident Controller, in consultation with the ESC, before this form is released to the ICC Manager or records Unit.</i></p> <p><i>Once confirmed the ICC Manager will ensure that the corresponding Status Board is updated.</i></p>

Other Details Continued

Instructions for Completing Form STA 10
<p><i>This Form should be completed by the Media Liaison Officer and Consultation Coordinator.</i></p> <p><i>Details should be confirmed by, Incident Controller before being delivered to the Incident Control Centre Manager and Records Unit.</i></p> <p><i>Once confirmed the ICC Manager will ensure that the corresponding Status Board is updated.</i></p>

WM 01

LABOUR REGISTRATION FORM

Incident		Ref. No.	
Date	____ / ____ / ____	Time	_____ : _____ (24 hr)

To help us ensure workforce health and well-being and enable us to assign individuals to suitable employment, please complete this questionnaire.

Your answers will help us place you in an appropriate role and will ensure we provide suitable induction and job training.

Name: _____

Do you have any:

- | | YES | NO |
|---|--------------------------|--------------------------|
| • Limitations on mobility (climbing rocks etc.) ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Visual impairment other than prescription glasses ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Heart disorders ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Respiratory problems ? | <input type="checkbox"/> | <input type="checkbox"/> |

Do you suffer from:

- | | | |
|--|--------------------------|--------------------------|
| • Diabetes ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Epilepsy ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Asthma ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Effects of cold (Raynaud's disease etc.) ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Arthritis that is affected by cold or strenuous activity ? | <input type="checkbox"/> | <input type="checkbox"/> |

Have you received induction in:

- | | | |
|------------------------------------|--------------------------|--------------------------|
| • Occupational Health and Safety ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Manual handling ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Waste handling/segregation ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Working with oil ? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Response organisation ? | <input type="checkbox"/> | <input type="checkbox"/> |

Other

- | | | |
|---|--------------------------|--------------------------|
| • Do you have any other condition which may impair activity or need to be considered in the allocation of tasks | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|

(e.g. pregnancy, hearing loss, previous back or joint injuries) ?

If "yes" the put details overpage or inform the Person In charge.

Thankyou for your assistance.

Signed: _____ **Date:** ____ / ____ / ____

TURN OVER FOR PAGE 2 OF LABOUR REGISTRATION FORM

NOTES / DETAILS

WM 02

PERSONNEL ASSIGNMENT FORM

This form should be provided to individuals or Team Leaders when assigned to a Section or Unit for deployment. (NB; Form WM 03 should be used when assigning specific Tasks).

A copy of this Form must be sent to the Planning Section and the Records Unit.

Incident		Ref. No.	
Date	___ / ___ / ___	Time	___ : ___ (24 hr)

Authorised By (Name):		Position/Role	
Signature			

No	Name(s) <i>(Add additional names to back of Form if required)</i>	Induction Status (tick)			Comment/ Individual Instructions
		OH&S	General	Other	

Report To		At Location	
On (Date)	___ / ___ / ___	At (Time)	___ : ___ (24 hr)

Special Instructions:

TURN OVER FOR PAGE 2 OF PERSONNEL ASSIGNMENT FORM

PAGE 2 OF PERSONNEL ASSIGNMENT FORM

No	Additional Name(s)	Induction Status (tick)			Comment/Special Instructions
		OH&S	General	Other	

Instructions for Completion of Form WM 02

Comment/ Individual Instructions or Special Instructions: Note special requirements for specific tasks, e.g:

Protective clothing.

Sun screen.

Gloves.

Hat.

Boots.

Floatation device (Air/ Marine deployment).

Levels of training required or held.

WM 03

GENERAL WORK ORDER FORM

*This form should be provided to Team Leaders when instructed to undertake a specific Task
A copy of this Form must be sent to the relevant Section Officer who must forward a copy to the
Records Unit.*

Incident		Ref. No.	
Date	___ / ___ / ___	Time	___ : ___ (24 hr)

Instruction from (Name):		Position/Role:	
Instruction To (Name):		Position/Role:	

INSTRUCTION			
Location		Work Period	To
Task No.	Task		
Other Instructions			

TURN OVER FOR PAGE 2 OF GENERAL WORK ORDER FORM

PAGE 2 OF GENERAL WORK ORDER FORM

WORK LOG			
Location		Work Period	To
Task No.	Status/ Notes		

Instructions for Completion of Form WM 03
<p>(1). Copy of Work Order (Side 1) should be provided to the Records Unit when issued</p> <p>(2). Side 2, Status Column. Note progress, use of consumables, issue and return of equipment and any other matter</p> <p>(3) <i>Completed Form (Side 1 and 2) should be returned to person who issued the Work Order, who may then provide information to the Planning Section or other Sections or Units.</i></p>

WM 04

WORKPLACE INCIDENT REPORT

To be completed by Team Leaders, Supervisors, Unit Coordinators and any other IMT member, as required. The completed Form must be submitted to the relevant Coordinator/ Officer as soon as possible after the incident.

Spill Incident		Ref. No.	
Date	___ / ___ / ___	Time	___ : ___ (24 hr)

From (Name)		Position/ Role	
To (Name)		Position/ Role	

Incident Details					
Person Reporting Incident:					
Name		Role/ Position			
Location of Incident					
Date of Incident	___ / ___ / ___	Time of Incident	___ : ___ (24 hr)		
Activity at the time of the incident					
Description of Incident (Add pages if required)					

Personnel Injured ?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<i>If Yes complete the rest of this block.</i>		
Details of Injured Person. (If more than one person is injured attach separate sheets)					
Name	(First Name)		(Surname)		
Sex:	M / F	Date of Birth	___ / ___ / ___	Occupation	
Address					
Nature of the Injury:	<i>(Inc. part of the body affected)</i>				
Treatment Received:					
Name of Person(s) Providing Treatment	On Site	Name			
		Position			
	Off Site:	Name			
		Position			

TURN OVER FOR PAGE 2 OF WORKPLACE INCIDENT REPORT FORM

PAGE 2 OF WORKPLACE INCIDENT REPORT FORM

Corrective Action	
Corrective Action Taken	
Corrective Action Requested	

Supporting Information		
Witnesses	Name:	
	IMT Role/Address:	
	Name:	
	IMT Role/Address:	
Other Information	-----	

Action Taken			

Action Authorised By:	Name:		IMT Role:

LO 01

RESOURCE REQUISITION/ ALLOCATION

Spill Incident		Ref. No.	
-----------------------	--	-----------------	--

Request From	Name		Position/ Role			
Signature of Requesting Officer			Date of Request	__ / __ / __	Time of Request:	__ : __ (24 hr)
Request To	Name		Position/ Role			
			Date of Receipt	__ / __ / __	Time of Receipt	__ : __ (24 hr)
Tactic/ Task (Ref. Incident Action Plan)						

Item Code	Description of Items/ Resources Requested				Items/ Resources Allocated			
	Category		Number Required		Current Status:		Date:	__ / __ / __
	Description				No Supplied		Location:	
	Location Required		Period Required	__ / __ to __ / __	Authorised (Signature)	By		
	Contact Person at Location		Position / Role		Receipt Confirmed (Signature /Position)			
	Category		Number Required		Current Status:		Date:	__ / __ / __
	Description				No Supplied		Location:	
	Location Required		Period Required	__ / __ to __ / __	Authorised (Signature)	By		
	Contact Person at Location		Position / Role		Receipt Confirmed (Signature /Position)			

CONTINUED OVERPAGE

CONTINUED

Item Code	Description of Items/ Resources Requested				Items/ Resources Allocated			
	Category		Number Required		Current Status:		Date:	__ / __ / __
	Description				No Supplied		Location:	
	Location Required		Period Required	__ / __ to __ / __	Authorised (Signature)	By		
	Contact Person at Location		Position / Role		Receipt Confirmed (Signature /Position)			
	Category		Number Required		Current Status:		Date:	__ / __ / __
	Description				No Supplied		Location:	
	Location Required		Period Required	__ / __ to __ / __	Authorised (Signature)	By		
	Contact Person at Location		Position / Role		Receipt Confirmed (Signature /Position)			
	Category		Number Required:		Current Status:		Date:	__ / __ / __
	Description				No Supplied		Location:	
	Location Required		Period Required:	__ / __ to __ / __	Authorised (Signature)	By		
	Contact Person at Location		Position / Role		Receipt Confirmed (Signature /Position)			

Instructions	
<p><i>Task = Specify purpose for requisition, refer to Incident Action Plan if needed.</i></p> <p><i>Category = Specify <u>type</u> of equipment (e.g. <u>Skimmer</u>, <u>Pump</u>) or <u>Personnel</u>,</i></p> <p><i>Description = Detailed description of equipment (make, model, capacity) or qualifications of personnel (certification, skills).</i></p> <p><i>Period Required = Total time required.</i></p> <p><i>Contact Person=Specified person on site. Contact number needed if not on site.</i></p>	<p><i>Receipt Confirmed=Confirmed after equipment has been received and by whom.</i></p> <p><i>Current Status. Note - Ordered but Not Received (ONR).</i></p> <ul style="list-style-type: none"> - Not Available (NA) - Assigned/Delivered(AD). - Alternative (ALT). <p><i>(eg NA/ALT= item not available but alternative is; ALT/ONR alternative ordered)</i></p>

LO 01 (B)

RESOURCE REQUISITION/ ALLOCATION (B)

Spill Incident		Ref. No.	
Date	____ / ____ / ____	Time	____ : ____ (24 hr)

Equipment	Personnel	Requisition	Allocation
Task			
Equipment/ Personnel Required			
Qualifications			
Location Required	____ / ____ / ____		
On (Date)	____ Days (From ____ / ____ / ____ to ____ / ____ / ____)	At (Time)	____ : ____ (24 hour)
Period Required			
Deliver To			
At (Delivery Address)			
Requisitioned By			Position

Equipment /Personnel Allocated			
Qualifications			
Estimated Costs			
Approved By			Position
Authorised (Signature)			Date/Time
Date/Time			
Receipt Confirmed			Position
Signature			Date/Time

INSTRUCTIONS OVERPAGE

CONTINUED

Instructions for Completing Form LO 01B

Reference No = As per ICS Response Structure reference code.

Task = Specify purpose for requisition/allocation.

Equipment/Personnel Required = Detailed description of requirements.

Qualifications = Special qualifications required, eg Marine/Aviation certificates.

Location Required = Specify detailed location.

Date/Time = Local time – 24 hour clock.

Period Required = Total time required.

Report to = Specified person and location. Contact telephone number.

Equipment/Personnel Allocated = Detailed description of available personnel and equipment.

Qualifications = If different from original request.

Estimated Costs = If readily available.

Approved by = Authorised person.

Requisitioned by = Person raising requisition.

Receipt Confirmed = Confirmed after equipment has been received, and by whom.

OA 01

AERIAL OBSERVATION REPORT

This Report should be submitted to the Aviation Coordinator who will forward it to the Planning Officer and a copy to the Records Unit.

The Planning Officer will distribute it as instructed by the Incident Controller.

Incident		Ref. No.	
Date	____ / ____ / ____	Time	____ : ____ (24 hr)
Attachments		No of Pages	

From:	Observer's Name		Position
	Aircraft		Pilot Name

Area/ Region		Time:	__ : __ (24 hr)				
Slick Position	Latitude		Longitude				
	Other						
Slick Description	Slick Length	m	Slick Width	m	Area	km ²	
	Percentage Cover/ Colour		Clean Surface				%
			Silver Sheen				%
			Rainbow/ Iridescence				%
			Dull Colours				%
			Dark Brown/Black				%
	Other Description/ Notes		Light Brown (Emulsion)				%
Movement/ Behaviour							
Visibility	Weather		Cloud Cover/ Height				
Other Notes							

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CONTINUED

Area/ Region			Time:	___ : ___ (24 hr)		
Slick Position	Latitude			Longitude		
	Other					
Slick Description	Slick Length	m	Slick Width	m	Area	km ²
	Percentage Cover/ Colour		Clean Surface		%	
			Silver Sheen		%	
			Rainbow/ Iridescence		%	
			Dull Colours		%	
			Dark Brown/Black		%	
			Light Brown (Emulsion)		%	
	Other Description/ Notes					
Movement/ Behaviour						
Visibility	Weather			Cloud Cover/ Height		
Other Notes						

CONTINUED OVERPAGE

CONTINUED

Area/ Region					Time:	___ : ___ (24 hr)	
Slick Position	Latitude				Longitude		
	Other						
Slick Description	Slick Length	m	Slick Width	m	Area	km ²	
	Percentage Cover/ Colour			Clean Surface		%	
				Silver Sheen		%	
				Rainbow/ Iridescence		%	
				Dull Colours		%	
				Dark Brown/Black		%	
				Light Brown (Emulsion)		%	
	Other Description/ Notes						
Movement/ Behaviour							
Visibility	Weather				Cloud Cover/ Height		
Other Notes							

OS 01

SHORELINE OILING ASSESSMENT FORM

This Form should be submitted to the Shoreline Coordinator (SC).

A summary of the information will be forward by the SC to the Planning Officer and Records Unit.

Incident		Ref. No.	
Date	___ / ___ / ___	Time	___ : ___ (24 hr)

SEGMENT NO:		REPORTING DETAILS:	
Topo/Other Map (No.):		Assessment By Name: _____	
Map Reference:		Position: _____	
Name of Beach or Location Description:		Date: ___/___/___ Time: ___AM/PM	
Access Via: _____		Report To Name: _____	
<input type="checkbox"/> Foot only <input type="checkbox"/> Road <input type="checkbox"/> 4WD <input type="checkbox"/> Boat <input type="checkbox"/> Heli		Position: _____	
Hazards?		Date Rec'd: ___/___/___ Time: ___AM/PM	
		First Assessment for Segment? <input type="checkbox"/> Yes <input type="checkbox"/> No	

OIL DISTRIBUTION AND CHARACTER											
PARAMETER	LITZ			MITZ			UITZ			SUPRATIDAL	
Shoreline Type											
Substrate Type											
Width of Shoreline											
Oil Band Width (m)											
Cover in Oil Band (%)											
Length of Coast Oiled											
Surface Oil Thickness											
Appearance											
Debris Present											
Oiled Debris											
Depth of Oiling (From Surface)											
Buried Oil Bands (Min.-Max. in m/cm)											
Description of Buried Oil											

SEE OVERPAGE FOR PAGE 2 OF SHORELINE OILING ASSESSMENT FORM

OS 02

SHORELINE STATUS TRACKING FORM

This Form is completed Shoreline Coordinator (SC), and will be forward to the Planning Officer and Records Unit.

Spill Incident		Ref. No.	
Division/Sector	Date: ____ / ____ / ____	Time	____ : ____ (24 hr)

Location		Assessment		Cleanup	
Sector	Segment	Date of Survey	Current (Last) Oiling Status	Current cleanup Status/ Activities	Date of Last Cleanup

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CONTINUED

Location		1. Assessment		Cleanup	
Sector	Segment	Date of Survey	Current (Last) Oiling Status	Current cleanup Status/ Activities	Date of Last Cleanup

OW 01

WASTE TRACKING FORM

This Form is completed all Field Supervisors/Team Leaders who generate, transport or store waste. The completed form must be forwarded to the Waste Management Coordinator (WMC), who will be forward summary information to the Planning Officer and Records Unit.

Incident						Ref. No.	
From (Name)		Position/ Role		Date	___ / ___ / ___	Time	___ : ___ (24 hr)
To (Name)		Position/ Role	CC:				

Waste Despatch					Waste Receipt/ Collection			
Date/Time	Waste Type	Quantity	Storage	Location	Date/ Time	Received/ Collected By	Quantity	Notes
<i>Key</i>	<i>LO Liquid Oil LW Water SO Solid Oil SD Solid Debris OSy, Oily Synthetics OSed Oily Sediments</i>	<i>Volume or number of containers.</i>	<i>Drums, Bags, Skips, etc.</i>				<i>Check against despatch number</i>	

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LC 01

RADIO COMMUNICATIONS ALLOCATION

To be completed by the Communications Coordinator and forwarded to the Planning Officer (via the Logistics Officer) and to the Records Unit.

Incident:		Ref. No.	
Issued By:	Name	(Communications Coordinator)	
Date:	____ / ____ / ____	Time	____ : ____ (24 hr)

System	Frequency	Channel	Assignment	Notes
Key: UHF. VHF. VHF Marine. VHF Air. HF. CB.			Section. Unit. Team. Vessel. Vehicle Function	

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System	Frequency	Channel	Assignment	Notes
<i>Key:</i> UHF. VHF. VHF Marine. VHF Air. HF. CB.			<i>Section.</i> <i>Unit.</i> <i>Team.</i> <i>Vessel.</i> <i>Vehicle</i> <i>Function</i>	
Notes				

LM 01

MEDICAL RESOURCES

To be completed by the Medical Manager (MM) and forwarded to the Planning Officer (via the Logistics Officer) and to the Records Unit.

Incident:		Ref. No.	
Issued By:	Name:	(Medical Manager)	
Date of Issue:	____ / ____ / ____	Current Until:	____ / ____ / ____

Resource	Location	Availability	Capability	Contact
Field First Aid Stations				
Ambulance				
Hospitals				
Other				
Key:	<i>List in order of closeness. If ETA to site is known indicate for road and/ or air.</i>	<i>24 hour or note restricted times, (eg field may be 9:00-17:00 hrs only)</i>	<i>Eg.</i> <i>- No mobile staff or resources.</i> <i>- Air Ambulance.</i> <i>- Emergency.</i>	

GENERAL EMERGENCY CONTACT:

SEE OVERPAGE FOR PAGE 2 OF MEDICAL RESOURCES



OIL SPILL TRAJECTORY MODELLING (OSTM) REQUEST

Email completed form to: OSTM@amsa.gov.au
 or Fax to: 02 6279 5026 (bh) 02 6230 6868 (ah)
 After sending the request phone 02 6279 5680 (bh)
 If after hours, phone the AMSA Rescue Coordination Centre (AusSAR) on 02 6230 6811 or 1800 641 792

Priority of request Urgent Routine Exercise

Vessel/spill/exercise name or identifier		
Name of requesting organisation		Name of requesting person and position in response
Contact telephone number	Email address for model output (preferred method)	Fax number for receipt of model output

Format of coordinates used (select one)	Latitude of spill	Longitude of spill
Degrees & decimal degrees	°	°
Degrees, minutes & decimal minutes	° ' "	° ' "
Degrees, minutes & seconds	° ' "	° ' "

Spill start date Day Month Year	Spill start time (spill site local time, 24 hour clock)	Local time used <i>eg EST, CST, WST, GMT, daylight saving etc</i>
--	--	--

Type of oil spilt or likely to be spilt *eg Name: crude oil / Type: fuel oil / Grade: bunker fuel*

Name	Type	Grade
------	------	-------

Amount of oil spilt or likely to be spilt (complete one option)

If exact spill quantity is unknown for modelling purposes provide a maximum quantity of spill

Tonnes Cubic metres Litres Barrels

Known or estimated amount of time oil was being discharged hours

How long do you want the model prediction for Hours (eg 12, 24, 36 hrs)

Surface water temperature at spill site °C (if not available AMSA will use an average for this location)

Wind speed and direction at spill location is vital to the effectiveness of the spill simulation model

Wind speed and direction

Note: If wind speed and direction are variable use page 2 to input data

DISCLAIMER

Any Oil Spill Trajectory Modelling predictions are for the exclusive use of the client and not for third party use. The oil spill trajectory predictions, opinions and interpretations contained in predictions are based on observations and data supplied by the client and information sources available to AMSA.

The computer model predictions, interpretations or opinions expressed represent the best judgement of the Environment Protection Standards, Maritime Safety and Environmental Strategy, Australian Maritime Safety Authority (AMSA). AMSA and its personnel or advisers, assume no responsibility and make no warranty or representations as to the accuracy or reliability of the predictions. It should be noted that accuracy of predictions may be adversely affected where modelling is carried out in respect of spills in enclosed waters, estuaries, close to shore, or when only low resolution maps are available.

The use and mention of any specialist software or equipment in any prediction does not represent endorsement of these products by AMSA.

Copies of this form can be obtained at: www.amsa.gov.au/me/natplan/toolbox/ostm/proforma.htm

G.5 Incident Management Team Checklists

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- 1. Introduction**
- 2. Using the Checklists**
- 3. Structure of the Checklists**
- 4. Modifying the Checklists**
- 5. Function Checklists**
 - A.A Establishing the Incident Control Centre (ICC)
 - A.B Initial Planning Meeting and Incident Action Plan Checklist
 - A.C Planning Meeting Checklist
- 6. Role Checklists**
 - Incident Controller
 - Media Liaison Officer
 - Health and Safety Officer
 - Operations Officer
 - Marine Coordinator
 - Aviation Coordinator
 - Shoreline Coordinator
 - Wildlife Coordinator
 - Waste Management Coordinator
 - Planning Officer
 - Response Planning Assistant
 - Situation Coordinator
 - Resource Coordinator
 - Environment Coordinator
 - Consultation and Liaison Coordinator
 - Logistics Officer
 - Supply and Procurement Coordinator
 - Services Coordinator
 - Transport Coordinator
 - Communications Coordinator
 - Medical Manager
 - Staging Area Managers
 - Finance and Administration Officer
 - Administration Coordinator
 - Finance Coordinator
 - Records Coordinator
 - Incident Control Centre (ICC) Manager

1. Introduction

The following response checklists are for key IMT roles for a major response (Tier 2 or Tier 3) controlled by a Government CA. Tier 1 Checklists are provided in Section 0.

In the event of a Tier 2 or Tier 3 response, Apache personnel may be seconded to a variety of roles in an Incident Management Team under the control of an AMSA or Victorian IC . These Checklists should be used to prepare for this contingency.

The distribution of functions and possible response roles for a major response are shown on the following page in Figure E.1. This is based on the Victorian IMT structure under VicPlan.

2. Using the Checklists

These checklists are based on the procedures in VicPlan. However, it should be noted that responsibilities may be modified by the IC during a response. Functions may be combined or divided as required.

Checklists should not be used for functions undertaken outside of the IMT. Some functions, such as media may be undertaken at a number of levels. Personnel fulfilling roles as part of the Apache ERT should consult the Operator's MODU ERP.

The IMT Role Checklists are designed to prompt response personnel through the tasks (or functions) to be undertaken by each of the key roles of the IMT. The IMT Role Checklists may also be used as:

- a log; as each task is completed the time can be noted in the right hand column; and
- a work-order. Tasks can be highlighted and the Checklist given to personnel delegated to complete those tasks.

The IMT Role Checklists should be used in conjunction with a Log Form ([Form WM-05, Ref Appendix G](#)).

Tasks are listed in anticipated sequence through the phases of a spill response. Some of these tasks will not be necessary in certain spill responses.

3. Structure of the Checklists

Each IMT Role Checklist has a short summary of the IMT Role responsibilities.

Tasks are listed in anticipated sequence through the phases of a spill response. Some of these tasks will not be necessary in certain spill responses.

To the right of the task outlines is a column that provides a space for the time of completion of each task to be noted.

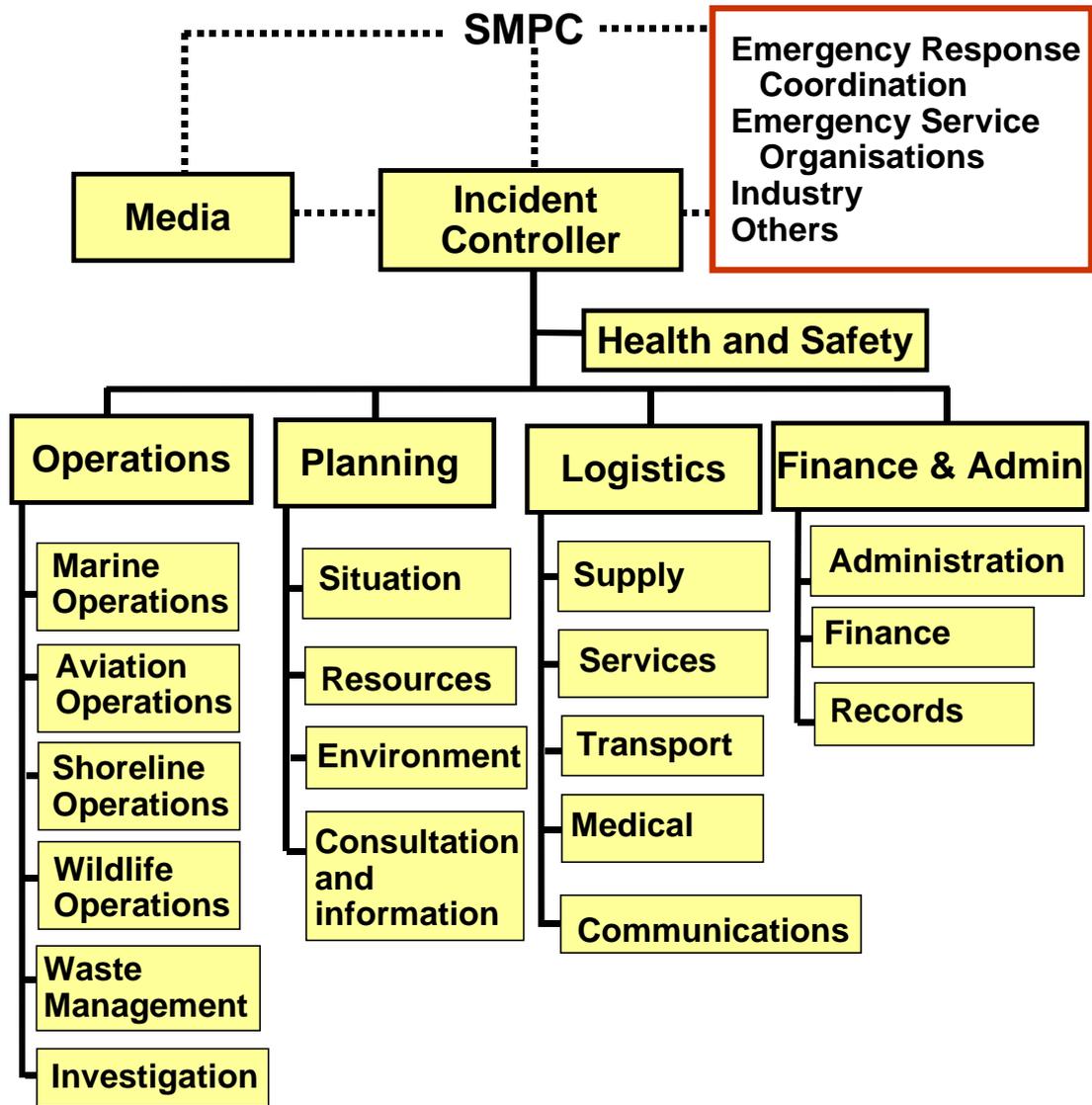
4. Modifying the Checklists

The Checklists should also be reviewed during exercises and after real responses to ensure that they are complete and reflect current response procedures.

Additional checklists should be developed as required, and existing checklists should be modified following exercises and incident responses.

It is the responsibility of all IMT personnel to advise the Incident controller of any required changes.

Figure G.1 Tier 2/3 Emergency Response Organisation Flowchart (from VicPlan)



CHECKLISTA.A		ESTABLISHING THE INCIDENT CONTROL CENTRE (ICC)			
<p>The first IMT member to arrive at the ICC should commence the ICC establishment procedures.</p> <p>Note: Equipment lists and site layout are indicative only. It is recommended that a pack of essential equipment be made up for transportation to ICC or advanced Operations Centres (AOCs). Suggested contents are marked with an '*' in the Checklist. The layout of the ICC will vary according to the room or building used, the scale of the response and the use of AOCs.</p>					
Response Phase		Action		Plan Reference	Status/ Time
ICC Assessment	1	Assess the ICC and note any shortcomings that will need to be addressed (Check items as per lines 2 –12 below) :			
	2	Location.			
	a	Proximity to the scene or staging areas.			
	b	Close to Combat and Support Agencies.			
	c	Accessible to IMT.			
	d	Suitable for radio communications.			
	e	Easy to find.			
	f	Free of noise and other distractions.			
	3	Building Size: Large enough for:			
	a	Existing response personnel.			
	b	ICC equipment.			
	c	Expansion of IMT.			
	4	Ante Rooms.			
	a	Planning room.			
	b	Press area.			
	c	Debriefing area.			
	5	Facilities.			
	a	Water.			
	b	Power.			
	c	Back-up power.			
	d	Washing/toilet facilities.			
	e	Eating area.			
	f	Kitchen facilities.			
	6	Site Size.			
	a	Car parking.			
	b	Space for portable buildings.			
	7	Security.			
	a	Perimeter fence.			

Response Phase		Action	Plan Reference	Status/ Time	
	b	Gates.			
Equipment Assessment	8	Communications.			
		a	Telephone and lines (at least 4).		
		b	Fax lines (at least 2 plus 1 for computer modem).		
		c	Radio receiver (as required).		
		d	Computers with modems (at least 1 modem).		
	9	Information Display.			
		a	Set of laminated Status Boards*		
		b	Set of forms (minimum of 5 sets)*		
	9	c	Regional Maps :		
			i	Nautical charts.	
ii			Topographic maps (2 sets of 1:50,000).		
d		Clear plastic sheets , to cover maps (4m x 1m).			
e		Overhead projector or computer projection equipment.			
f		Whiteboards (2, depending on room layout).			
g		Television.			
h		Video Cassette Recorder/Player (VCR).			
10		Stationary.			
		a	Whiteboard markers (12-24 mixed colours)*.		
		b	Ballpoint pens (60 black, 20 red)*.		
		c	Pencils (20 each of HB, B, 2B)*.		
		d	Rulers (10 x 30cm and 5 x 100cm)*.		
		e	Adhesive tape (10 rolls standard plus 5 rolls of 4cm packaging tape or similar)*.		
		f	Paper clips*.		
		g	Staplers (5) and staples*.		
		h	Manila folders (100)*.		
	i	A4 white paper (2 packs)*.			
	j	A4 Plastic transparent sleeves (200)*.			
	k	Bulldog clips (100 mixed sizes)*.			
	l	A4 spring clip folders/binders (20).			
m	Transparency sheets (50).				
11	Computers (see Communications line 8 also).				
	a	Computers for word processing/record keeping.			
	b	Printers (at least 2).			
12	Administration/ Document Storage.				

Response Phase		Action		Plan Reference	Status/ Time
	a	Photocopier.			
	b	Document (“in” and “out”) trays (12-15).			
	c	Hanging file trays and file folders.			
	13	Check that copy (or copies) of the relevant OSCP are present or are being brought to the ICC.			
	14	Check adequacy of tables and chairs.			
ICC Setup	15	Order and obtain any items needed (lines 8 –12)			
	16	Remove any unnecessary papers/ materials from the ICC.			
	17	Clean white-boards.			
	18	Check connections of telephones, faxes (arrange a test message for each- both in and out).			
	19	Place OSCPs on the table for reference.			
	20	Place white-board pens and erasers at the whiteboards.			
	21	Advise switchboard to direct incoming calls to the ICC.			
	22	Display appropriate Maps, Status Boards and Charts (Cover all with plastic if not laminated).			
	23	Position Electronic Whiteboard and ensure it is operational.			
	24	Locate and label areas for each IMT Section mobilised.			

END ICC CHECKLIST

CHECKLISTA.B		INITIAL PLANNING MEETING & INCIDENT ACTION PLAN SCHEDULE				
<p>The initial planning meeting has two main objectives. The first is to brief key IMT members (Section Officers and Key Managers) on the incident and the response organisation. The second is to develop the Incident Action Plan.</p>						
Phase/ Task		Action		Responsibility	Status/ Time	
Meeting	1	Briefing on situation.		Incident Controller		
		a	Current situation :			
			i		Spill location.	
			ii		Spill size.	
			iii		Control/ Combat Agencies.	
		iv	Response Tier/ resources mobilised.			
		b	Predicted situation :			
			i		Trajectory.	
			ii		Resources at risk/ potential effects.	
	2	State Aim (or Policy) of the Incident Response.				
3	Develop and rank response objectives, based on protection priorities.		Incident Controller, Planning Officer & Operations Officer			
4	Develop Strategies for each Objective.					
5	Identify and obtain any permits required for strategies (e.g. dispersant use).		Planning Officer			
Working Recess	6	Document Aim, Objectives and Strategies (Form IAP 01) i.e. prepare Draft Incident Action Plan.		Planning Officer		
	7	Distribute Draft Incident Action Plan to Section Officers.		Planning Officer		
	8	Develop Tactics for each Strategy.		All Section Officers & Unit Coordinators		
	9	Prepare Sub-Plans :				
		a	Communications Sub-Plan.		Logistics Officer/ Communications Coordinator	
		b	OH&S Sub-Plan.		Incident Safety Officer (or OH&S Coordinator).	
		c	Wildlife Sub-Plan.	Operations Officer/ Wildlife Coord.		
d	Media Sub-Plan.	Media Liaison Officer				
10	Determine need for Advanced Operations centre(s).		Operations Officer & Unit coordinators			

Phase/ Task		Action	Responsibility	Status/ Time
	11	Determine need for, and location of, Staging areas.	Logistics Officer & Operations Officer	
	12	Submit Tactics to Planning Officer.	All Section Officers	
	13	Prepare Incident Action Plan and submit to IC.	Planning Officer	
Reconvened Meeting	14	Present Incident Action Plan.	Planning Officer	
	15	Section Officers to provide revised lists of resource needs.	All Section Officers	
	16	Approve and implement Incident Action Plan.	Incident Controller	
Notes:				

CHECKLISTA.C		PLANNING MEETING SCHEDULE		
Phase/ Task		Action	Primary Responsibility	Status/ Time
Meeting	1	Briefing on situation and resource status.	Planning Officer	
	2	Prepare and present revised Objectives.	Planning Officer	
	3	Select Response Objectives.	Incident Controller	
	4	Develop revised Strategies for each Objective.	Incident Controller	
	5	Identify permits or resources needed for each Strategy.	Operations Officer & Logistics Officer	
	6	Review location of Advanced operations centres and Staging Areas.	Operations Officer & Logistics Officer	
	7	Review provision of facilities, materials and services.	Operations Officer & Logistics Officer	
	8	Review communications requirements.	Logistics Officer	
	9	Review medical requirements.	Logistics Officer	
Working Recess	10	Produce Incident Action Plan and provide to IC and Section Officers.	Planning Officer	
	11	Section Officers to develop tactics for each Strategy.	All Section Officers, Managers & Unit Coordinators	
	12	Section Officers to provide revised lists of resource needs to Logistics Officer and Planning Officer.		
	13	Prepare revised Incident Action Plan and submit to Incident Controller.	Planning Officer	
Reconvened Meeting	14	Approve Incident Action Plan.	Incident Controller	
Post Meeting	15	Produce approved Incident Action Plan.	Planning Officer	
	16	Distribute revised Incident Action Plan.	Planning Officer	
	17	Implement Incident Action Plan.	All	
Notes				

A2.1		INCIDENT CONTROLLER	IC	
<p>The IC is responsible for the management of the incident response and control of the IMT. This extends over all phases of the response from the initial assessment to response termination and demobilisation. It is unlikely that Apache personnel will be seconded to this role. If this does occur it is assumed that the ICC and the Incident Management Team will be established.</p>				
Response Phase	Action		Status/Time	
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to current IC or other nominated officer (eg senior Apache person on site).	
		d	Report arrival and assigned tasks to the current IC, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
Assuming Control	3	Arrive at ICC (if not first reporting location) and log time.		
	4	Review ICC layout.		
	5	Review ERT staffing and establishment IMT/ERT.		
Initial Assessment	6	Obtain details of spill and any actions taken by Apache or other Agency (via POLREP; OSCP Form 001). Check the following:		
		a	Time of initial (this) call.	
		b	Name/title of caller.	
		c	Location of incident.	
		d	Nature of incident.	
		e	Time of incident/incident report.	
		f	Source of the report.	
		g	Volume of oil spilled.	
		h	Type of oil spilled.	
		i	Wind and current data.	
	7	Determine trajectory:		
		a	Manual estimate.	
		b	Commission trajectory computer modelling.	
		8	Determine resources at risk.	
	9	Determine Response Tier, in consultation with the Statutory Agency and Regional. Control Agency.		
	10	If the SMPC is activated (upper Tier 2 or Tier 3) determine the media liaison arrangements, ie the location and reporting of the Media Liaison Unit and Media Liaison Officer.		
	11	Establish communications with RCA and MSV.		
Planning	12	Arrange aerial surveillance (or direct Planning Officer).		
	13	Convene planning meeting:		

		a	Determine Incident Response Aim (Policy).		
		b	Determine Priorities and Objectives.		
		c	Determine Strategies.		
Response	14		Determine preliminary resources list (labour, equipment, transport and other support) and give to Logistics Officer.		
	15		Direct Section Officers to develop Tactics/Methods to implement Strategies.		
	16		Instruct Media Liaison Officer to develop Media Plan.		
	17		Direct Planning Officer to compile Incident Action Plan.		
	19		Monitor the response by scheduling and undertaking regular briefings/debriefings of IMT.		
	20		If necessary call for additional resources:		
		a	Regional MPC/SMPC (Victorian resources).		
		b	AMSA via SMPC (National Plan resources).		
		c	AMOSOC via Apache Authorising Officer or AMSA.		
	21		Issue regular SITREPS:		
		a	SMPC/Manager DPI (MSV).		
		b	DSE.		
		c	AMSA.		
		d	Section Officers.		
		e	Other (log).		
	22		Monitor OH&S performance.		
	23		Monitor waste volumes and management through Operations Officer/Waste Management Coordinator. If necessary arrange for the development of a Waste Management Plan. Confirm that this complies with relevant State standards.		

Response Phase		Action	Status/ Time	
	24	If a Tier 1 or lower Tier 2 response:		
		a	Commission / authorise media statements from Media Liaison Officer.	
		b	Schedule and attend media conferences.	
	25	If an upper Tier 2 or Tier 3 response liaise with SMPC re media.		
	26	If necessary, authorise the use of dispersants; in consultation with the DPI and ESC (see VicPlan).		
	27	Arrange relief for IMT members.		
	28	Continue to monitor slick (position, trajectory, behaviour) through the Planning Officer.		
Response Termination	29	Terminate response on instruction of SA or designated CA.		
	30	Ensure that all IMT members and Agencies are informed of stand-down (issue SITREP).		
	31	Monitor, and ensure a safe and complete demobilisation.		
	32	Debrief IMT.		
Post Response	33	Attend SA/CA debrief if required.		
	34	Ensure that all records are retrieved, collated and stored.		
	35	Provide schedule of costs and supporting documentation to AMSA and MSV.		

A2.1.1		Media Liaison Officer	MLO	
The Media Liaison Officer manages media relations, ie prepares press statements, organises press briefings and supports the IC/SMPC in dealing with media. Refer to the Media Sub-Plan in VicPlan.				
Response Phase	Action		Status/Time	
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to current IC or other nominated officer (eg senior Apache person on site).	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior OV person on site to do so.	
	2	Start Personal Log.		
	3	Attend briefing with IC or SMPC.		
Planning	4	Review the Victorian Media Sub-Plan or Regional Media Sub-Plan and modify if required.		
	5	Prepare, in consultation with the IC or SMPC, a schedule for media releases and conferences.		
Response	6	If located in the ICC, assist in the preparation of SITREPS (OSCP Form 002).		
	7	Monitor media broadcasts and newspapers and advise the IC/SMPC of issues arising.		
	8	Prepare and release (as authorised by the IC/SMPC) regular media bulletins.		
	9	Arrange media conferences or discussion forums as required, and authorised by the IC/SMPC.		
	10	Arrange on site facilities for media representatives through the IC, ICC Manager or other nominated person.		
	11	Arrange field visits for the media.		
	12	Brief IMT members for interviews and attend those interviews if requested.		
	13	Attend regular briefings.		
Post Response	14	Prepare a report on the Media aspects of the response if requested by the IC/SMPC.		
	15	Attend debrief if requested.		

A2.1.2	Health and Safety Officer		HSO	
Usually a Victorian Government or AMSA officer will be responsible for ensuring that safety issues are addressed. The HSO is responsible for the development and implementation of the Occupational Health and Safety Sub-Plan (VicPlan).				
Response Phase	Action		Status/Time	
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to Operations Officer.	
		d	Report arrival and assigned tasks to the IC, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
3	Attend Initial Briefing.			
Response	4	Develop a site Health and Safety Plan.		
	5	Implement Health and Safety induction process for all personnel.		
	6	Ensure that proper OH&S procedures have been implemented for the response.		
	7	Rectify any practices which breach the Health and Safety procedures implemented for the response.		
Response Termination	8	Inform all Health and Safety Unit personnel of response termination.		
	9	Ensure that all Field Teams return safely.		
	10	Attend IC debrief if required.		
	11	Ensure that all equipment is returned to Logistics Section.		
	12	Ensure that all records are given to Operations Officer.		

A2.2		OPERATIONS OFFICER		OO
The Operations Officer is responsible for ensuring that the Objectives and Strategies outlined in the Incident Action Plan are carried out effectively. The Operations Officer is responsible for determining how resources are distributed amongst the units in the Section and for coordinating joint activities.				
Response Phase		Action		Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to IC or other nominated officer (eg senior Apache person on site)	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
3	Attend Initial Briefing.			
Assessment	4	Obtain available data re:		
		a	Weather.	
		b	Tides, currents.	
		c	Topography and shoreline character (from OSRA).	
		d	Environmental sensitivity data (OSRA).	
		e	Spill trajectory (observed or by modelling).	
		f	Oil data (character and behaviour).	
	g	Action taken to date.		
5	In consultation with the IC determine level of response and staffing requirements.			
Establishing Section	6	Determine need for Advance Operations Centre.		
	7	Establish AOC if needed (liaise with IC and Logistics Officer).		
	9	Call in required staff.		
	10	Allocate tasks.		
	11	Brief Section personnel.		
	12	Notify the Planning Section of the names and locations of Section and Unit personnel.		
Planning	13	Attend initial planning meeting with IC and other Section Officers, and record:		
		a	Incident Response Aim (Policy).	
		b	Priorities and Objectives.	

Response Phase	Action		Status/ Time
	c	Strategies.	
	14	Develop and collate Operations Sub-Plan, encompassing:	
	a	Marine Response Sub-Plan.	
	b	Aviation Sub-Plan.	
	c	Shoreline Response Sub-Plan.	
	d	Waste Management Sub-Plan.	
	e	Wildlife Sub-Plan (this should be done by DSE or other Govt. officers).	
	15	Supply Operations Sub-Plans to Planning Officer, as developed and amended.	
	16	For each of the Operational Sub-Plans, advise Logistics Officer and Planning Officer of :	
	a	Equipment needs.	
	b	Labour needs (numbers, training level).	
c	Transport requirements.		
d	Any other needs.		
Response	17	Coordinate and monitor performance of Operations Section Functional Units.	
Response Termination	18	Inform all Operations Section Unit Coordinators of response termination.	
	19	Debrief Operations Unit Coordinators.	
	20	Attend IC debrief.	
	21	Ensure that all Field Teams return safely.	
	22	Ensure that all equipment is returned to Logistics Section.	
	23	Ensure that all records are given to Finance and Administration Officer.	

A2.2.1		Marine Coordinator	MC
The Marine Coordinator is responsible for coordination and direction of all activities undertaken by waterborne craft and equipment.			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Operations Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
3	Attend Initial Briefing.		
Response	4	Develop and update a Marine Sub-Plan to implement the marine response strategies in the Incident Action Plan.	
	5	Calculate marine response equipment/ labour/ transport requirements and request through Operations Officer.	
	6	Obtain regular (daily) data:	
		a Location of slick: aerial surveillance reports.	
		b Condition of the oil (field reports, modelling).	
		c Sea state and weather.	
	7	Prepare work-orders for marine response teams.	
	8	Ensure that Marine Response Teams receive required:	
		a Information; ie Briefings/Inductions/Weather.	
		b Personal protective equipment.	
		c Supplies.	
	9	Monitor activities of non-response craft and request (via Operations Officer) an exclusion zone if necessary.	
10	If permission is given to use dispersants, coordinate vessel based dispersant operations.		
11	Arrange aerial observer support for containment and recovery operations, and for vessel dispersant spraying operations, (with Aviation Coordinator via Operations Officer).		
12	Inform Waste Management Coordinator (via Operations Officer) of anticipated waste volumes and type.		

Response Phase		Action	Status/Time
Response Termination	13	Inform all Marine Unit personnel of response termination.	
	14	Ensure that all Field Teams return safely.	
	15	Debrief Unit Team Leaders.	
	16	Attend Operations Officer debrief if required.	
	17	Ensure that all equipment is returned to Logistics Section.	
	18	Ensure that all records are given to Operations Officer.	

A2.2.2		Aviation Coordinator	AC	
The Aviation Coordinator is responsible for the coordination and direction of all activities undertaken utilising aircraft, eg aerial dispersant spraying, aerial surveillance and transport.				
Response Phase		Action	Status/Time	
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to Operations Officer.	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
	3	Attend Initial Briefing.		
Response	4	Develop and update an Aviation Sub-Plan to implement aviation response strategies in the Incident Action Plan.		
	5	Calculate equipment/labour/transport requirements and request through Operations Officer.		
	6	Obtain data (daily) re:		
		a	Weather.	
		b	Slick location (modelling data).	
	7	Coordinate aerial transport operations as required.		
	8	Coordinate aerial surveillance operations on behalf of the Planning Officer.		
9	Coordinate aerial dispersant operations.			
Response Termination	10	Inform all Aviation Unit personnel of response termination.		
	11	Ensure that all Aircraft and support crew return safely.		
	12	Debrief pilots if required.		
	13	Attend Operations Officer debrief if required.		
	14	Ensure that all equipment is returned to Logistics Section.		
	15	Ensure that all records are given to Operations Officer.		

A2.2.3		Shoreline Coordinator	SC	
The SC is responsible for planning and coordination of shoreline assessment and cleanup activities.				
Response Phase	Action		Status/Time	
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to Operations Officer.	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
	3	Attend Initial Briefing.		
Response	4	Develop and update a Shoreline Sub-Plan to implement the Incident Action Plan and shoreline response strategies.		
	5	Calculate shoreline response equipment/labour/transport requirements and request through Operations Officer.		
	6	Obtain regular (daily) data:		
		a	Location of oil: aerial surveillance reports and Shoreline assessment Team data.	
		b	Condition of the oil (field reports, modelling).	
		c	Sea state and weather.	
	7	Prepare work-orders for shoreline response teams.		
	8	Ensure that Shoreline Teams receive required:		
		a	Information; ie Briefings/ Inductions/ Weather.	
		b	Personal protective equipment.	
		c	Communications equipment (Communications Sub-Plan).	
		d	Supplies.	
	9	Monitor activities of non-response personnel and request (via Operations Officer) security or an exclusion zone if necessary.		
10	If permission is given to use dispersants, ensure that all Health and Safety Sub-Plan procedures are followed.			
11	Coordinate land transport for shoreline cleanup and assessment teams (obtain resources via Logistics Officer).			
12	Coordinate Shoreline Assessment Teams.			
13	Coordinate Shoreline Cleanup Teams.			

Response Phase		Action	Status/Time
Response Termination	14	Inform all Shoreline Unit personnel of response termination.	
	15	Ensure that all Field Teams return safely.	
	16	Debrief Team Leaders if required.	
	17	Attend Operations Officer debrief if required.	
	18	Ensure that all equipment is returned to Logistics Section.	
	19	Ensure that all records are given to Operations Officer.	

A2.2.4	Wildlife Coordinator	WC
Note: This is a State Government role. Apache personnel are unlikely to be assigned this function.		

A2.2.5		Waste Management Coordinator	WMC
The Waste Management Coordinator is responsible for the coordination of the containment, storage, transport and disposal of recovered oil and oily waste. Also instruction in on-site handling, storage and/or separation and treatment.			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Operations Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Develop and update a Waste Management Sub-Plan to support the Incident Action Plan.	
	5	Advise Planning Officer (via Operations Officer) of waste volumes and transport and disposal costs.	
	6	Advise marine and shoreline response field teams on the temporary storage of collected oil.	
	7	Coordinate the transport of oil and oiled debris to central storage, or permanent disposal sites.	
Response Termination	8	Inform all Waste Management Unit personnel of response termination.	
	9	Ensure that all Field Teams return safely.	
	10	Debrief Team Leaders if required.	
	11	Attend Operations Officer debrief if required.	
	12	Ensure that all equipment is returned to Logistics Section.	
	13	Ensure that all records are given to Operations Officer.	

A2.3		PLANNING OFFICER		PO
The Planning Officer is responsible for managing the Planning Section of the IMT. The Planning Section is responsible for the preparation of an Incident Action Plan on behalf of the Incident Controller. It is also responsible for the collation and interpretation of required data.				
Response Phase		Action		Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to IC or other nominated officer (eg senior Apache person on site).	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
3	Attend Initial Briefing.			
Assessment	4	Obtain available data re:		
		a	Weather.	
		b	Tides, currents.	
		c	Topography and shoreline character (from OSRA).	
		d	Environmental sensitivity data (OSRA).	
		e	Spill trajectory (observed or by modelling).	
		f	Oil data (character and behaviour).	
		g	Community issues.	
	h	Action taken to date.		
5	In consultation with the IC determine level of response and staffing requirements.			
Establishing Section	6	Call in required staff (Obtain authority of IC and recruit via, or notify, the Logistics Officer).		
	7	Allocate tasks.		
	8	Verify that the ICC Manager has posted appropriate Status Boards and Maps.		

Response Phase		Action	Status/Time	
Planning	9	Attend initial planning meeting with IC and other Section officers, and record:		
		a	Incident Response Aim (Policy).	
		b	Priorities and Objectives.	
		c	Strategies.	
	10	Distribute draft Incident Action Plan to Section Officers Media Liaison Officer and Advisers.		
	11	Obtain and collate Sub-Plans:		
		a	Communications Sub-Plan from Communications Coordinator, via Logistics Officer.	
		b	Health and Safety Sub-Plan from Health and Safety Officer.	
		c	Operations Sub-Plans from the Operations Officer.	
	12	Present Incident Action Plan to IC for approval and distribute as directed.		
Response	13	Issue regular SITREPS (OSCP Form 002) to the IC for authorisation and despatch.		
	14	Monitor status boards, maps and charts –liaise with ICC Manager.		
	15	Monitor response: Update Incident Action Plan if needed.		
	16	Advise IC of need for Planning Meetings.		
	17	Monitor performance of Planning Section staff.		
Response Termination	18	Inform all Planning Section staff of response termination.		
	19	Debrief Planning Unit coordinators.		
	20	Attend IC debrief.		
	21	Ensure that all records are given to Finance and Administration Officer.		

A2.3.1		Response Planning Assistant	RPA
<p>A Response Planning Assistant may be appointed for major spill responses. The RPA is responsible for documenting, compiling and distributing the Incident Action Plan and for assisting the Situation Coordinator in the monitoring of response activities against stated IAP objectives.</p>			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Planning Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Coordinate the preparation of the Incident Action Plan.	
	5	Schedule and prepare briefing for IMT.	
	6	Maintain minutes and records of IMT meetings.	
	7	Ensure the documentation of all response decisions.	
	8	Monitor achievement of objectives or changes in situation that alter objectives or priorities. Alert the Planning Officer of these.	
Response Termination	9	Inform all Unit staff of response termination.	
	10	Attend Planning Officer debrief.	
	11	Ensure that all records are collated and given to the Planning Officer.	

A2.3.2		Situation Coordinator	SIC	
The Situation Coordinator is responsible for monitoring the progress of the response and keeping the IC informed (via the Planning Officer).				
Response Phase		Action	Status/Time	
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader.	
		b	Proceed to nominated location.	
		c	Report to Planning Officer.	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
	3	Attend Initial Briefing.		
Response	4	Obtain and interpret and supply data and supply to the ICC Manager for update of Status Boards:		
	5	Commission the Oil Spill Trajectory Model and monitor output*.		
	6	Obtain pollution fate and behaviour predictions (ADIOS Model)*.		
	7	Provide mapping and photographic services.		
	8	Issue SITREP (OSCP Form 002).		
Response Termination	9	Inform all Unit staff of response termination.		
	10	Attend Planning Officer debrief.		
	11	Ensure that all records are collated and given to the Planning Officer.		

* These may be provided by the Environment Unit (see A2.3.4).

A2.3.3		Resource Coordinator	RC
The Resource Coordinator is responsible for tracking of the deployment of resources.			
Response Phase	Action		Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Planning Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Maintain information summaries on the types and location of resources deployed in the response.	
	5	Maintain status information of resources (eg deployed, available, en-route, unserviceable).	
	6	Prepare and maintain the incident organisation chart (supply to ICC Manager for display in ICC).	
	7	Monitor rosters for all response personnel (from Section Officers).	
Response Termination	8	Inform all Unit staff of response termination.	
	9	Attend Planning Officer debrief.	
	10	Ensure that all records are collated and given to the Planning Officer.	

A2.3.4		Environment Coordinator		EC
The Environmental Coordinator is responsible for the collection and collation of environment data/ advice eg obtains environmental data from OSRA (via Victorian ESC), AMSA and local sources.				
Response Phase		Action		Status/ Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader.	
		b	Proceed to nominated location.	
		c	Report to Planning Officer.	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
	3	Attend Initial Briefing.		
Response	4	Collect and collate environment and socio-economic resource information using OSRA.		
	5	Rank environmental resources for protection and cleanup.		
	6	Provide advice on the environmental implications of proposed response and clean-up measures.		
	7	Provide advice on temporary and permanent waste management.		
	8	Provide advice on post spill monitoring and resource rehabilitation.		
	9	Coordinate advice from on site environmental specialists.		
Response Termination	10	Inform all Unit staff of response termination.		
	11	Attend Planning Officer debrief.		
	12	Ensure that all records are collated and given to the Planning Officer.		

A2.3.5		Consultation and Liaison Coordinator	CLC
The Consultation and Liaison Coordinator is responsible for community and commercial consultation.			
Response Phase	Action		Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader.	
		b Proceed to nominated location.	
		c Report to Planning Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2 Start Personal Log.		
3 Attend Initial Briefing.			
Response	4	Identify community and commercial groups which may be affected by the incident.	
	5	Develop and implement consultation campaigns specific to the affected community or commercial group.	
	6	Input information developed within the consultation process into response planning.	
Response Termination	7	Inform all Unit staff of response termination.	
	8	Attend Planning Officer debrief.	
	9	Ensure that all records are collated and given to the Planning Officer.	

A2.4		LOGISTICS OFFICER	LO	
<p>The Logistics Officer is responsible for activating and managing the Logistics Section of the IMT. The Logistics Section is responsible for ensuring that the IMT is provided with adequate resources to enable an effective response. This encompasses facilities, services, equipment and materials. The Logistics Officer participates in the development and implementation of the Incident Action Plan.</p>				
Response Phase		Action	Status/Time	
Mobilisation	1	On mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to IC or other nominated officer (eg senior Apache person on site).	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior OV person on site to do so.	
	2	Start Personal Log.		
	3	Attend Initial Briefing.		
Assessment	4	In consultation with the IC determine level of response/staffing needs.		
Establishing Section	5	Call in required staff.		
	6	Allocate work locations and Tasks to Section personnel.		
	7	Notify the Planning Section of the names/locations of personnel.		
	8	Brief Section personnel.		
Planning	9	Attend initial planning meeting with IC and other Section officers and:		
	10	Identify service and support requirements for planned operations.		
	11	Develop a Communications Sub-Plan.		
	12	Develop Logistics Sub-Plan to cover any Logistics Strategies identified in the Incident Action Plan, and submit to the Planning Officer.		
Response	13	Coordinate and process requests for resources.		
	14	Prepare and record all procurement documents and service contracts.		
	15	Liaise with Finance and Administration Officer.		
	16	Establish staging areas, transport, and equipment storage facilities as required.		
	17	Keep the Planning Officer appraised of service and support capabilities.		
	18	Liaise with Planning Officer, plan future service and support requirements.		
	19	Ensure safety and welfare of all Section personnel.		
	20	Maintain a Log of all Section activities.		

Response Phase		Action	Status/Time
	21	Coordinate and monitor performance of Logistics Section.	
Response Termination	22	Inform all Logistics Section Unit Coordinators of termination.	
	23	Debrief Logistics Unit Coordinators.	
	24	Attend IC debrief.	
	25	Ensure that all equipment is returned to Logistics Section.	
	26	Ensure that equipment is cleaned, repaired, returned to owner/supplier.	
	27	Compile final list of consumed, lost or damaged equipment.	
	28	Ensure that all records are given to Finance and Administration Officer.	

A2.4.1		Supply and Procurement Coordinator	SPC
The Supply and Procurement Coordinator is responsible for the location and acquisition of personnel (labour) and equipment for the response. As such, the Supply and Procurement Coordinator will liaise with AMSA EPG, AMOSC and State Government agencies with regard to resources.			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by the Apache Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader.	
		b Proceed to nominated location.	
		c Report to Logistics Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Procure personnel and equipment as directed.	
	5	Provide adequate storage for equipment.	
	6	Delivery of resources.	
Response Termination	7	Inform all Unit members of termination.	
	8	Attend Logistics Officer debrief if required.	
	9	Ensure that all equipment is returned.	
	10	Compile final list of consumed, lost or damaged equipment.	
	11	Ensure that all records are given to Logistics Officer.	

A2.4.2		Services Coordinator	SERC
<p>The Services Coordinator is responsible for the location and acquisition of services for the response. As such, the Services Coordinator will locate predominantly private sector contractors such as catering, accommodation and other personnel support needs.</p>			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site /accommodation and inform ERT Leader.	
		b Proceed to nominated location.	
		c Report to Logistics Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Provide shelters and amenities for response personnel.	
	5	Provide accommodation for all response personnel.	
	6	Provide catering services.	
	7	Provide decontamination facilities for personnel and equipment.	
	8	Provide security for all areas of the response.	
Response Termination	9	Inform all Unit members of termination.	
	10	Attend Logistics Officer debrief if required.	
	11	Ensure that all equipment is returned.	
	12	Compile final list of consumed, lost or damaged equipment.	
	13	Ensure that all records are given to Logistics Officer.	

A2.4.3	Transport Coordinator		TC	
<p>The Transport Coordinator is responsible for the location acquisition and scheduling of aviation, land and sea transport services for the IMT. The Transport Coordinator may need to develop a Transportation Sub-Plan.</p>				
Response Phase	Action		Status/Time	
Mobilisation	1	Upon mobilisation by Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to Logistics Officer.	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
3	Attend Initial Briefing.			
Response	4	Arrange for supply of transport to meet operational requirements.		
	5	Arrange for the supply of fuel.		
	6	Arrange for the maintenance of all forms of transport.		
Response Termination	7	Inform all Unit members of termination.		
	8	Attend Logistics Officer debrief if required.		
	9	Ensure that all equipment is returned.		
	10	Compile final list of consumed, lost or damaged equipment.		
	11	Ensure that all records are given to Logistics Officer.		

A2.4.4		Communications Coordinator	CC
The Communications coordinator is responsible for the preparation of Communications Sub-Plan and for ensuring the provision of communications services and support.			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Logistics Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Develop and maintain a Communications Sub-Plan.	
	5	Acquire and distribute appropriate communications equipment to meet operational requirements.	
	6	Ensure appropriate communications and support facilities as required to meet operational requirements.	
	7	Provide technical support for all response communications.	
Response Termination	8	Attend Logistic Officer debrief if required.	
	9	Ensure that all equipment is returned.	
	10	Compile final list of consumed, lost or damaged equipment.	
	11	Ensure that all records are given to Logistics Officer.	

A2.4.5		Medical Manager	MM
The Medical Manager is responsible for ensuring that medical services are provided for the IMT. This would generally include assistance in the development of the OH&S Sub-Plan and for establishing medical, first aid and ambulance service centres where needed.			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Logistics Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Provide first aid services.	
	5	Provide ambulance services.	
	6	Maintain a record of First Aid/CPR trained personnel.	
Response Termination	7	Attend Logistics Officer debrief if required.	
	8	Compile final list of consumed, lost or damaged equipment.	
	9	Ensure that all records are given to Logistics Officer.	

A2.4.6		Staging Area Managers	SAMS
Staging Area Managers are responsible for the running of Staging Areas. These are generally field facilities that undertake specific functions such as equipment maintenance, storage and deployment .			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Logistics Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Provide check in/out procedures and records for personnel.	
	5	Provide check in/out procedures and records for equipment.	
	6	Refurbish equipment for return or redeployment.	
Response Termination	7	Attend LO debrief if required.	
	8	Ensure that all equipment is returned.	
	9	Compile final list of consumed, lost or damaged equipment.	
	10	Ensure that all records are given to Logistics Officer.	

A2.5		FINANCE AND ADMINISTRATION OFFICER	FAO
The Finance and Administration Officer is responsible for managing the Finance and Administration Section. The Finance and Administration Section is responsible for the provision of administrative services to the IC and the IMT, and for the management of financial (costs) information.			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Incident Controller or other nominated officer (eg senior Apache person on site)	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Assessment	4	In consultation with IC determine response level and staffing needs.	
Establishing Section	5	Call in required staff.	
	6	Allocate work locations and Tasks to Section personnel.	
	7	Notify the Planning Section of names/locations of Section personnel.	
	8	Brief Section personnel.	
Planning	9	Attend initial planning meeting with IC and other Section officers.	
	10	Identify service and support requirements for planned operations.	
	11	Develop Finance and Administration Sub-Plan.	
	12	Ensure that the IC and Section Officers are aware of the administrative arrangements in place.	
Response	13	Log all procurements and, where appropriate, commence payment/cost recovery procedures.	
	14	Overview legal requirements and take action/advise IC as appropriate.	
	15	Review Incident Action Plan on a regular basis and estimate future Section needs.	
	16	Record and process all damage claims.	
	17	Record and process all workers compensation claims.	
	18	Ensure safety and welfare of all Section personnel.	
	19	Maintain a Log of all Section activities for Administrative Support Report.	

Response Phase		Action	Status/Time
	20	Continually monitor expenditure and estimate costs and report these to the Planning Officer.	
	21	Co-ordinate and monitor performance of Operations Section Functional Units. As per A2.5.1 – A2.5.4.	
Response Termination	22	Inform all Finance and Administrations Section Unit Coordinators of response termination.	
	23	Debrief Unit Coordinators.	
	24	Attend IC debrief.	
Post Spill	25	Assist Incident Controller/Drilling Manager in documentation and compilation of insurance claims and other cost recovery.	

A2.5.1		Administration Coordinator	ADMIN C
The Administration Coordinator coordinates administrative services such as telephones, fax, computers, radios (if qualified) and message services.			
Response Phase		Action	Status/ Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Finance and Administration Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Provide staff to undertake administrative services, including:	
		a Communications; telephones, facsimiles radios (qualified personnel only), courier services.	
		b Clerical services; typing.	
Response Termination	5	Inform Unit members of response termination.	
	6	Attend Finance and Administration Officer debrief if required.	
	7	Collate records and give to Finance and Administration Officer.	

A2.5.2		Finance Coordinator	FC
The Finance Coordinator provides accounting and contracting services. the Finance Coordinator is responsible for ensuring that all expenditure is documented and collated and that a running account is available to the Finance and Administration Officer and the IC.			
Response Phase		Action	Status/Time
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:	
		a Arrange travel to site/accommodation and inform ERT Leader of details.	
		b Proceed to nominated location.	
		c Report to Finance and Administration Officer.	
		d Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.	
	3	Attend Initial Briefing.	
Response	4	Administer contracting services.	
	5	Pay all accounts and costs associated with the incident.	
	6	Collate expenditure records for cost recovery.	
Response Termination	7	Inform Unit members of response termination.	
	8	Attend Finance and Administration Officer debrief if required.	
	9	Collate records and give to Finance and Administration Officer.	

A2.5.3		Records Coordinator	RECC	
The Records Coordinator is responsible for the collation and filing of records and forms including, time sheets, equipment use and personnel records.				
Response Phase		Action	Status/Time	
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to Finance and Administration Officer.	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
	3	Attend Initial Briefing.		
Response	4	Collate response personnel time sheets.		
	5	Collate equipment usage records.		
	6	Collate personal records of personnel.		
	7	Implement a records management system for the response.		
Response Termination	8	Inform Unit members of response termination.		
	9	Attend Finance and Administration Officer debrief if required.		
	10	Collate records and give to Finance and Administration Officer.		

A2.5.4	Incident Control Centre (ICC) Manager		ICC M	
Ensures effective operation of the ICC, including management of information transfer of within the ICC, (Status Boards/faxes/messages delivery/ dispatch), administering the meeting schedule, ICC security etc.				
Response Phase		Action	Status/Time	
Mobilisation	1	Upon mobilisation by the Drilling Manager or ERT Leader:		
		a	Arrange travel to site/accommodation and inform ERT Leader of details.	
		b	Proceed to nominated location.	
		c	Report to Finance and Administration Officer.	
		d	Report arrival and assigned tasks to the ERT Leader, or request senior Apache person on site to do so.	
	2	Start Personal Log.		
Records	3	Establish ICC (refer to relevant OSCP).		
	4	Maintain Status Boards.		
	5	Manage information flow within the ICC.		
	6	Administer ICC security.		
Response Termination	7	Inform Unit members of response termination.		
	8	Attend Finance and Administration Officer debrief if required.		
	9	Collate records and give to Finance and Administration Officer.		

APPENDIX H MATERIAL SAFETY DATA SHEETS

Dispersants are hazardous chemicals that must be handled carefully. Spray operators should wear protective clothing; gloves and goggles or masks.

Dispersants also have a degreasing action so all exposed parts of spraying aircraft and the spray booms should be thoroughly washed down after spraying operations.

Material Safety Data Sheets (MSDSs) for the following approved dispersants are attached:

- Ardrox 6120;
- BP-AB;
- Corexit 9500;
- Corexit 9527;
- Corexit 9550;
- Dasic Slickgone NS;
- Shell VDC; and
- Tergo R.40.

F.1 Ardrox 6120



ARDROX

TECHNICAL DATA

PRODUCT	ARDROX 6120	LOW TOXICITY OIL SPILL DISPERSANT CONCENTRATE
DESCRIPTION	<p>Ardrox 6120 is a concentrated blend of biodegradable surfactants which has been formulated to provide efficiency along with low toxicity.</p> <p>Ardrox 6120 does not contain hydrocarbon solvents and the product is soluble in water.</p>	
USES	<p>Ardrox 6120 may be used after dilution with seawater for the dispersion of oil in harbours by spraying from ships, or for use with land based equipment.</p> <p>Ardrox 6120, because of its high activity and concentrated form is ideal for direct application undiluted from aircraft.</p>	
METHOD OF USE	<p>Ardrox 6120 may be diluted with sea water for use, the degree of dilution being dependant on the type and degree of oxidation of the oil. As a guide, Ardrox 6120 can be used successfully at 7½% dilution for use on fresh crude oil, however, concentrations up to 15% may be required for old oil, or heavy fuel oil. The normal concentration used for most situations is 10%.</p> <p>The mixture of oil and dispersant must then be thoroughly mixed by means of surface breakers, water jets or in the tidal zone by wave action.</p> <p>Ardrox 6120 is ideally used in the concentrated form and applied directly onto the oil spill by spray equipment.</p> <p>The activity of Ardrox 6120 is such that as little as 1 part of dispersant may be used to disperse 20 - 30 parts of oil.</p> <p>This method of application is readily achieved from ships or aircraft. The concentrated nature of the product makes application from aircraft a more efficient proposition as a result of the reduced payload and speed of access to the area.</p> <p>Spraying equipment for the application of Ardrox 6120 should produce coarse droplets, atomising sprays should <u>NOT</u> be used.</p>	

EFFECT ON MATERIALS

Ardrox 6120 has little effect on most commonly encountered metals including steel, aluminium and cadmium. It has little effect on good quality paint schemes.

PRECAUTIONS

Avoid contact with the skin and eyes.
Wear protective clothing including gloves and eyeshields.
Avoid ingestion or inhalation of the mist whilst spraying.
In case of contact wash with water. For eyes wash with water and seek medical advice.

TECHNICAL INFORMATION

Appearance:	Mobile, very pale golden yellow liquid.
Density:	1.03 @ 20°C.
Flash Point:	76°C (P.M.C.C.)

These are typical values only and do not constitute a specification.

GENERAL INFORMATION

SureChem Industries market a wide range of surface treatment and cleaning chemicals. Highly trained engineers are available to advise on specific problems.

REF: JS/3/84/1

All reasonable endeavours have been made to ensure that the information contained in this Data Sheet is accurate, but it is submitted on the express condition that, subject to the provisions of the Trade Practices Act and relevant State legislation, all information and recommendations stated herein are given without warranty or condition expressed or implied and SureChem Industries Pty. Limited shall be under no liability whatsoever in respect thereof or for any loss, injury, damage or liability of whatsoever nature howsoever arising, suffered or incurred as a consequence of the use of the above product.



ARDROX

ARDROX IS A REGISTERED TRADE MARK OF BRENT CHEMISTS INTERNATIONAL PLC.

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Surechem Industries Pty. Ltd.
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BLACKTOWN NSW 2148
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PRODUCT: ARDROX 6120	Infosafe No:SSOS3 APPROVED: Feb 94
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UN NO...:None allocated D.G.CLASS:None allocated CAS NO...:None allocated
HAZCHEM...:None allocated SUB. RISK:None allocated SUSDP...:None allocated
G.T.EPG...:None allocated SPEC.EPG...:None allocated PACK. GRP:None allocated

===== PRODUCT IDENTIFICATION =====

CORRECT SHIPPING NAME:

COMBUSTIBLE LIQUID - CLASS C1
Flashpoint 62° - 150°C

OTHER NAMES:

None allocated

TRADE NAMES.:

Ardrox 6120

MANUF.: MANCODE:

SURECHEM

INGREDIENTS:

CHEMICAL ENTITY:	CAS NO:	PROPORTION:
Ethylene glycol monobutyl ether	111-76-2	<20%
Biodegradable surfactants		>60%
Water		to 100%

OTHER INGREDIENT DATA:

CHEMICAL FAMILY: Water based detergent.

PRODUCT TYPE: Oil spill dispersant.

PHYSICAL DESCRIPTION/PROPERTIES

APPEARANCE:

Clear amber liquid.

FORMULA:

Blend of materials.

BOILING POINT.....: >100°C (IBP)

VAPOUR PRESSURE.....: None allocated

SPECIFIC GRAVITY....: 1.03

FLASH POINT.....: 75°C (Closed Cup)

FLAMMABILITY LIMITS: Not known

pH.....: 8.0 - 8.5

FORM.....: Liquid

OTHER PROPERTIES:

Soluble in water.

USE:

Ardrox 6120 may be used after dilution with seawater for the dispersion of oil in harbours by spraying from ships, or for use with land based equipment.

continued on next page...

MATERIAL SAFETY DATA SHEET
continued from previous page....

Page 2

PRODUCT: ARDROX 6120	Infosafe No: 2SOS3 APPROVED: Feb 94
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HEALTH HAZARD INFORMATION

ACUTE EFFECTS

SWALLOWED:

No data supplied.

EYE:

A moderate eye irritant.

SKIN:

Contact with skin will result in mild irritation.

INHALED:

No data supplied.

CHRONIC EFFECTS

Repeated or prolonged skin contact can cause defatting and possible dermatitis.

Prolonged overexposure may cause anaemia and liver and kidney damage.

FIRST AID

SWALLOWED:

If a large amount is swallowed, see a doctor.

EYE:

Flush with water for at least 15 minutes. Seek a doctor if irritant persists.

SKIN:

Remove contaminated clothing and wash before re-use.

Wash skin thoroughly with water.

INHALED:

Remove victim to fresh air.

FIRST AID FACILITIES:

None allocated

ADVICE TO DOCTOR:

No data supplied.

TOXICITY DATA:

Low toxicity. Estimated LD50 is about 3000 mg/kg. Prolonged over exposure may cause anemia and liver and kidney damage.

PRECAUTIONS FOR USE

EXPOSURE STANDARDS:

TLV - TWA 25 ppm (skin) for ethylene glycol monobutyl ether.

ENGINEERING CONTROLS:

Keep upwind from spray mist during use.

PERSONAL PROTECTION:

Wear chemical goggles when pouring or spraying.

Wear rubber or PVC for prolonged handling.

Respirator not required under normal conditions.

Wear industrial overalls and shoes.

continued on next page...

MATERIAL SAFETY DATA SHEET
continued from previous page....

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PRODUCT: ARDROX 6120	Infosafe No:ESOS3 APPROVED: Feb 94
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FLAMMABILITY:

Combustible.

ENVIRONMENT:

No data supplied.

OTHER PRECAUTIONS:

Eye wash facilities should be available.

===== SAFE HANDLING INFORMATION =====

STORAGE AND TRANSPORT:

HANDLING AND STORAGE: Avoid contact with skin and eyes and avoid breathing vapour or spray mist. Store away from strong oxidising agents and foodstuffs.

OTHER PRECAUTIONS: Do not spray or handle in food or beverage containers.

SPILLS AND DISPOSAL:

SPILL OR LEAK PROCEDURES: Large spills should be contained and recovered. Small spills should be washed away with water.

WASTE DISPOSAL METHOD: Contact local Waste Disposal Authority.

EMPTY CONTAINERS: Flush with water before disposal.

FIRE/EXPLOSION HAZARD:

EXTINGUISHING MEDIA: Water spray, alcohol-stable foam, dry chemical.

FIREFIGHTING PROCEDURES: Keep containers cool with water spray.

UNUSUAL FIRE HAZARDS: Incomplete combustion may produce carbon monoxide.

Reactivity Data:

STABILITY: Stable.

CONDITIONS TO AVOID: High temperatures.

MATERIALS TO AVOID: Strong oxidising agents.

HAZARDOUS POLYMERIZATION: Will not occur.

OTHER SAFE HANDLING INFORMATION

Avoid contact with skin and eyes and avoid breathing vapour or spray mist.

===== OTHER INFORMATION =====

REFERENCE:

PREPARED BY: J G Joy

TITLE: Chief Chemist

DATE: 9 October 1990

Contact Point:

Occupational Hygienist: (03) 9270 3307

Occupational Health Officer: (03) 9270 3306

===== APPROVALS =====

APPROVAL.....:005H

Site.....:No defined site.

Use Category...:0001 None specified

continued on next page...

MATERIAL SAFETY DATA SHEET
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PRODUCT: ARDROX 6120	Infosafe No:ESOS3
	APPROVED: Feb 94

Use.....:
First Approval:07/02/95 Expires...:11/12/97
Custodian.....:0001 NONE None Gaundry
Usage Units...: Max Usage.:0
Trial.....: Existing...:Y Monitoring:
Conditions.....:

End: Infosafe printed Material Safety Data Sheet - 17 December 1996

F.2 BP-AB

BP AUSTRALIA LIMITED
MATERIAL SAFETY DATA SHEET
Dispersant A-B

1. IDENTIFICATION OF PRODUCT AND COMPANY

Identification of substance/preparation

Dispersant A-B

Application

Dispersant used in the management of oil spillages.

For specific application advice see appropriate Technical Data Sheet or consult your BP representative.

Company Identification

BP Australia Limited
A.C.N. 004 085 816
Melbourne Central
360 Elizabeth Street
Melbourne
Victoria 3000

Telephone Number

61 3 92684111

Not Hazardous according to criteria of Worksafe Australia.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Composition

A blend of petroleum hydrocarbon compounds distilling below 300 deg C. and biodegradable surfactants.

Kerosine	CAS No.	8008-20-6	> 60%
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Hazardous Components

No component is present at sufficient concentration to require a hazardous classification.

3. HAZARDS IDENTIFICATION

This material is not considered hazardous to health, but should be handled in accordance with good industrial hygiene and safety practices..

4. FIRST-AID MEASURES

Eyes

In case of contact with eyes, hold eyes open and rinse immediately with plenty of water. See a doctor if irritation persists.

Sheet No: 036833 Date: 02/01/95 Revision of Sheet Dated: 02/02/94 Name of Product: Dispersant A-B

Page: 1

Skin

After contact with skin, thoroughly soak contaminated clothing with water before removal and then, after removal, wash skin thoroughly.

Ingestion

If swallowed, do not induce vomiting, give a glass of water and contact a doctor or the Poisons Information Centre immediately.

Inhalation

If inhaled, remove from contaminated area. Apply artificial respiration if not breathing. Get to a doctor or hospital quickly.

Medical Advice

Product can be aspirated on swallowing or following regurgitation of stomach contents, and can cause severe and potentially fatal chemical pneumonitis, which will require urgent treatment. Because of the risk of aspiration, induction of vomiting and gastric lavage should be avoided. Gastric lavage should be undertaken only after endotracheal intubation. Monitor for cardiac dysrhythmias.

5. FIRE-FIGHTING MEASURES

For major fires, call the Fire Brigade immediately. Ensure an escape path is always available from any fire. There is a risk of flashback if sparks or hot surfaces ignite vapour.

In case of fire use foam, dry chemical, carbon dioxide, vaporising liquid or water delivered as a fine spray.

FIRES IN CONFINED SPACES SHOULD BE DEALT WITH BY TRAINED PERSONNEL WEARING APPROVED BREATHING APPARATUS.

Water may be used to cool nearby heat exposed areas/objects/packages. Avoid spraying directly into storage containers because of the danger of boil-over.

Combustion Products

Toxic fumes may be evolved on burning or exposure to heat.

See Stability and Reactivity, Section 10 of this Material Safety Data Sheet.

6. ACCIDENTAL RELEASE MEASURES

Any spillage should be regarded as a potential fire risk.

Isolate the spillage from all ignition sources including road traffic.

Ensure good ventilation

Evacuate all non-essential personnel from the immediate area.

Wear protective equipment. (See Exposure Controls/Personal Protection, Section 8 of this Material Safety Data Sheet for details)

Contain and recover liquid using sand or other suitable inert absorbent material.

It is advised that stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage which may be reasonably anticipated.

Spilled material may make surfaces slippery. Clean up spilled material immediately.

Recovery of large spillages should be effected by specialist personnel.

Protect drains from potential spills to minimise contamination

Do not wash product into drainage system.

Large and uncontained spillages should be smothered in foam to reduce the risk of ignition.

The foam blanket should be maintained until the area is declared safe.

Vapour is heavier than air and may travel to remote sources of ignition (eg. along drainage systems, in basements, etc.).

If spillage has occurred in a confined space, ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry.

Protect environmentally sensitive areas and water supplies.

7. HANDLING AND STORAGE

Handling Precautions

Ensure good ventilation and avoid, as far as reasonably practicable, the inhalation and contact with vapours, mists or fumes which may be generated during use. If such vapour, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practicable level.

Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate.

Avoid skin contact. Recommend using long sleeved gauntlets for cleaning up operations. Good working practices, high standards of personal hygiene and plant cleanliness must be maintained at all times.

Do not sip or suck product by mouth.

Whilst using, do not eat, drink or smoke. Wash hands thoroughly after contact.

Use disposable cloths and discard when soiled. Do not put soiled cloths into pockets.

Take all necessary precautions against accidental spillage into soil or water.

Fire Prevention

Light hydrocarbon vapours can build up in the headspace of tanks. These can cause flammability/explosion hazards, even at temperatures below the normal flash point. Tank headspaces should always be regarded as potentially flammable and care should be taken to avoid static electric discharge and all ignition sources during filling, ullaging and sampling from storage tanks. Ensure equipment used is properly earthed or bonded to the tank structure.

Will present a flammability hazard if heated above the flash point but bulk liquids at normal storage temperatures present a low fire hazard.

If liquid contacts hot surfaces, or leaks from high pressure fuel pipes, the vapour and/or mists generated will create a flammability or explosion hazard.

Product soaked rags, paper or material used to absorb spillages, represent a fire hazard and should not be allowed to accumulate. Dispose of safely after use. Empty containers represent a fire hazard as they may contain remaining flammable product. Do not weld, heat or drill the container. Heating may cause an explosion.

Storage Conditions.

Store and dispense only in well ventilated areas away from heat and sources of ignition.

Store and use only in equipment/containers designed for use with the product.

Containers must be properly labelled and kept closed when not in use.

Do not remove warning labels from containers. Empty packages may retain residual product; retain hazard warning labels on empty packages as a guide to their safe handling, storage and disposal.

Do not enter storage tanks without breathing apparatus unless the tank has been well ventilated and the tank atmosphere has been shown to contain hydrocarbon vapour concentrations below 1% of the lower flammability limit and an oxygen concentration of at least 20% by volume.

Always have sufficient personnel standing by outside the tank with appropriate breathing apparatus and equipment to effect a quick rescue.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits

Ensure good ventilation.

Avoid, as far as reasonably practicable, inhalation of vapour, mists or fumes generated during use.

If vapour, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practicable level.

Protective Clothing

Wear face visor or goggles in circumstances where eye contact can accidentally occur.
If skin contact is likely, wear impervious protective clothing and/or gloves. Recommend the use of long sleeved gaunlets for clean up operations.
Change heavily contaminated clothing as soon as reasonably practicable and launder before re-use. Wash any contaminated underlying skin with soap and water.

Respiratory Protection

Respiratory protection is normally unnecessary, provided the concentration of vapour, mists or fumes is adequately controlled. If operations are such that the excessive generation and inhalation of vapour mist or fume may be anticipated, then suitable approved respiratory equipment should be worn. The use of respiratory equipment must be strictly in accordance with the manufacturers' instructions and any statutory requirements governing its selection and use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical Values

Grades: Dispersant A-B

	Test Method	Units	
Physical State			Mobile Liquid
Colour			Colourless
Odour			Mild
Density @15°C	ASTM D 1298	kg/L	0.853
Boiling Point/Range	ASTM D 86	°C	180 - 245
Vapour Pressure @20°C	ASTM D 323	kPa	68
Flash Point (PMC)	ASTM D 93	°C	< 0.1

10. STABILITY AND REACTIVITY

Conditions to Avoid

Products of this type are stable and unlikely to react in a hazardous manner under normal conditions of use.

Hazardous polymerisation reactions will not occur. This material is combustible.

Materials to Avoid

Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition can produce a variety of compounds, the precise nature of which will depend on the decomposition conditions.

Incomplete combustion/ thermal decomposition will generate smoke, carbon dioxide and hazardous gases, which will include carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Eyes

Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.

Skin

Unlikely to cause harm to the skin on brief or occasional contact but prolonged or repeated exposure may lead to dermatitis.

Ingestion

Unlikely to cause harm if accidentally swallowed in small doses, though larger quantities may cause nausea and diarrhoea.

Inhalation

May cause irritation to eyes, nose and throat due to exposure to high concentrations of vapour, mists or fumes.

12. ECOLOGICAL INFORMATION**Mobility**

Spillages may penetrate the soil causing ground water contamination

Persistence and degradability

This product is inherently biodegradable.

Bioaccumulative potential

There is no evidence to suggest bioaccumulation will occur.

Aquatic toxicity

May be harmful to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

Incineration may be carried out under controlled conditions provided that local regulations for emissions are met.

Where possible, arrange for product to be recycled.

Dispose of product and container carefully and responsibly. Do not dispose of near ponds, ditches, down drains or onto soil.

Empty packages may contain some remaining product. Hazard warning labels are a guide to the safe handling of empty packages and should not be removed.

14. TRANSPORT INFORMATION

Not classified as hazardous for transport (ADG, UN, IATA/ICAO).

Classified as a Combustible Liquid C1, AS 1940-1993

15. REGULATORY INFORMATION**SUSDP**

S5 If swallowed, do not induce vomiting, give a glass of water and contact a doctor or Poisons Information Centre immediately.

Not classified as a hazardous substance using the Worksafe Australia criteria.

Classified as a Scheduled 5 (S5) Poison using the criteria in the Standard Uniform Schedule for Drugs and Poisons.

16. OTHER INFORMATION

Compiled by:
Health, Safety, Environment and Security Division,
BP Australia Limited,
A.C.N. 004 085 615
Melbourne Central
360 Elizabeth Street,
Melbourne, 3000
Victoria

This data sheet and the health, safety and environmental information it contains is considered to be accurate as of the date specified below. We have reviewed any information contained herein which we received from sources outside the BP Group of Companies. However, no warranty or representation, express or implied is made as to the accuracy or completeness of the data and information contained in this data sheet.

Health and safety precautions and environmental advice noted in this data sheet may not be accurate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission, recommendation or authorization given or implied to practise any patented invention without a valid licence. The BP Group shall not be responsible for any damage or injury resulting from abnormal use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material.

F.3 Corexit 9500



NALCO/EXXON ENERGY CHEMICALS, L. P.
P.O. Box 87, Sugar Land, Tx 77487 281-263-7000

PRODUCT: EC9500A

FAX MSDS NO: 09500.

PAGE: 1 of 8
DATE PREPARED: 06/10/97

SECTION 1. CHEMICAL PRODUCT IDENTIFICATION

TRADE NAME: EC9500A COREXIT 9500

DESCRIPTION: A blend of oxyalkylates in a light hydrocarbon carrier

NFPA 704M/EMIS RATING 1/1 HEALTH 2/2 FLAMMABILITY 0/0 REACTIVITY 0 OTHER
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

NALCO/EXXON ENERGY CHEMICALS, L.P.
P.O. BOX 87, Sugar Land, Texas 77487-0087

EMERGENCY TELEPHONE NUMBER: (24 Hours) (800) IM ALERT
NON EMERGENCY TELEPHONE NUMBERS : (8am-5pm M-F)
FOR HEALTH AND SAFETY INFORMATION CALL : (281) 263-7000
FOR GENERAL PRODUCT INFORMATION CALL : (281) 263-7000

SECTION 2. COMPOSITION / INGREDIENT INFORMATION

Our hazard evaluation has identified the following chemical ingredient(s) as hazardous under OSEA's Hazard Communication Rule, 29 CFR 1910.1200. Consult Section 15 for the nature of the hazard(s).

INGREDIENT(S)	CAS #	APPROX.%
Hydrotreated light distillate	64742-47-8	20-40

SECTION 3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! Combustible. May cause irritation to skin and eyes. Prolonged inhalation of vapor may be harmful. Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated breathing of vapor. Use with adequate ventilation. Do not take internally. Keep away from heat and open flame. Keep container closed when not in use.

Empty containers may contain residual product. Do not reuse container unless properly reconditioned.

PRIMARY ROUTE(S) OF EXPOSURE: Eye, Skin, Inhalation

EYE CONTACT: Can cause mild, short-lasting irritation.

SKIN CONTACT: May cause irritation with prolonged contact.

SYMPTOMS OF EXPOSURE:



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ACUTE: Inhalation of high concentrations of hydrotreated light distillate can cause nausea, dizziness, vomiting, stupor or unconsciousness.

CHRONIC: Prolonged skin contact with hydrotreated light distillate can cause dry skin and defatting resulting in irritation and dermatitis.

AGGRAVATION OF EXISTING CONDITIONS: A review of available data does not identify any worsening of existing conditions.

SECTION 4. FIRST AID INFORMATION

EYES: Flush with water for 15 minutes. Call a physician.
SKIN: Wash thoroughly with soap and rinse with water. Call a physician.
INGESTION: Do not induce vomiting. Give water. Call a physician.
INHALATION: Remove to fresh air. Treat symptoms. Call a physician.

NOTE TO PHYSICIAN: Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.

SECTION 5. FIRE FIGHTING MEASURES

FLASH POINT: 176 Degrees F (PMCC) ASTM D-93

EXTINGUISHING MEDIA: Based on the NFPA guide, use dry chemical, foam, carbon dioxide or other extinguishing agent suitable for Class B fires. Use water to cool containers exposed to fire. For large fires, use water spray or fog, thoroughly drenching the burning material.

UNUSUAL FIRE AND EXPLOSION HAZARD: May evolve SO_x under fire conditions.

SECTION 6. ACCIDENTAL RELEASE MEASURES

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (800) I-M-ALERT or (800) 462-5378.

SPILL CONTROL AND RECOVERY:

Small liquid spills: Contain with absorbent material, such as clay, soil or any commercially available absorbent. Shovel reclaimed liquid and absorbent into recovery or salvage drums for disposal. Refer to CERCLA in Section 15.

Large liquid spills: Dike to prevent further movement and reclaim into recovery or salvage drums or tank truck for disposal. Refer to CERCLA in Section 15.

For large indoor spills, evacuate employees and ventilate area. Those responsible for control and recovery should wear the protective equipment



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FAX MSDS NO: 09500.

PAGE: 3 of 8
DATE PREPARED: 06/10/97

specified in Section 8 .

SECTION 7. HANDLING AND STORAGE

Storage : Keep container closed when not in use.

SECTION 8. EXPOSURE CONTROLS /PERSONAL PROTECTION

RESPIRATORY PROTECTION: Respiratory protection is not normally needed since the volatility and toxicity are low. If significant mists are generated, use either a chemical cartridge respirator with a dust/mist prefilter or supplied air.

For large spills, entry into large tanks, vessels or enclosed small spaces with inadequate ventilation, a positive pressure, self-contained breathing apparatus is recommended.

VENTILATION: General ventilation is recommended.

PROTECTIVE EQUIPMENT: Use impermeable gloves and chemical splash goggles when attaching feeding equipment, doing maintenance or handling product. Examples of impermeable gloves available on the market are neoprene, nitrile, PVC, natural rubber, viton and butyl (compatibility studies have not been performed).

The availability of an eye wash fountain and safety shower is recommended.

If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

COLOR:	Clear to slightly hazy amber	
FORM:	Liquid	
ODOR:	Hydrocarbon	
SOLUBILITY IN WATER:	Completely	
SPECIFIC GRAVITY:	0.95 @ 60 Degrees F	ASTM D-1298
VISCOSITY:	177 cst @ 32 Degrees F, 70 cst @ 60 Degrees F, 27 cst @ 100 Degrees F	
POUR POINT:	Less than -71 Degrees F	ASTM D-97
BOILING POINT:	296 Degrees F @ 760 mm Hg	ASTM D-86
FLASH POINT:	176 Degrees F (PMCC)	ASTM D-93
VAPOR PRESSURE:	15.5 mm Hg (0.3 ps8) @ 100 Degrees F	ASTM D-323

NOTE: These physical properties are typical values for this product.

SECTION 10. STABILITY AND REACTIVITY

INCOMPATIBILITY: Avoid water contamination which may cause gelling.

Avoid contact with strong oxidizers (eg. chlorine, peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates) which can



NALCO/EXXON ENERGY CHEMICALS, L. P.
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generate heat, fires, explosions and the release of toxic fumes.

THERMAL DECOMPOSITION PRODUCTS: In the event of combustion CO, CO₂, SO_x, may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.

SECTION 11. TOXICOLOGICAL INFORMATION

TOXICITY STUDIES: No toxicity studies have been conducted on this product.

SECTION 12. ECOLOGICAL INFORMATION

If released into the environment, see CERCLA in Section 15.

SECTION 13. DISPOSAL CONSIDERATIONS

DISPOSAL: If this product becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous liquid waste, it should be solidified with stabilizing agents (such as sand, fly ash, or cement) so that no free liquid remains before disposal to an industrial waste landfill. A non-hazardous liquid waste can also be incinerated in accordance with local, state and federal regulations.

SECTION 14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME/HAZARD CLASS MAY VARY BY PACKAGING, PROPERTIES, AND MODE OF TRANSPORTATION. THIS PRODUCT IS REGULATED IN THE U.S. ONLY WHEN SHIPPED IN CONTAINERS EXCEEDING 119 GALLONS OR 882 POUNDS CAPACITY OR WHEN THE PACKAGE EXCEEDS THE REPORTABLE QUANTITY. TYPICAL PROPER SHIPPING NAMES FOR THIS PRODUCT ARE:

ALL TRANSPORTATION MODES : COMBUSTIBLE LIQUID, N.O.S.
(UNLESS SPECIFIED BELOW)

AIR TRANSPORTATION : PRODUCT IS NOT REGULATED
(IATA/ICAO) DURING TRANSPORTATION

MARINE TRANSPORTATION : PRODUCT IS NOT REGULATED
(IMDG/IMO) DURING TRANSPORTATION

UN/ID NO : NA 1993
HAZARD CLASS - PRIMARY : 3 - COMBUSTIBLE LIQUID
PACKING GROUP : III
IMDG PAGE NO : N/A
IATA PACKING INSTRUCTION : CARGO: N/A
IATA CARGO AIRCRAFT LIMIT : NO LIMIT (MAX NET QUANTITY PER PACKAGE)
FLASH POINT : 176 F 80.0 C
TECHNICAL NAME(S) : HYDROCARBON SOLVENT



NALCO/EXXON ENERGY CHEMICALS, L. P.
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RQ LBS (PER PACKAGE) : NONE
RQ COMPONENT(S) : NONE

SECTION 15. REGULATORY INFORMATION

The following regulations apply to this product.

FEDERAL REGULATIONS:

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:
Based on our hazard evaluation, the following ingredient in this product is hazardous and the reason is shown below.

Hydrotreated light distillate - skin irritant

Hydrotreated light distillate = TWA 5 mg/m3 ACGIH/TLV

Hydrotreated light distillate = TWA 5 mg/m3,
STEL 10 mg/m3, OSHA/PEL

CERCLA/SUPERFUND, 40 CFR 117, 302:
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986
(TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):
This product does not contain ingredients listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 and 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370):
Our hazard evaluation has found this product to be hazardous. The product should be reported under the following EPA hazard categories:

XX Immediate (acute) health hazard
-- Delayed (chronic) health hazard
XX Fire hazard
-- Sudden release of pressure hazard
-- Reactive hazard

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):



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This product does not contain ingredients on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

The chemical ingredients in this product are on the 8(b) Inventory List (40 CFR 710).

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:
Consult Section 13 for RCRA classification.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15/ formerly Sec. 307, 40 CFR 116/formerly Sec. 311:
None of the ingredients are specifically listed.

CLEAN AIR ACT, Sec. 111 (40 CFR 60), Sec. 112 (40 CFR 61, 1990 Amendments), Sec. 611 (40 CFR 82, CLASS I and II Ozone depleting substances):
This product does not contain ingredients covered by the Clean Air Act.

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:

This product does not contain any chemicals which require warning under California Proposition 65.

MICHIGAN CRITICAL MATERIALS:

This product does not contain ingredients listed on the Michigan Critical Materials Register.

STATE RIGHT TO KNOW LAWS:

This product does not contain ingredients listed by State Right To Know Laws.

INTERNATIONAL REGULATIONS:

This is a WHMIS controlled product under The House of Commons of Canada Bill C-70 (Class D2B). The product contains the following substance(s), from the Ingredient Disclosure List or has been evaluated based on its toxicological properties, to contain the following hazardous ingredient(s):

Chemical Name	CAS #	% Concentration Range
Hydrotreated light distillate	64742-47-8	20-40

SECTION 16. OTHER INFORMATION

Nalco internal number F103745

SECTION 17. RISK CHARACTERIZATION

Our Risk Characterization is being determined.



NALCO/EXXON ENERGY CHEMICALS, L. P.
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PRODUCT: EC9500A

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This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

SECTION 18. REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (CD-ROM version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (CD-ROM version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA).

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, Ohio (CD-ROM version), Micromedex, Inc., Englewood, CO.

Shepard's Catalog of Teratogenic Agents (CD-ROM version), Micromedex, Inc., Englewood, CO.

Suspect Chemicals Sourcebook (a guide to industrial chemicals covered under major regulatory and advisory programs), Roytech Publications (a Division of Ariel Corporation), Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, Washington (CD-ROM version), Micromedex, Inc., Englewood, CO.



NALCO/EXXON ENERGY CHEMICALS, L. P.
P.O. Box 87, Sugar Land, Tx 77487 281-263-7000

PRODUCT: EC9500A

FAX MSDS NO: 09500.

PAGE: 8 of 8
DATE PREPARED: 06/10/97

PREPARED BY: William S. Utley, PhD., DABT, Manager, Product Safety

F.4 Corexit 9527

Material Safety Data Sheet

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Infosafe No. 8AD3P Issue Date: June 1998 ISSUED by NALCOEXX
Product Name: EC9527A

Hazardous according to criteria of Worksafe Australia

COMPANY DETAILS

Company Name NALCO/EXXON ENERGY CHEMICALS AUSTRALIA PTY LTD (ACN 066 174 927)
Address Level 29, 221 St Georges Terrace PERTH WA 6000
Tel/Fax Ph: (61) 8-9480-3774 Fax: (61) 8-9321-6392

IDENTIFICATION

Product Name EC9527A
Proper Shipping Name None Allocated
Other Names Name Mancode
Corexit 9527
UN Number None Allocated
DG Class None Allocated
Packing Group None Allocated
Hazchem Code None Allocated
Poisons Schedule S6
Product Use Dispersant.

Physical Data

Appearance Clear yellow/amber liquid.
Melting Point No data
Boiling Point 171°C (3BP)
Vapour Pressure (pascals or mm of Hg @ 25°C): <5 mmHg at 40°C
Specific Gravity 0.98 - 1.01
Flash Point 73°C (Seta CC)
Flamm. Limit LEL Not applicable
Flamm. Limit UEL Not applicable
Solubility in Water Dispersible

Other Properties

pH Value No data
Materials to Avoid Avoid contact with strong oxidisers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates) which can generate heat, fires, explosions and the release of toxic fumes. Avoid contact with strong acids (e.g. sulphuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) which generate heat, splattering or boiling and the release of toxic fumes.

Ingredients

Ingredients	Name	CAS	Proportion
	Oxyalkylated Aliphatic Esters		30-60%
	2 butoxy ethanol	111-76-2	30-60%
	Salt of a Aliphatic Ester		10-30%
	Other ingredients determined not to be hazardous, including water		(To 100%)

HEALTH HAZARD INFORMATION

Material Safety Data Sheet

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Infosafe No. 8AD3P
Product Name: EC9527A

Issue Date: June 1998

ISSUED by NALCOEXX

Hazardous according to criteria of Worksafe Australia

Health Effects

Acute - Swallowed Harmful if swallowed. Ingestion of large quantities may cause irritation of the gastrointestinal tract.

Acute - Eye Causes eye irritation by direct contact.

Acute - Skin Harmful in contact with skin. Causes skin irritation by direct contact and may decrease the skin. Can be absorbed through the skin with resultant toxic effects.

Acute - Inhaled Harmful by inhalation. High concentrations of mist or spray may cause irritation to the eyes and respiratory tract.

Chronic Prolonged and repeated contact could result in liver, kidney, blood and central nervous system disorders. See also OTHER INFORMATION (TOXICITY).

First Aid

Swallowed Do NOT induce vomiting. Give water. If vomiting occurs, give more water to drink. Call a physician.

Eye Immediately flush eyes with large amounts of water for at least fifteen (15) minutes and report to First Aid.

Skin Remove contaminated clothing. Wash skin well with water and finally with soap and water. Launder contaminated clothing before reuse.

Inhaled Remove to fresh air. Treat symptoms.

First Aid Facilities The availability of an eye wash fountain and safety shower is recommended.

Other Information As with any chemical, ingestion, inhalation and prolonged or repeated skin contact should be avoided by good occupational work practice.

Advice to Doctor

Advice to Doctor Treat symptomatically.

Other Health Hazard Information

PRECAUTIONS FOR USE

Exposure Limits Not established for the product. The following component has been assigned an exposure standard by Worksafe Australia (Exposure Standards for Atmospheric Contaminants in the Occupational Environment, 1995):

2-butoxy ethanol TWA: 25 ppm, (121 mg/cubic m.). Skin notation.

Eng. Controls General ventilation is recommended. Additionally, local exhaust ventilation is recommended where significant vapours or mists may be generated.

Personal Protection

Protective Equip. Use safety goggles, glasses or face shield and rubber/PVC gloves. If an inhalation risk exists wear an organic vapour respirator selected and used in accordance with AS1715 and AS1716.

Flammability

Fire Hazards Combustible liquid. Avoid ignition sources. Use proper earthing procedures. Empty containers should be properly drained and reconditioned/disposed.

SAFE HANDLING INFORMATION

Material Safety Data Sheet

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Infosafe No. 8AD3P Issue Date: June 1998 ISSUED by NALCOEXX
Product Name: EC9527A

Hazardous according to criteria of Worksafe Australia

Storage and Transport

Storage Precautions Store in a cool dry place. Keep container closed when not in use. This material is a Scheduled Poison and must be stored, maintained and used in accordance with the relevant regulations.

Transport This product is classified as a combustible liquid and is not regulated for transport unless transported in bulk aboard a vehicle at the same time as Class 3 dangerous goods. Refer to the Australian Code for the Transport of Dangerous Goods by Road and Rail for specific details.

Proper Shipping Name None Allocated

EPG Number N/A

IERG Number N/A

Spills and Disposal

Spills & Leaks May be slippery when spilt. Wear protective equipment as outlined in Section PERSONAL PROTECTION.

LAND SPILL: Contain with inert absorbent material (e.g. sand, commercial absorbent). Transfer to suitable container for disposal. Flush spillage area with water to remove residue.

WATER SPILL: Notify relevant authority and keep public away. Hose over area to effect dilution. Dispose of in accordance with Government regulations. Keep out of natural waterways.

Fire/Explosion Hazard

Fire/Explos. Hazard Combustible liquid. Use water to cool drums in an area involved in a fire situation. Shut off fuel to fire. Avoid spraying water directly into storage containers due to danger of boilovers. Use self contained breathing apparatus if material is involved in a fire situation.

Hazardous Decomposition or Byproducts Decomposition products of combustion may include oxides of carbon, sulphur and nitrogen.

Extinguishing Media Use water fog, foam, carbon dioxide or dry chemical powder extinguishers.

Hazchem Code None Allocated

OTHER INFORMATION

Toxicology COMPONENT TOXICITY: 2-Butoxyethanol.

Oral LD50 (rat): 530-3000 mg/kg (1)*.
Oral LD50 (mouse): 1230 mg/kg.
Dermal LD50 (rabbit): 100-500 mg/kg (1)*.
Inhalation LC50 (rat): 450-490 ppm/4 H (1).

*: Studies indicate older animals are more susceptible to haemolytic effects than younger animals. This may contribute to the large variation observed in oral and dermal LD50 values.

Early deaths in animals from high doses of 2-butoxyethanol have been attributed to narcosis while delayed deaths were attributed to lung and kidney damage which was probably secondary to haemolysis. (1)

Long-term exposure to 2-butoxyethanol can cause blood changes, including anaemia, in rats. Both 2-butoxyethanol and its metabolite, butoxyacetic acid, can cause breakdown of red blood cells, however, in vitro and in vivo tests have shown that human red blood cells are comparatively insensitive to this

Material Safety Data Sheet

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Infosafe No. 8AD3P
Product Name: EC9527A

Issue Date: June 1998

ISSUED by NALCOEXX

Hazardous according to criteria of Worksafe Australia

effect. (1)

Animals studies have shown that exposure to 2-butoxyethanol, during pregnancy, produced no selective teratogenic effects in the offspring. In the rat, fetotoxic effects were only observed at concentrations that also produced maternal toxicity (ie. 200 ppm). Also, 2-butoxyethanol did not produce testicular atrophy in male rats. (1)

Environ. Protection

Not genotoxic in a range of in vitro studies. (1).

COMPONENT TOXICITY: 2-butoxyethanol.

ENVIRONMENTAL IMPACT:

AQUATIC TOXICITY:

24 hour LC50 (goldfish): 1650 mg/L.

7 day LC50 (guppy): 983 ppm.

48 hour LC50 (brown shrimp): 800 mg/L.

WATER POLLUTION FACTORS:

BOD (Biochemical Oxygen Demand): 0.71

COD (Chemical Oxygen Demand): 2.20

CONTACT POINT

Contact

PERTH OFFICE:

TELEPHONE (08)9480 3774

FAX: (08)9321 6392

24 HOUR EMERGENCY RESPONSE: 1800 638 556

...End of Report...

F.5 Corexit 9550



NALCO/EXXON ENERGY CHEMICALS AUSTRALIA PTY. LTD.
A.C.N. 066 174 927

226 York Street,
Sale, Victoria 3850
Tel: (051) 43 1981 Fax: (051) 44 2912

PROVISIONAL

Page 1 of 5

PRODUCT: COREXIT 9550

PRODUCT IDENTIFICATION

Trade Names:	Manuf	Mancode	Other Names
COREXIT 9550	Exxon		None
UN No:	Not regulated	Hazchem Code:	3Y
DG Class:	Not regulated	Poisons Schedule:	S5
Packaging Group:	Not regulated	EPG:	Not regulated
Subsidiary Risk:	Not regulated		

Use: Oil Spill Dispersant

PHYSICAL DESCRIPTION/PROPERTIES

Appearance:	Amber liquid.
Boiling Pt (°C):	178 (IBP, calc)
Vapour Pressure:	Not available
Specific gravity:	0.95 (15.5°C)
Flash Point:	>110°C (Tag CC)
Flammability Limits (%):	LEL: 1.0 UEL: 7.0
Solubility in Water:	Soluble
Autoignition temperature:	Not available
Specific Gravity of vapour	3.04 (calc) at 1 atm (air=1)
pH:	6.4
Viscosity (cSt)	27 (38°C) 11 (66°C)
Evaporation rate	1.1 (calc, n-Bu Acetate = 1)

INGREDIENTS

Chemical Entity	CAS No	Proportion
Hydrocarbons	90622-58-5	10-<30%
Alkylated dipropylene glycol	29911-28-2	10-<30%
Ethoxylated alkyl surfactants		10-<30%
Carboxylic acid salt		10-<30%

Continued .../2

PRODUCT: COREXIT 9550

**HEALTH HAZARD INFORMATION
ACUTE EFFECTS**

- Swallowed: Minimal toxicity.
- Eyes: Irritating; will injure eye tissue if not promptly removed.
- Skin: Frequent or prolonged contact may irritate and cause dermatitis.
- Inhaled: Vapours and/or aerosols which may be formed at elevated temperatures may cause systemic effects.
- Chronic: Overexposure by inhalation and/or skin contact may result in damage to the blood and kidneys.

FIRST AID

- Swallowed: DO NOT induce vomiting. If patient is conscious, give milk or water to dilute stomach contents. Keep warm and quiet.
Get prompt medical attention.
DO NOT attempt to give anything by mouth to an unconscious patient.
- Eye: Immediately flush eyes with large amounts of water for at least 15 minutes. Get prompt medical attention.
- Skin: Immediately flush with large amounts of water; use soap if available. Remove contaminated clothing, including footwear after flushing has begun.
If irritation persists, seek medical attention.
- Inhaled: Using proper respiratory protection, immediately remove the affected victim from exposure.
Administer artificial respiration if breathing has stopped. Keep at rest.
Call for prompt medical attention.

Advice to Doctor: Treat Symptomatically

Continued .../3

PRODUCT:	COREXIT 9550
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**PRECAUTIONS FOR USE
EXPOSURE STANDARDS**

The National Occupational Health and Safety Commission (Worksafe Australia) has not published any exposure standards for this product.

PERSONAL PROTECTION

For open systems where contact is likely, wear chemical resistant gloves, long sleeves and chemical goggles.

Where contact may occur, wear safety glasses with side shields.

Where overexposure by inhalation may occur and engineering, work practice or other means of exposure reduction are not adequate, AS 1715 and AS 1716 approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS

Ventilation should be provided to control worker exposures and prevent health risk.

FLAMMABILITY

Combustible liquid, can release vapours that form flammable mixtures at temperatures at or above the flash point.

Toxic gases will form upon combustion.

Earth all containers to reduce the possibility of sparks from static electricity.

Use in well ventilated areas.

Do not use in confined spaces.

Do not use close to ignition sources.

Empty containers retain product residue (liquid and / or vapour) that may be dangerous. Do not pressurise, cut, weld, braze solder, drill, grind or expose containers to heat, flame, sparks, static electricity or other sources of ignition.

Empty drums should be completely drained, properly bunged and returned to a drum reconditioner or disposed of in accordance with local regulations.

**SAFE HANDLING INFORMATION
STORAGE AND TRANSPORT**

This product is not classified as Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail. Refer to the relevant regulations for transport requirements.

This product is classified as a C1 (Combustible Liquid) under AS 1940 (Storage and Handling of Flammable and Combustible Liquids) for the purpose of storage and handling.

Do not store with strong oxidising agents.

This product is not a Scheduled poison.

Continued .../4

PRODUCT: COREXIT 9550

SPILLS AND DISPOSAL

LAND SPILL

Eliminate sources of ignition. Prevent further discharge of material if possible to do so without hazard. For small spills, implement clean up procedures; for large spills, implement cleanup procedures and, if in public area, keep public away and advise authorities.

Prevent liquid entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust.

Recover spilled liquid using an explosion proof or hand pump or with a suitable absorbent.

Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.

WATER SPILL

Eliminate sources of ignition.

Warn occupants and shipping in surrounding and downwind areas of fire and explosion hazard and request all to stay clear.

Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.

FIRE/EXPLOSION HAZARD

Use water spray to cool fire exposed surfaces and to protect personnel.

Isolate fuel supply from fire.

Use alcohol type foam, dry chemical or water spray to extinguish fire.

SPECIAL PRECAUTIONS

Fire fighting personnel require respiratory and eye protection.

HAZARD COMBUSTION PRODUCTS

Carbon monoxide, Carbon dioxide, smoke, fumes.

Date of Issue: December 13, 1994

Revision No.: 0

Continued .../5

PRODUCT:	COREXIT 9550
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Contact Points:

Environmental Health Advisor	03 368 3233
Medical Officer	03 368 3233
Afterhours Emergency	03 625 1574
Energy Chemicals Offices	
Sale	051 43 1983
Adelaide	08 352 7222

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.

F.6 Dasic Slickgone NS



SAFETY DATA SHEET

Slickgone NS

Reference F.315

REVISION 2
ISSUE DATE 15-11-1995

Page 1 - 5

1. IDENTIFICATION OF SUBSTANCE OR PREPARATION

PRODUCT Slickgone NS
APPLICATION MAFF approved Type 2/Type 3 oil dispersant concentrate for treating marine oil spills.
COMPANY/UNDERTAKING IDENTIFICATION Dasic International Limited
Winchester Hill
Romsey
Hants
SO51 7YD
U.K.
Facsimile 01794 522346
EMERGENCY TELEPHONE DAY 01794 512419
NIGHT 01794 512419

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL DESCRIPTION Solution of surfactants in low aromatic petroleum distillate.

HAZARDOUS COMPONENTS

Name	%	CAS	EINECS	Supply Class
Sodium dioctylsulphosuccinate (surfactant)	1 - 10 W/W	577-11-7		Xi.R36/38.

3. HAZARDS IDENTIFICATION

Low order of toxicity and flammability. Not classifiable as hazardous under CHIP regulations. Will support combustion and burn readily once ignited. Possible eye irritant. Possible skin irritant on prolonged contact.

4. FIRST AID MEASURES

EYES Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart and seek medical advice.
SKIN Wash skin thoroughly with soap and water or use a proprietary skin cleaner. Remove contaminated clothing, including shoes and thoroughly clean and dry before re-use.
INGESTION Do NOT induce vomiting. If patient vomits, turn to recovery position. Rinse mouth out with water. Give water to drink. SEEK MEDICAL AID.
INHALATION Remove to fresh air, keep the patient warm and at rest. If unconscious, place in recovery position. Seek immediate medical attention.
OTHER In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. Note for medical personnel: The major hazard is lung damage from aspiration. Medical supervision for 24-48 hrs is strongly recommended if aspiration could have occurred.

DASIC INTERNATIONAL LIMITED

Winchester Hill · Romsey · Hampshire SO51 7YD · England
Tel: Romsey (01794) 512419 · Fax: Romsey (01794) 522346

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Slickgone NS

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5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA	Use foam, dry chemical, CO ₂ , or water fog. For small fires, sand or earth may also be used. Do NOT use water jet. Cool closed containers exposed to fire with water spray.
FIRE AND EXPLOSION HAZARDS	Combustible. Stable under normal conditions.
PROTECTIVE MEASURES	Firefighters should wear self contained breathing apparatus. Consider evacuation under severe circumstances.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

PERSONAL PRECAUTIONS	Keep sources of ignition away from area. Operators should observe the protective measures detailed in Sections 7 and 8.
ENVIRONMENTAL PRECAUTIONS	DO NOT allow to enter drains or watercourses. If the material has entered drains, sewers, or water courses the relevant water authority and/or the National Rivers Authority should be notified as appropriate.
RECOVERY	Small or large spills- Contain with sand or earth and transfer to suitable containers. Dispose of as hazardous waste -see Section 13 for disposal considerations.

7. STORAGE AND HANDLING (IN NORMAL USE)

STORAGE	Store in sealed original containers. Keep away from sources of ignition. Store away from oxidising agents.
GENERAL	Under typical use conditions (see Application in Section 1 and Dasic use instructions) adequate ventilation will usually be present. However, refer to Section 8 under the Engineering Measures heading.
HANDLING	Wear suitable protective clothing - See Section 8 (Exposure Controls / Personal Protection). Keep away from sources of ignition - No smoking.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (NORMAL USE)

OCCUPATIONAL EXPOSURE LIMITS

Name	8Hr TWA	15 Min	Type	Ref
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85 EN ISO 9002 Certificate No. 1099



Slickgone NS

Reference F.315

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ENGINEERING MEASURES

No occupational exposure limit has been assigned by UK HSE or ACGIH to the solvent component of this product. However, the mineral oil mist figures of 5 mg/m³ 8hr LTEL TWA and 10 mg/m³ 15 min STEL, given in EH40 as OES values, are recommended. For the vapour, an occupational exposure limit of 200 ppm (1500 mg/m³) 8hr TWA is recommended. In areas of good ventilation and under normal conditions of use, it is unlikely that these values will be exceeded. If adequate ventilation cannot be supplied, a suitable organic cartridge respirator or self contained breathing apparatus should be used.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY	Not normally required but see Engineering Measures above.
HAND	Wear impervious gloves.
EYE	Eye protection designed to protect against liquid splashes should be worn. Eye wash facilities should be available in areas where accidental exposure may be possible.
OTHER	Cotton or cotton/synthetic overalls or coveralls are normally suitable. Grossly contaminated clothing should be removed and the skin washed with soap and water or a proprietary skin cleaner.

9. PHYSICAL/CHEMICAL PROPERTIES

APPEARANCE	Clear, brown, slightly viscous liquid.
ODOUR	Mild and characteristic.
pH (as delivered)	Neutral
VISCOSITY	30 - 60 cP @ 0°C
FREEZING POINT	< -10°C
BOILING POINT (or RANGE)	Comm at 192°C
FLASH POINT	72°C PMCC
AUTOFLAMMABILITY	230°C
EXPLOSIVE LIMITS	
UPPER LIMIT	7.0
LOWER LIMIT	0.6
VAPOUR PRESSURE	≈ 0.04kPa @ 20°C
VAPOUR DENSITY	7.6 g/l @ 20°C
RELATIVE DENSITY (SG)	0.86 @ 20°C
SOLUBILITY	Disperses in water to form unstable emulsion.

10. STABILITY AND REACTIVITY

STABILITY	Stable at normal temperatures and pressures.
CONDITIONS TO AVOID	Avoid ignition sources. Do not heat material.
MATERIALS TO AVOID	Reacts violently with oxidising agents and concentrated nitric acid.
HAZARDOUS DECOMPOSITION PRODUCTS	None unusual. Burning will produce smoke, carbon monoxide, carbon dioxide and traces of sulphur dioxide/trioxide.

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INTERNATIONAL LTD

Slickgone NS

Reference F.315

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ISSUE DATE 15-11-1995

11. TOXICOLOGICAL INFORMATION

ACUTE EFFECTS

EYES

Liquid splashes in the eye may cause irritation. High concentrations of vapour may also cause irritation.

SKIN

Will cause defatting of skin which may lead to irritation and dermatitis on prolonged contact.

INGESTION

May cause vomiting, nausea, central nervous system depression and diarrhoea. Aspiration during swallowing or vomiting will severely damage lungs.

INHALATION

Vapour is irritant in high concentrations and may cause drowsiness, nausea, dizziness and possibly unconsciousness. This is unlikely to occur when the product is used to treat oil spills in the open sea.

CHRONIC EFFECTS

12. ECOLOGICAL INFORMATION

MOBILITY

PERSISTENCE & DEGRADABILITY

The surfactant component of this product is 95% biodegradable when tested to EEC Directive 73/405/EEC as amended by 82/243/EEC. The whole product has been tested for ultimate biodegradability in the marine environment and the results have been accepted by the French government, as part of their approval procedure for dispersants.

BIO-ACCUMULATION

Not expected to bio-accumulate.

AQUATIC TOXICITY

This product has been tested for marine toxicity by the UK Ministry of Agriculture Fisheries and Foods and is approved as a Type 3 oil dispersant concentrate. It has also been tested and approved as a marine oil spill dispersant by the French government laboratory "CEDRE".

OTHER

13. DISPOSAL CONSIDERATIONS

The material is classed as hazardous waste and must be disposed of via a licensed hazardous waste contractor, in accordance with the regulations prevailing in the locality/country concerned. Empty containers should be treated as hazardous waste. Do not dump indiscriminately.

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Slickgone NS

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14. TRANSPORT INFORMATION (REGULATIONS)

PACKAGING (Size & Description) 200 or 25 litre steel containers. 1000 litre intermediate bulk containers with fluorinated polythene liners.

TRANSPORT CLASSIFICATION

SUBSTANCE IDENTIFICATION NUMBER -

PROPER SHIPPING NAME -

ICAO/IATA/IMDG CLASS -

SUBSIDIARY RISK -

PACKING GROUP -

ADR CLASS -

TRANSPORT HAZARD SYMBOL -

HAZARD IDENT NUMBER -

EMERGENCY ACTION CODE -

OTHER Not classified as hazardous under IMO, IATA or UK transport regulations.

15. REGULATORY INFORMATION (Supply & Labelling)

SUPPLY CLASSIFICATION Not Regulated.

HAZARD PICTOGRAM

RISK PHRASES

SAFETY PHRASES

OTHER APPLICABLE REGULATIONS

16. OTHER INFORMATION

Use only in accordance with Dasic's use instructions. Do not use for other applications without first consulting the Dasic Technical Department for advice. The information contained in this safety data sheet is provided in accordance with the requirements of the Chemicals (Hazard Information and Packaging) Regulations.

REVISION 2

ISSUE DATE 15-11-1995

The information provided in this Safety Data Sheet is correct to the best of our knowledge at the date of issue. It is intended as a guide for safe handling, storage and use in known applications. References to regulatory matters are not intended to be exhaustive and the user must satisfy himself that all relevant legislation is complied with. This Safety Data Sheet should not be construed as a specification or guarantee of specific properties and no liability can be accepted for any loss, injury or damage resulting from its use.

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F.7 Shell VDC



Material Safety Data Sheet

Product Name: SHELL DISPERSANT VDC
Date Issued :18 Jan 1995

Page : 1
Prod Code:06599
PMF Code :D666

IDENTIFICATION

Use:High efficiency dispersant for dispersal of oil at sea

Hazardous according to criteria of Worksafe Australia.

Company:SHELL CHEMS.(A'ASIA) TRADING P/L 1 SPRING STREET	UN No.	:Not Assigned
MELB	3001	Main Class :Not Assigned
ACN :065 432 680		Subsidiary Risk :Not Assigned
		Poisons Schedule:Not Allocated
		HazChem Code :Not Assigned
		CAS No. :Not Relevant

PRODUCT PROPERTIES

Appearance & Odour : Pale straw coloured liquid with mild odour
Chemical Reactivity: Stable
Solubility in Water: Insoluble

Property	Value	UOM	Temp
Specific Gravity	0.99	-	20
Melting Point	Not Available		
Vapour Pressure	Not Relevant		
IBP	Not Relevant		
FBP	Not Relevant		
Evaporation Rate	Not Relevant		
Vap Dens (Air=1)	Not Relevant		

Fire/Explosion Hazard			
Flash Point	67.00	deg C	
Autoignition	Not Relevant		
% Volatiles	40.00	-	
LEL	Not Relevant		
UEL	Not Relevant		

PRODUCT INGREDIENTS

Ingredient	Proportion	Blending Method	CAS No.
Biodegradable anionic and nonionic surfactants	High > 60%	m/m	
Ethylene glycol monobutyl ether	Med <40%	m/m	

Material Safety Data Sheet

.../ 2

Product Name: *SHELL DISPERSANT VDC*

Page : 2

HEALTH HAZARDS

HEALTH EFFECTS

Acute

Swallowed

Harmful if swallowed.

Eye

May cause irritation.

Skin

May cause irritation.

Inhaled

Inhalation of the vapours (generated at elevated temperatures) or mists can cause irritation to the nose and throat.

Chronic

Material Safety Data Sheet

.../ 3

Product Name: *SHELL DISPERSANT VDC*

Page : 3

FIRST AID

Swallowed

If swallowed, do NOT induce vomiting, give a glass of water and seek medical advice.

Eye

Flood eyes with plenty of water for 20 minutes. If irritation occurs seek medical advice.

Skin

Remove contaminated clothing and wash skin thoroughly with soap and water. If irritation persists seek medical advice.

Inhaled

Remove affected person from contaminated area and seek medical advice. If not breathing apply artificial respiration and seek urgent medical advice.

Advice to Doctor

PRECAUTIONS FOR USE

Exposure Standards

No exposure standard has been established for this product.

...more for Exposure Standards

Material Safety Data Sheet

.../ 4

Exposure Standards (...continued)

Engineering Controls

Special ventilation is not normally required due to the low volatility of the product at normal temperatures. However, in the operation of certain equipment or at elevated temperatures, mists or vapour may be generated and exhaust ventilation should be provided to maintain airborne concentration levels below the exposure standard.

Personal Protection

Avoid contact with the skin and eyes, and avoid breathing vapours or mists. When exposure is likely, personal protective equipment in a combination appropriate to the degree and nature of exposure, should be selected from the following list:-

- (1) Eye protection
- (2) PVC gloves
- (3) PVC apron and sleeves, or full PVC covering
- (4) PVC or rubber boots

Where the concentration of vapour or mist is expected to approach the exposure limit, the following additional equipment is recommended:-

- (1) Short elevated exposures, eg spillage - goggles and correct respiratory protection should be worn.
NB. If the vapour/mist concentrations exceed the exposure limit by more than 10 times, air supplied apparatus should be used.
- (2) For prolonged elevated exposures - Full face air supplied or self contained breathing apparatus should be worn.

CONTAMINATION

If contamination occurs, change clothing and discard internally contaminated gloves and footwear. Launder contaminated clothing before reuse.

Observe good personal hygiene.

...more for Personal Protection

Material Safety Data Sheet

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Product Name: *SHELL DISPERSANT VDC*

Page : 5

Personal Protection (...continued)

Eye wash fountains and safety showers should be available for emergency use.

REFERENCES

For detailed advice on Personal Protective equipment, refer to the following Australian Standards :-

HB 9 (Handbook 9)	Manual of industrial personal protection.
AS 1337	Eye protectors for industrial applications.
AS 1715	Selection, use and maintenance of respiratory protective devices.
AS 1716	Respiratory protective devices.

Flammability

Combustible liquid, will not burn unless preheated.

Refer to AS 1940 - Storage and handling of flammable and combustible liquids and AS 2865 - Safe working in a confined space, for more specific information on these subjects.

SAFE HANDLING INFORMATION

Storage & Transport

Classified as a class C2 combustible liquid for storage and handling purposes. Store in a well ventilated place away from ignition sources, oxidizing agents foodstuffs and clothing. Keep containers closed when not in use.

R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
R 37 Irritating to respiratory system.
S 24/25 Avoid contact with skin and eyes.

Material Safety Data Sheet

.../ 6

Product Name: *SHELL DISPERSANT VDC*

Page : 6

Spills & Disposal

Extinguish or remove all sources of ignition and stop leak if safe to do so. Contain the spill with sand or earth and take up with a vacuum truck or absorb with absorbent material, sand or earth. Place used absorbent in suitable sealed containers and follow state or local authority regulations and guidelines for disposal of the waste. Clean area with detergent and water. Do not allow product to enter drains, sewers or water courses - inform the local authorities if this occurs.

Fire/Explosion Hazard

Combustible. Combustion products include oxides of carbon. Keep storage tanks, pipelines, fire exposed surfaces etc cool with water spray. Shut off any leak if safe to do so and remove sources of re-ignition. Use foam, CO2 or powder to extinguish fire.

OTHER INFORMATION

CONTACT POINT

National 24 hr Emergency Response :- 1800 802 666
*** END ***

F.8 Tergo R.40

**TERGO INDUSTRIES LIMITED**HEAD OFFICE: BEAUMONT STREET, P.O. BOX 47-111, PONSONBY,
AUCKLAND, NEW ZEALAND

TELEPHONE: 0-9-303 1409

FAX: 0-9-307 9115

BRANCHES: HASTINGS, WELLINGTON, NELSON, CHRISTCHURCH,
DUNEDIN**MATERIAL SAFETY DATA SHEET**

Page 1 of 2

IDENTIFICATION

Product Name:	Tergo R-40	U.N. Number:	N/A
Trade Name:		Dangerous Goods Class/ & Subsidiary Risk:	N/A
Other Names:		Hazchem Code:	N/A
Manufacturers Code:		Poison Schedule:	N/A

Use: Oil Spill Dispersant

Physical Description/Properties:

Appearance:	Clear, amber liquid
Boiling Point/Melting Point (°C):	240°C/-25°C
Vapour Pressure (mm of Hg at 25°C):	< 2.5mm
Per cent Volatiles:	10%
Specific Gravity:	0.96
Flash Point (°C):	> 100°C
Flammability Limits (%):	Unknown
Autoignition Temperature (°C):	> 250°C
Plus other properties if applicable:	N/A

Ingredients:

Chemical Entity: (include all hazardous chemicals)	Proportion (High 60%) (Medium 10% - 60%) (Low 10%)
Polyethylene Glycol Esters of Oleic and Coconut Fatty Acids	Major

HEALTH HAZARD INFORMATION**Health Effects:**

Swallowed:	Mild discomfort may occur.
Eyes:	Redness and discomfort.
Skin:	Prolonged exposure may cause irritation or dermatitis.
Inhaled:	High concentrations may cause irritation to eyes and throat.

First Aid:

Swallowed:	Dilute by drinking 2 glasses of water or milk. Obtain medical attention.
Eyes:	Flush thoroughly with water for 10-15 minutes.
Skin:	Rinse off with water. Remove contaminated clothing.
Inhaled:	Move to fresh air source.

Issue Date: 01.04.93

Manufacturers. Importers. Exporters.
Industrial Chemicals, Marine Chemicals, Protective Coating Systems.

PRECAUTIONS FOR USE

- Advice to Doctor:** Full details available from National Poisons (03) 474-0999.
Aspiration into lungs may cause chemical pneumonitis.
- Exposure Limits:** TLV : >300ppm
Acute Oral LD (rat): >5g/kg
- Ventilation:** Not normally required except in enclosed spaces (e.g., bunkers, ballast tanks, etc.) in which case positive pressure respirator is recommended.
- Personal Protection:** Rubber or PVC gloves
Splash goggles
- Flammability:** Not considered flammable, but will support combustion under extreme conditions of a fire.

SAFE HANDLING INFORMATION

- Storage and Transport:** Store in dry conditions. Avoid heat sources and ignition sources.
- Spills and Disposal:** Flush small spills with water. Larger spills should be contained and absorbed with inert material then placed in drums for disposal.
- Fire/Explosion and Hazard:** Extinguish using CO₂, dry chemical, foam or water fog.
- Other Information:** May pose a slip hazard on walking surfaces.

Contact Point: (09) 303-1409 **Date:** 23 September 1994

Issue Date: 01.04.93



TERGO INDUSTRIES LIMITED

HEAD OFFICE: BEAUMONT STREET, P.O. BOX 47-111, PONSONBY, AUCKLAND, NEW ZEALAND
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BRANCHES IN: HASTINGS WELLINGTON NELSON CHRISTCHURCH DUNEDIN.

Page 1 of 2

R-40 CONCENTRATE TYPE III

OIL SPILL DISPESANT

DESCRIPTION

R40 Concentrate is a concentrated blend of naturally derived surfactants of low toxicity and rapid biodegradability. It is completely hydrocarbon solvent free.

It has been designed to disperse a wide range of crude and fuel oils when or if the need arises.

METHOD OF USE

R40 Concentrate as a Type III Dispersant is specifically designed to be applied neat from aircraft or ship mounted spray booms at a nominal ratio of 1 part R40 to 20 parts oil.

It is equally effective when applied via hand-held or back-pack mounted sprayers for use on small spills or around areas such as wharf piles, etc.

USEFUL EQUATION FOR USAGE

Assume an oil slick thickness of 0.1 of a millimetre; then applying R40 Concentrate at 1 part to 20 parts oil then dispersant usage becomes 50 litres per hectare.

Vis a Vis = 0.1 millimetre over 1 hectare = 1,000 litres of oil.

DILUTION WITH WATER

Should circumstances dictate then R40 Concentrate may be mixed ten times its volume with sea or fresh water then applied at a ratio of 1 part mixed dispersant to 2 parts oil.

Note: Whether pre-diluted or via venturi it should be applied as soon as possible after dilution.

PROPERTIES

<i>Appearance</i>	Thin, clear, amber liquid
<i>Specific Gravity @ 20°C</i>	0.97 ± 0.01
<i>Viscosity @ 0°C</i>	200 centistokes
<i>Cloud Point</i>	Less than -10°C
<i>Pour Point</i>	Less than -20°C
<i>pH</i>	7
<i>Flash Point PMC</i>	Greater than 100°C
<i>Toxicity, LC50</i>	Independent test results available on request
<i>Biodegradability</i>	Shake flask C.T.A.S. method > 90% in 48 hours
<i>Efficiency Index</i>	In-house and independent test results available on request. Note: Reference oil Light Arabian Crude topped at 240°C.
<i>Health and Safety</i>	Refer to Material Safety Data Sheet
<i>Shelf Life</i>	Indefinite

ISSUE DATE: August 1994

This information is, to the best of our knowledge, true and accurate, but any recommendations or suggestions which may be made are without guarantee, since the conditions of use are beyond our control. Furthermore, nothing contained herein is to be construed as a recommendation to use any product in conflict with existing patents covering any material or its use.

TESTING AND APPROVALS

New Zealand

R40 Concentrate OSD is approved pursuant to Regulation 4 of the Marine Pollution (Dispersants and Exceptions) Regulations 1975. Gazetted - April 1992.

Australia

R40 Concentrate OSD was tested in accordance with the Australian Maritime Safety Authority publication "Oil Spill Dispersants - Guidelines for Acceptance." R40 Concentrate complies with these guidelines and is accepted for use in Australian waters by AMSA.

TEST DATA

Species used in toxicity testing:-

- Allorchestes compressa - an amphipod
- Macrobranchium intermedium - an estuarine shrimp
- Penaeus monodon - a marine prawn
- Lates calcariter - a juvenile barramundi

Efficiency - Apparatus used McKay Tester

Percent oil removed after 10 minute agitation > 99
Percent oil removed after 5 minute settling > 75

Note: Full test data available on request.

REFERENCES

Efficiency Report Department of Conservation, Marine Science Laboratories
Victoria, Australia, 1993

Toxicity Reports Department of Conservation, Marine Science Laboratories
Victoria, Australia, 1993

Ecotoxicology Unit, University of Technology
Sydney, Australia, 1993

Australian Nuclear Science and Technology Organisation
Environmental Science Programme, 1994

ISSUE DATE: August 1994

APPENDIX I

GLOSSARY OF TERMS & ACRONYMS

AC	Aviation Coordinator.
ADIOS	Automated Data Inquiry for Oil Spills. Oil weathering and behaviour model developed by the (US) National Oceanographic and Atmospheric Administration (NOAA).
Administration Unit	A unit of the Finance and Administration Section responsible for the provision of administrative services to the response organisation.
Advanced Operations Centre	Means a location, usually in proximity to a marine oil pollution incident, from which field activities are directed.
Adviser	An individual who provides advice on specific response issues as required.
AGAL	Australian Government Analytical Laboratory.
AIIMS	Australian Interagency Incident Management System
AIP	Australian Institute of Petroleum.
AMFA	Australian Fisheries Management Authority
AMOSOC	Australian Marine Oil Spill Centre.
AMOSPlan	A voluntary oil industry mutual aid plan intended to supplement the national Plan, administered by Australian Institute of Petroleum through AMOSOC.
AMSA	Australian Maritime Safety Authority.
ANZECC	Australian and New Zealand Environment Conservation Council
AOC	Advanced Operations Centre.
Approved Dispersant	Means dispersant approved by the National Plan.
ATC	Australian Transport Council.
AusSAR	Australian Search and Rescue.
AusSAR CC	Australian Search and Rescue Coordination Centre; operations centre established in Canberra and manned continuously for the conduct of marine search and rescue operations.
Australian Maritime Safety Authority	Commonwealth agency charged under the Australian Maritime Safety Authority Act, 1990 with combating pollution in the marine environment both within and outside the Commonwealth of Australia.
Australian Transport Council	Comprises Commonwealth, State and Territory Ministers responsible for transport, roads and ports and marine matters. The Council generally meets on an annual basis.
Authorised Releasing Officer	Means a person who may authorise the release of equipment or materials from a Resource Centre Depot on behalf of the Commonwealth Agency or a State Agency.
Aviation Unit	A unit of the Operations Section responsible for the coordination of aviation operations in accordance with the Incident Action Plan.

Black Oil	Area of black coloured oil sometimes appearing with a latex texture. Often confused with kelp beds and other natural phenomenon.
BOP	Blowout Preventer
Brown Oil	Typically a 0.1- to 1.0-mm thick layer of water-in-oil emulsion (thickness can vary widely depending on wind and current conditions). Maybe referred as heavy or dull coloured sheens.
BSOC	Bass Strait Oil Company
CA	Combat Agency
CC	Communications Coordinator
CMT	Crisis Management Team
Coastal Resource Atlas	Is a compilation of information on the coastline, its fauna, flora, facilities and resources related in a geographic manner to assist in training, contingency planning and combat operations (see OSRA).
Coastal Waters	State Waters From baseline to 3nm to seaward.
Combat Agency	Any agency responsible for performing a task or activity during an emergency response.
Combat Agency (National Plan Defn.)	The agency identified as being primarily responsible for responding to a particular incident (see below also).
Command	Command is the direction of members and resources of an organisation in the performance of the organisation's role and tasks. Authority to command is established in legislation or by agreement within an organisation. Command relates to organisations and operates vertically within an organisation.
Commander	A single agency term. A Commander has authority only within that agency. Responsibilities include the direction and coordination of the activities of that agency. A Commander operates vertically within that agency and cannot command members of another agency.
Committee of Experts	Means representatives from industry, conservation authorities, scientific groups, transportation fields and Government bodies from whom advice may be obtained on action to be taken and on materials and methods best suited for combating a specific marine oil pollution situation.
Communications Unit	A unit of the Logistics Section responsible for the provision of communications services and support
Company	Apache Energy Limited
Consultation Unit	A unit of the Planning Section responsible for the coordination and development of consultation programs for identified community and commercial groups.
Containment Equipment	Equipment used to contain or restrict the spread of oil spilt on the water.
Contiguous Zone	From shore baseline to 24nm out to sea.
Contractor	Any party contracted to the Company to provide:

	<ul style="list-style-type: none"> • Equipment • Services • Goods • Manpower
Control	Control is the overall direction of emergency management activities in a designated emergency. Authority for control is established in legislation or in an emergency management plan, and carries with it the responsibility for tasking and coordinating other organisations in accordance with the needs of the situation. Control relates to situations and operates horizontally across organisations.
Controller	An individual exercising control in management of the response to an incident.
Coordination	Coordination is the bringing together of organisations and elements to ensure an effective emergency management response. It is primarily concerned with the systematic acquisition and application of resources in accordance with the requirements imposed by the threat or impact of an emergency. Coordination relates primarily to resources and operates vertically within an organisation as a function of the authority to command and horizontally across organisations as a function of the authority to control.
Coordination Centre	Emergency Service for the State Emergency Coordinator (the Commissioner of Police) for the purpose of coordinating the State's response to emergencies.
Coordinator	An individual in charge of a particular aspect of a response (e.g. Marine Coordinator, Wildlife Coordinator).
CPI	Corrugated Plate Inverter
CRA	Coastal Resource Atlas.
Crisis	<p>A significant event (or set of circumstances) which impacts or threatens the immediate well being of the Company.</p> <p>The list below is not intended to be exhaustive, but illustrates the types of crisis in which the Company could be involved:</p> <ul style="list-style-type: none"> • Major fire • Bomb threat/extortion • Explosion • Major gas escape • Massive spillage (normally over 10 tonnes, but any spill has potential to be classed as a Crisis). • Loss of containment • Condensate/oil spill • Product contamination • Structural damage / collision involving platform, plant, terminal or pipeline • Platform evacuation • Helicopter/vessel going down • Revolution or terrorist activity

- Blow out
- Business related crises (eg. a technical problem which required long term shutdown of a process train or major production facility).

DEH	Department of Environment and Heritage
Demulsification	The breaking of an emulsion.
Dispersant	Chemical used to “break up” surface oil slicks.
Dispersant Equipment	That equipment designed to combat spilt oil by the application of dispersant.
Dispersion	The breaking of an oil slick into small droplets that are mixed into the water column by breaking waves, other sea surface turbulence, and the action of chemical dispersants.
Disposal	The storing or re-processing or dumping of recovered pollutant in an environmentally approved site.
DPI	Department of Primary Industries
DSE	Department of Sustainability and Environment
DSE	Department of Sustainability and Environment
EA	Environment Australia
Element at Risk	Means natural or man-made environment including flora, fauna, reefs, beaches, etc, which can be contaminated by pollution resulting from a spill
EMA	Emergency Management Australia. Commonwealth agency based at Mt Macedon, Victoria.
Emergency Response Coordinator	The Police Officer identified as the link between the Incident Controller and State/Territory Emergency Management arrangements.
Emulsification	The formation of a water-in-oil mixture. Different oils exhibit different tendencies to emulsify, and emulsification is much more likely to occur under high energy conditions (winds and waves, oil well blowouts). A water-in-oil emulsion is frequently called mousse.
Environment Unit	A unit of the Planning Section responsible for the collection and collation of environment data and advice.
Environmental and Scientific Coordinator	Nominated person who provides scientific and environmental advice to the IC. Nominated from the DSE.
EP	Environment Plan
EPBC	Environmental Protection and Biodiversity Conservation (Act 1999)
Equipment	See Stores
Equipment	Transfer of oil from one vessel to another.
ER	Emergency Response
ERC	Emergency Response Coordinator.
ERG	Executive Response Group.
ERT	Emergency Response Team

ESC	Environmental and Scientific Coordinator.
European and Aboriginal Sites	These refer to cultural and heritage sites which may be affected by an oil spill.
Exclusive Economic Zone	From shore baseline to 200nm out to sea.
Executive Response Group	Committee chaired by the ERG Coordinator, responsible for management of VicPlan.
Finance & Administration Section	The functional group responsible for the provision of finance and administrative services to the response organisation and for the collation of costs and all records related to an incident.
Finance Unit	A unit of the Finance and Administration Section responsible for the provision of financial services.
FPF	Floating Production Facility.
FPSO	Floating Production and Storage Operation.
FWADC	Fixed Wing Aerial Dispersant Capability.
GHT	Gillnet, Hook and Trap
GIS	Geographical Information System
Harbour	Means any harbour whether natural or artificial or as defined by any Act and which is under the control of a harbour authority, including any port, dock, estuary or arm of the sea, any river or canal and any waters in which ships can obtain shelter or ship or unship goods or passengers and which is under the control of a harbour authority.
High Seas	Means those waters between three miles and two hundred miles from the coast.
IAP	Incident Action Plan.
IC	Incident Controller.
ICC	Incident Control Centre.
ICS	Incident Control System.
IMT	Incident Management Team.
Incident Action Plan	A statement of objectives and strategies to be taken to control an incident. The Incident Action Plan may be supported by sub-plans.
Incident Control Centre	The location where the Incident Controller and members of the Incident Management Team provide overall direction of response activities in an incident.
Incident Control Centre Management Unit	A unit of the Finance & Administration Section responsible for the management of the Incident Control Centre.
Incident Controller (IC)	Person appointed to direct operations of the Advance Operations Centre, including responsibility for Occupational, Health and Safety matters at the response area.
Incident Management Team	A group comprising the Incident Controller and the individuals appointed to be responsible for the functions of Finance and Administration, Planning, Operations and Logistics together with any other individual appointed by the Incident Controller from

	time to time.
Inland Waters	Estuaries, rivers, lakes and other navigable waters.
Installation	Any offshore facility.
Internal Waters	Waters to the landward of the baseline.
Lead Combat Agency	Combat Agency with the responsibility for the overall management of an incident response.
LGA	Local Government Authority.
Light Sheen	A light, almost transparent layer of oil. Sometime confused with windrows and natural sheen resulting from biological processes. Sometimes referred as transparent sheen.
LO	Logistics Officer.
Local Government Authority	A Shire, Town or City Council.
Logistics Section	The functional group responsible for the supply of services and resources to support and sustain the operational response to an incident.
Management Advisory Manager	By Cabinet, to advise and assist the Minister on emergency An individual in charge of a particular task associated with an aspect of the response to an incident
Marine Oil Spill Equipment System (MOSES)	A computer-based register which lists equipment held in all States, identifies location, contact personnel and numbers for its release.
Marine Pollution Contingency Plan	A documented scheme of assigned responsibilities, actions and procedures, required in the event of a pollution incident.
Marine Unit	A unit of the Operations Section responsible for the coordination of marine operations in accordance with the Incident Action Plan.
May	Possible course of action where other options are available.
MC	Marine Coordinator
Media Liaison Officer	Incident Management Team role. The MLO is responsible for managing the media response during an incident
Media Liaison Unit	The functional group responsible for the management of all media and public relations aspects of the impact of and response to an incident.
Medical Unit	A unit of the Logistics Group responsible for the provision of medical services.
MEOC	Marine Emergency Operations Centre.
MLO	Media Liaison Officer.
MODU	Mobile Offshore Drilling Unit.
MOSES	Marine Oil Spill Equipment System.
Mousse	Water-in-oil emulsion often formed as oil weathers: colours can range from orange or tan to dark brown.
MPC	Marine Pollution Controller.

MSDS	Material Safety Data Sheet.
MSV	Marine Safety Victoria.
Must	Mandatory requirement for a condition or course of action.
National Plan	National Plan to Combat Pollution of the Sea by Oil and Noxious and other Hazardous Substances. Is a plan issued by AMSA combining the effort of the Commonwealth and State Governments and the oil and shipping industry to combat oil spills in the Australian marine environment.
National Plan Advisory Committee (NPAC).	A committee of representatives from the States/Territory and industry to advise the AMSA Board on matters relating to the National Plan.
National Response Team	A group of interstate based individuals with spill response experience across all areas of response activities available to provide support to an Incident Controller.
NATPLAN	See National Plan.
NOAA	National Oceanographic & Atmospheric Administration (USA).
NOAA	National Oceanographic and Atmospheric Association
NPAC	National Plan Advisory Committee.
NRT	National Response Team.
NSW	New South Wales
Occupational Health and Safety Unit	A unit of the Operations Section responsible for the implementation and oversight of OH&S requirements in accordance with the Incident Action Plan
OH&S	Occupational Health and Safety.
OH&S C	Occupational Health and Safety Coordinator.
OIM	Offshore Installation Manager.
On-Scene Coordinator (OSC)	Old term referring to the Incident Controller (<i>ref. Incident Controller</i>).
OO	Operations Officer.
Operational Period	The period of time scheduled for the execution of the Incident Action Plan.
Operations Section	The functional group responsible for implementing the operational requirements of the Incident Action Plan and providing operational input to the planning process.
OPRC	The International Convention on Oil Pollution Preparedness, Response and Cooperation 1990.
OSC	On Scene Coordinator.
OSCP	Oil Spill Contingency Plan.
OSRA	Oil Spill Response Atlas. National CRA, developed by various State agencies.
OSRC	Oil Spill Response Centre (Southampton, UK).
OSRICS	Oil Spill Incident Control System.
OSRL	Oil Spill Response Limited (Southampton, UK).

OSSC	Oil Spill Service Centre (= OSRC Southampton, UK).
OSTM	Oil Spill Trajectory Model.
P & I Club	Protection and Indemnity Clubs; mutual insurance groups which insure vessels against costs of marine oil spills and other risks.
Pancakes	An isolated patch of oil shaped in a mostly circular fashion, pancakes can range in size from a few meters across to hundreds of meters in diameter. Sheen may/may not be present.
PIC	Person In Charge.
Planning Section	The functional group responsible for the provision of information on all aspects of an incident and the response to that incident and the development of an Incident Action Plan as directed by the Incident Management Team.
Plume	Oil that is dispersing into the water column as a cloud of small droplets.
Pollution Incident	Means an actual, potential or suspected oil or chemical discharge into the marine environment.
POLREP	Pollution Report. A report, reporting a pollution incident.
POWBONS	Pollution of Waters by Oil and Noxious Substances (Act 1986)
Procurement Unit	A unit of the Logistics Section responsible for the acquisition of personnel and equipment for the operational response.
Rainbow Sheen	Sheen that reflects colours.
RCA	Regional Control Agency
RCC	Rescue Coordination Centre (Canberra, Australia).
Recovery Equipment	Means equipment used to recover oil spilled on water.
Resource Unit	A unit of the Planning Section responsible for maintaining information on the deployment of resources.
Response Management Hierarchy	<ol style="list-style-type: none"> 1. State Marine Pollution Controller An individual appointed by a State/Territory government to be in overall charge of the response to a major incident. 2. Incident Controller The individual responsible for management of all operations in response to an oil spill. 3. Officer An individual responsible for the activities of a functional group. Reports to the Incident Controller. 4. Coordinator An individual responsible for the activities of a particular aspect of the response. Reports to the relevant Officer. 5. Manager An individual for a particular task associated with an aspect of the response. Reports to the relevant Officer. 6. Supervisor An individual in charge of a component of a response within a particular Sector of the response. Reports to the relevant Coordinator or Manager.

7. Team Leader

An individual in charge of a group of personnel operating within a particular sector. Reports to the relevant Supervisor.

Response Planning Unit	A unit of the Planning Section responsible for the coordination, development and review of incident action planning.
SA	Statutory Agency
Salvage Adviser	An individual appointed to advise the Incident Controller on salvage issues.
SC	Shoreline Coordinator
Sector	A specified geographic area in which a component of a response is being carried out.
Services Unit	A unit of the Logistics Section responsible for the acquisition of services and facilities to support the operational response.
SET	South East Trawl
Sheen	Sheen is a very thin layer of oil (0.0003 mm or less) floating on the water surface. It is the most common form of oil seen during the later stages of a spill. Sheens vary in colour according to their thickness, ranging from rainbows for the thicker layers, to greys, silvers, and almost transparent for the thinnest layers.
Shipping Levy	The quarterly tax levied by the Commonwealth Government on commercial shipping using Australian ports to offset the cost of establishing and administering the National Plan. This tax is also used to reimburse costs incurred by the responsible authority in combating pollution incidents where the cost cannot be recovered from the polluter.
Ship-to-Ship Transfer	Means equipment held in readiness to assist with the emergency
Shoreline Unit	A unit of the Operations Section responsible for the coordination of shoreline clean up operations in accordance with the Incident Action Plan.
Silver Sheen	A slightly thicker layer of oil that appears silvery or shimmers. Occasionally called grey sheen.
SITREP	Means a Situation Report on an actual or potential marine oil pollution incident or response. These are to be issued regularly during any incident (see Appendix G).
Situation Unit	A unit of the Planning Section responsible for the collection, processing and organisation of information about the incident
Slick	Oil spilled on the water that absorbs energy and dampens out surface waves, so that it appears smoother—or “slicker”—than the surrounding water.
SMPC	State Pollution Marine Controller
SSO	Site Safety Officer.
Staging Area	A prearranged strategically placed area at which response personnel and equipment can be held in readiness for use during an incident.
Staging Area Unit	A unit of the Logistics Section responsible for the

	implementation and management of assembly and staging areas.
State Emergency	The principal State emergency management committee, established.
State Marine Pollution Committee	The group of individuals in the State required by the National Plan to be responsible for the development and refinement of contingency plans and the provision of advice and support to an Incident Controller on the occasion of a pollution incident.
State Marine Pollution Controller	An individual appointed by a State/ Territory government to be in overall charge of the response to a major incident (MSV Director of Marine Safety in Victoria).
Statutory Agency	The agency having the statutory authority in the area where a particular pollution incident occurs. Primarily responsible for ensuring an appropriate and adequate response is mounted by the Combat Agency.
Stockpile Depots	Means the premises at capital cities and port authorities in which materials and equipment acquired under the National Plan are stored for use against marine oil pollution incidents
Streamers	Oil or sheen oriented in lines, windrows or streaks. Brown oil and mousse can be easily confused with algae scum collecting in convergence lines, algae patches, or mats of kelp. Sometimes called streaks, stringers or fingers.
Supervisor	An individual in charge of a component of a response within a particular sector of the response. Reports to the relevant Coordinator.
Support Agency	An organisation or body providing support to a Combat Agency. This may be in the form of equipment, personnel or logistics.
Tarballs	Weathered oil that has formed a pliable ball. Size may vary from pinhead to about 30 cm. Sheen may or may not be present.
Tarmats	Non-floating mats of oily debris (usually sediment and/or plant matter) found on beaches or in shallow water just offshore.
Team Leader	An individual in charge of a group of personnel operating within a particular sector of a response. Reports to relevant Supervisor.
Territorial Sea	Australia's territorial sea generally extends 12 nautical miles from the territorial sea baseline.
Transport Unit	A unit of the Logistics Section responsible for the provision of aviation, land and sea transport services.
Vic	Victoria.
VicPlan	Victorian Marine Oil Pollution Contingency Plan.
Waste Management Unit	A unit of the Operations Section responsible for the management of oil and oiled debris generated by the response.
WC	Wildlife Coordinator.
Wildlife Unit	A unit of the Operations Section responsible for the coordination of wildlife operations in accordance with Incident Action Plan.
WMC	Waste Management Coordinator.