EMERGENCY PLAN

Bass Strait Oil Pollution Emergency Plan

AUGO-EV-ELI-001

Esso Australia Resources Pty Ltd acknowledges Aboriginal and Torres Strait Islander people as the Traditional Custodians of the land and acknowledges and pays respect to their Elders, past and present. Esso Australia Resources Pty Ltd is committed to safe and inclusive workplaces, policies and services for people of LGBTIQ+ communities and their families.

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ABBREVIATIONS

Abbreviation	Definition
AEP	Australian Energy Producers
ALARP	As Low As Reasonably Practicable
AMOSC	Australian Marine Oil Spill Centre
AMOSPlan	*Australian Industry Cooperative Oil Spill Arrangements* (AMOSC, 2025)
AMSA	Australian Maritime Safety Authority
ASAP	As Soon As Possible
BBMT	Barry's Beach Marine Terminal
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
DEECA	Department of Environment, Energy and Climate Action
DTP	Department of Transport and Planning (Victoria)
Esso	Esso Australia Pty Ltd
Environment Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth)
EP	Environment Plan
EP&R	Emergency Preparedness and Response
EPA	Environment Protection Authority
EPO	Environmental Performance Outcome
EPS	Environmental Performance Standard
ERT	Emergency Response Team
GRT	Global Response Team
IBRA	Interim Biogeographic Regionalisation for Australia
ICS	Incident Command System
IMCRA	Integrated Marine and Coastal Regionalisation of Australia
IMT	Incident Management Team
IPIECA	International Petroleum Industry Environmental Conservation Association
ITOPF	International Tanker Owners Pollution Federation Limited

Abbreviation	Definition
MDO	Marine Diesel Oil
MoU	Memorandum of Understanding
MPRA	Marine Pollution Risk Assessment
National Plan	*National Plan for Maritime Environmental Emergencies – 2020 edition* (AMSA, 2020)
NEBA	Net Environmental Benefit Analysis
NOAA	National Oceanographic and Atmospheric Administration (USA)
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
NRE Tas	Department of Natural Resources and Environment Tasmania
NSW	New South Wales
OIMS	Operations Integrity Management System
OPEP	Oil Pollution Emergency Plan
OPGGS Act	*Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth)
OSMP	Oil Spill Monitoring Program
OSRL	OSRL (previously Oil Spill Response Limited)
OWR	Oiled Wildlife Response
P&A	Plug and Abandonment
PEAR	People, Environment, Assets, Reputation
POLREP	Pollution Report Form
PPE	Personnel Protective Equipment
QRG	Quick Reference Guide
SCAT	Shoreline Clean-Up Assessment Technique
SEMP	State Emergency Management Plan
SMV	Surveillance Monitoring and Visualisation
STB	Satellite Tracking Buoy
TasPlan	*Tasmanian Marine Oil Spill and Chemical Spill Contingency Plan* (EPA Tasmania, 2022)
TasPorts	Tasmanian Ports Corporation

Abbreviation	Definition
TRP	Tactical Response Plan
WAOWRM	*Western Australian Oiled Wildlife Response Manual* (Department of Transport and AMOSC, 2022a)
WAOWRP	*Western Australia Oiled Wildlife Response Plan for Maritime Environmental Emergencies* (Department of Transport and AMOSC, 2022b)
WCDS	Worst-Case Discharge Scenario

UNITS

Abbreviation	Unit
μg/L	Micrograms/litre
μm	Micrometre
API	API gravity – The method used for measuring the density of petroleum as defined in American Petroleum Institute standards
cP	Centipose
g/m^2	Grams per square metre
Kg/m^3	Kilograms per cubic metre
kL	Kilolitre
kn	Knot
L	Litre
m^3	Cubic meter
nm	Nautical mile
°C	Degrees Celsius
ppb	Parts per billion
ppm	Parts per million
psi	Pounds per square inch
t	Tonne

1 Introduction

The purpose of this *Bass Strait Oil Pollution Emergency Plan* (OPEP) is to describe the actions and arrangements that Esso Australia Resources Pty Ltd (Esso) has in place to respond to an oil pollution incident from any one of the company's producing and non-producing petroleum activities in Bass Strait (Figure 1-1).

Spills can range from Level 1 (small single event releases that can be addressed with onsite resources) to Level 2 or Level 3 (ongoing/large releases that require regional, national and/or international resources). This plan is designed to provide the full range of available response options and plans for all spills, regardless of the Level and is therefore, not specific to a particular activity or scenario. Refer to Table 3-2 for details on response Level assessment.

It is designed such that the Incident Management Team (IMT) and Emergency Response Team (ERT) have immediate access to the full suite of response action plans for each Level and can select and implement the appropriate plan based on the specific emergency situation.

This OPEP provides information on potential response options that can be used to support the selection of viable strategies (and the elimination of non-viable strategies) in the event of an oil spill response. It details the initial and ongoing actions to take following a spill incident, the response framework and organisation structure, and step-by-step guides for key roles and responsibilities. This OPEP is an operational document which provides key information on the response resources that are available for all Levels of incidents, notification requirements, estimated timeframes for mobilisation, and termination criteria.

1.1 Description of activities

This OPEP covers Esso's activities within Bass Strait, offshore Victoria's southern coast.

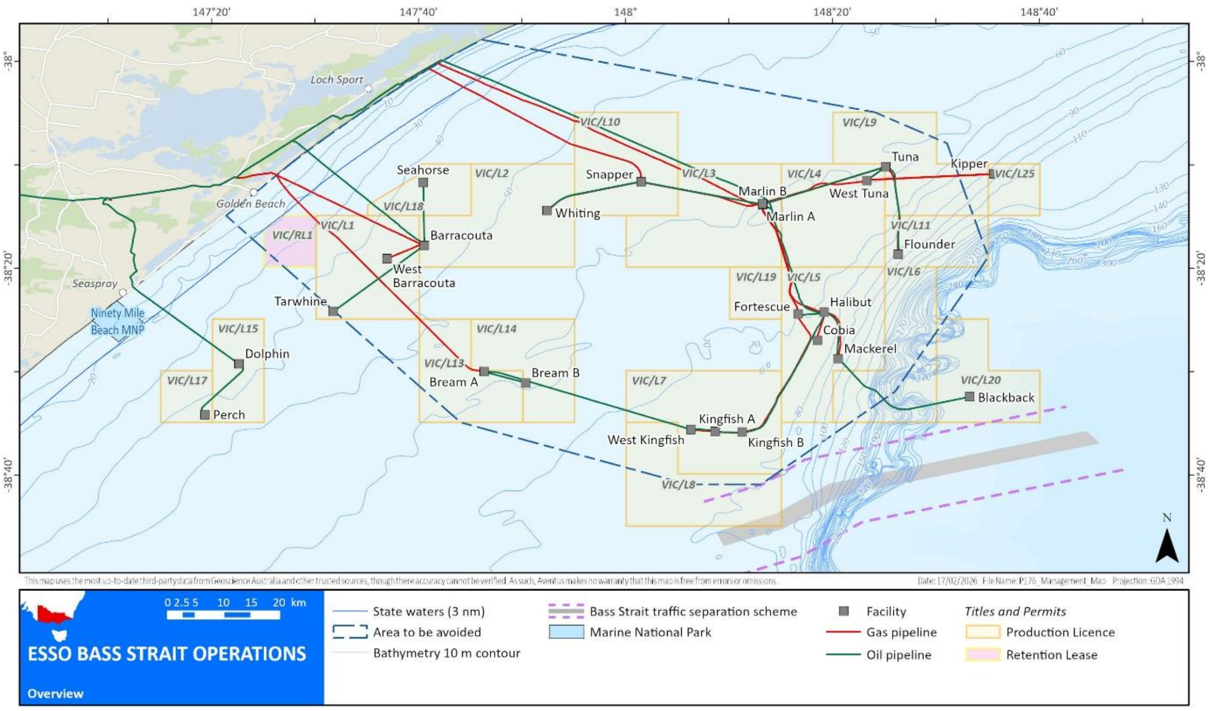

Figure 1-1 Asset locations

The Bass Strait facilities consist of both producing and non-producing infrastructure, comprised in total of 425 wells, 19 offshore platforms and six subsea facilities that are connected by over 800kms of pipeline. Water depths at each facility range from 38m (Dolphin facility) to 402m (Blackback subsea facility). An Area to Be Avoided excludes unauthorised vessels greater than 200t or 24m in length from entering the area around the Bass Strait offshore platforms. The Area To Be Avoided is defined in Schedule 2 of the *Offshore*

Petroleum and Greenhouse Gas Storage Act 2006 (Cth) (OPGGS Act) and administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). A traffic separation scheme operates to the south of the Area To Be Avoided to control coastal shipping.

1.1.1 Producing activities

The primary purpose of the operational offshore facilities is to extract, process and transport hydrocarbons onshore for further processing and distribution to customers. In order to do this, a range of activities are undertaken to support gas and condensate production. Activities associated with the producing infrastructure include:

- production of gas and condensate from platforms and subsea facilities
- transport of gas and condensate to shore via export pipelines
- wellwork activities, including well plug and abandonment (P&A)
- inspection, maintenance, and repair activities for platforms, subsea facilities and pipelines
- support activities (including vessels, remotely operated vehicles (ROVs) and helicopters).

1.1.2 Non-producing activities

After delivering energy to Australia for over 50 years, many of the Bass Strait fields are now reaching the end of their productive life. Some facilities in the Bass Strait region are therefore no longer considered producing facilities. Non-producing activities include:

- activities associated with Cessation of Production and Stasis
- wellwork activities, including well P&A
- facilities preparation for decommissioning, including flushing and draining of pipelines
- inspection, maintenance and repair activities for platforms, subsea facilities and pipelines
- support activities (including vessels, ROVs and helicopters).

1.2 Objectives

The objectives of this OPEP are to:

- define the roles and responsibilities for Esso to assess and then respond to a hydrocarbon spill
- describe the process for deployment of spill response strategies that will be used by Esso (and its partners)
- describe the procedures for mobilising company, industry and national support resources to support these spill response strategies
- clearly outline guidance to plan-users on how the above is to be undertaken, consistent with regulatory requirements
- integrate Esso's response with relevant government and industry plans for example:
    - *National Plan for Maritime Environmental Emergencies – 2020 edition* (AMSA, 2020) (National Plan)*
    - *State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3* (DTP, 2025a)*
    - *NSW State Waters Marine Oil and Chemical Spill Contingency Plan* (NSW State Emergency Management Committee, 2022)*
    - *Tasmanian Marine Oil Spill and Chemical Spill Contingency Plan* (EPA Tasmania, 2022) (TasPlan)*
    - *Australian Industry Cooperative Oil Spill Arrangements* (AMOSC, 2025) (AMOSPlan)*.
- Describe how Esso will implement its Incident Management System in responding to oil spills.
- Describe the link for ExxonMobil's global resources and services to be deployed as part of Esso's local response.

*Refer to Section 4.6 for further information.

1.3 Scope

This OPEP provides the hydrocarbon spill response plans to respond to any spill from Esso's Bass Strait producing or non-producing activities. The OPEP supports the possible worst-case discharge scenarios (WCDS) from the activities outlined in the *Producing Environment Plan* (AUGO-EV-EMM-000) and *Non-producing Environment Plan* (AUGO-EV-EMM-021) and can be used to support project Environment Plans (EPs) where applicable.

The geographic scope of activities as directed by the OPEP (particularly for Level 2 and Level 3 hydrocarbon spills) would likely apply to an area beyond Esso's petroleum titles. This includes Commonwealth waters off southeastern Australia, and State waters of Victoria, NSW and Tasmania. Staging areas for activities, as far as practicable, will be based in Victoria.

1.4 Concept of spill response operations

Esso's concept of operations for responding to spills is based on Esso's environmental commitment detailed in the ExxonMobil Environment Policy. This translates to a series of commitments by Esso in the event of a loss of containment occurs or is suspected. Esso will:

1. Conduct early and accurate identification of spilt hydrocarbons.
2. Conduct an assessment and identification of defensible and proportionate spill response strategies.
3. Tactically implement identified spill response strategies in a timely fashion.
4. Monitor the effectiveness of those strategies in order to achieve the EPOs for this OPEP.

Esso will mobilise its resources to achieve the above.

Esso's Oil Spill Monitoring Program (OSMP) will inform both operational and scientific monitoring and will be used in conjunction with the OPEP until such time as its own independent termination criteria have been met.

1.5 Safety, health and environment policies

Hydrocarbon spill response activities under the control of Esso shall be implemented in a manner that reflects Esso's legal commitments to best practice workplace health and safety. That is, in accordance with Esso's safety, health and environment policies and consistent with the outcomes sought from *National Plan Guidance on: Marine Oil Spill Response Health and Safety* (AMSA, 2018).

Prior to implementing spill response operations, for activities that are outside Esso's business as usual operations, activities will be risk assessed, and should additional consequences be introduced, these shall be mitigated as appropriate.

Esso will develop and implement a spill response safety plan which documents this process. Safety risk mitigation measures, using a mix of process and personnel safety, will be put in place using the established hierarchy of control methods, as shown in the Figure 1-2.

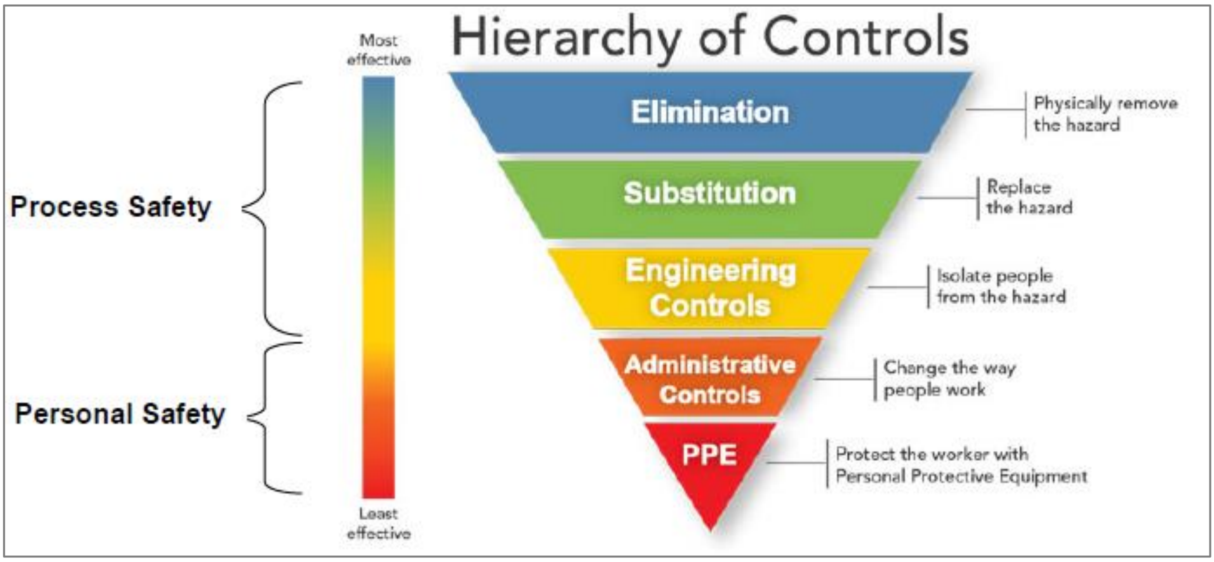

Figure 1-2 Hierarchy of Controls as part of a safe system of work

'Baseline' measures such as establishing controlled entry at polluted sites, wearing personal protective equipment and the use of safe working practices supported by suitable training, will be an integral part of response operations.

In cases where available measures to reduce the risk of injury or detrimental health implications cannot be lowered to an acceptable Level, that activity or specific response strategy will not be viable until conditions change. Examples of this include situations where fresh hydrocarbons are releasing vapours, where sea conditions prevent safe working on the deck of a vessel, or where offshore installations and assets no longer present stable safe working platforms.

In implementing spill response activities, Esso, its contractors, and other parties supporting the response, shall always be mindful of the company's emergency response priorities, using the acronym 'PEAR':

- P – People
- E – Environment
- A – Assets
- R – Reputation.

1.6 Banding of responses based on Control Agency triggers and stakeholder interfaces with Esso

To hasten the implementation of appropriate spill response measures, Esso has developed three different action lists for use by the Esso IMT, based on the proximity of spilt oil to Victorian coastal waters and shorelines:

- localised impacts (Level 1)
- significant State water impacts (Level 2/3)
- significant Commonwealth water impacts (Level 2/3).

The intent behind this 'banding' is to quickly establish the Esso response framework, and to implement the most time critical responses using the available resources. Figure 1-3 outlines this intent. For further information on spill response Levels, refer to Table 3-2 in Section 3.

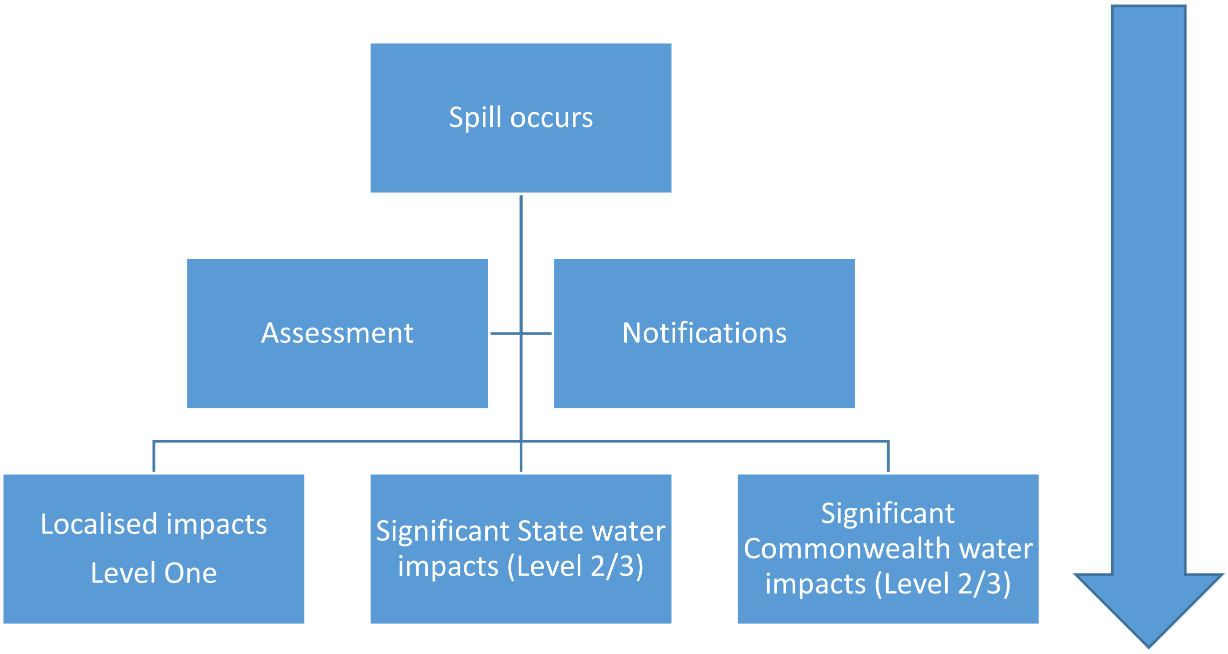

Figure 1-3 Banding responses according to potential impacts

2 Initial information

2.1 Oil types

The Esso Gippsland Basin producing and non-producing operations include the following hydrocarbon types:

- condensates
- light marine oil
- light crude
- persistent crude.

Properties of hydrocarbons used for WCDS modelling conducted by RPS (RPS, 2025) (RPS, 2019) are detailed in Section 2.1.5, and summarised in Table 2-2.

The main physical properties that affect the behaviour of spilt oil are specific gravity/API, distillation boiling point characteristics, asphaltene content, viscosity, and pour points.

In the event of a spill, these oils will weather/degrade differently depending on the oil type and its physical and chemical properties, as well as on the prevailing weather conditions, sea conditions and the length of time it is exposed to these conditions (IPIECA-IOGP, 2013a).

2.1.1 Light marine oil

Light marine oil is loaded from supply vessels onto all offshore platforms and is stored on platforms and vessels in bulk tanks. It is used in vessel and platform engines and operating equipment such as cranes.

Light marine oil is a Group[1] 2 oil and is a common marine fuel and is classed as a medium petroleum distillate. Light marine oil is a mixture of both volatile and persistent hydrocarbons.

Behaviour when spilt is generally rapid spreading, rapid evaporation and some dispersion or dissolution. Light marine oil may emulsify at low temperatures when fresh, but the emulsification is likely to be 'unstable' (CEDRE, 2024).

Light marine oils such as marine diesel oil (MDO) contain 95% light hydrocarbons (or non-persistent constituents) that are likely to evaporate when exposed to the atmosphere. The remaining 5% is composed of more persistent compounds that may persist on the sea-surface for extended periods but will degrade slowly over time.

The viscosity of MDO does not change significantly over time and hence has a strong tendency to physically entrain into the upper water column as oil droplets in the presence of waves but can refloat to the surface if wave energies abate (CEDRE, 2024).

2.1.2 Condensate

Condensate is a Group 1 liquid hydrocarbon that condenses out of reservoir gases as the pressure and temperature of the gas drops on rising to the surface (liquid gas).

When spilt, condensate behaves in a manner similar to light marine oil, with generally rapid spreading, rapid evaporation, dispersion and dissolution. There is a low likelihood of emulsification, however, some

[1] Classification of petroleum-based oils or 'oil groups' are compiled from various IMO, ITOPF, US Environmental Protection Agency and US Coastguard publications. Ref AMSA 2012 Table 8 for classification criteria.

condensates may contain inert, relatively non-toxic waxes which may persist for some time as they degrade (CEDRE, 2021).

Condensates comprise a very high content of volatile (or non-persistent) constituents (approximately 97 – 99%). Therefore, it is expected that any condensates spilt on the sea-surface would quickly be lost to the atmosphere via evaporation. Smaller droplets may remain in the water column for a longer period undergoing microbial degradation over time. Any persistent (heavy) hydrocarbons may persist longer and may take the form of small solid relatively non-toxic waxy flakes on the sea-surface or entrained in the water column in turbulent waters given the rough environmental conditions of the region (CEDRE, 2021).

2.1.3 Persistent crude

While Esso's facilities are no longer producing crude in the Bass Strait region, persistent crudes may be encountered in the event of a WCDS from P&A activities that may encounter crude from depleted reservoirs. These crudes contain a high proportion of wax, with a corresponding high pour point. Persistent crudes are likely to solidify in the environment as they weather over time (ITOPF, 2024).

The properties of these crudes classify them as a Group 4 oil due to the high pour point (above ambient temperature) according to the International Tanker Owners Pollution Federation Limited (ITOPF) (2014).

Given the tendency to form solid masses at ambient sea temperatures, the opportunity to use and the effectiveness of chemical dispersants is diminished on persistent crudes.

2.1.4 Summary of modelled scenarios

To support offshore environmental impact and risk assessments, Esso engaged RPS to perform a comprehensive oil spill modelling study (RPS, 2025). This study evaluated six hypothetical loss of well control scenarios at four locations and two pipeline rupture loss of containment scenarios at two locations, as in Table 2-1 (these eight scenarios were chosen to represent the current WCDSs as outlined in Section 7.8 of the Producing and Non-Producing EPs).

Table 2-1 Details of the scenarios used within the RPS 2025 modelling report

Scenario number	Volume (m^3)	Hydrocarbon type	Length of scenario	Location	Scenario details
1	35,839	Kipper condensate	98 days	Marlin platform	Surface release after a loss of well control (with production from current production tubing against zero wellhead pressure)
2	144,054	Kipper condensate	98 days	Marlin platform	Surface release after a loss of well control (with production from current production tubing against zero wellhead pressure)
3	1324	Moonfish crude	98 days	Tuna platform	Surface release following a loss of well control accidental release incident
4	41,448	Barracouta condensate	98 days	West Tuna platform	Surface release after a loss of well control (with production from current production tubing against zero wellhead pressure)

Scenario number	Volume (m^3)	Hydrocarbon type	Length of scenario	Location	Scenario details
5	23,373	Barracouta condensate	98 days	Snapper platform	Surface release after a loss of well control (with production from current production tubing against zero wellhead pressure)
6	779	Moonfish crude	98 days	Snapper platform	Surface release following a loss of well control accidental release incident
7	1123	Kipper condensate	1 hour	MLA500 pipeline location	Subsea release following a pipeline rupture loss of containment incident
8	3302	Kipper condensate	16 days	HLA600 pipeline location	Subsea release following a pipeline rupture loss of containment incident

Stochastic oil spill trajectory modelling was conducted to evaluate the effect of WCDSs from Esso's Bass Strait Producing and Non-Producing EPs. Other project specific modelling has been conducted and is referenced in project EPs accordingly, however this OPEP may be used to support those projects.

In addition to the stochastic modelling, deterministic modelling was also conducted, and presented based on the following criteria:

1. Largest swept area of surface oil ≥10g/m^2.
2. Largest (total) volume of oil ashore.
3. Greatest length of shoreline with oil ≥100g/m^2.
4. Largest area of entrained hydrocarbon exposure ≥10ppb.
5. Largest area of dissolved hydrocarbon exposure ≥10ppb.

The deterministic modelling criteria listed above were determined for the worst-case simulation between the modelled scenarios.

Appendix D provides maps and a description of predicted impacts of the representative worst-case scenarios.

A comprehensive description of the different types of sensitivities related to each activity can be found in the Producing and Non-Producing EPs.

Additionally in 2019, RPS generated a *Gippsland Basin Vessel Activities Oil Spill Modelling* (RPS, 2019) for Esso which evaluated five hypothetical vessel-related scenarios involving light marine oil. The scenarios modelled vessel collisions involving MDO and are as follows:

- Scenario 1: A 280m^3 surface release of MDO over 6 hours in the event of a loss of containment after a vessel collision at the West Kingfish platform.
- Scenario 2: A 280m^3 surface release of MDO over 6 hours in the event of a loss of containment after a vessel collision at the Perch platform.
- Scenario 3: A 280m^3 surface release of MDO over 6 hours in the event a loss of containment after a vessel collision at the Barracouta platform.
- Scenario 4: A 280m^3 surface release of MDO over 6 hours in the event a loss of containment after a vessel collision at the Kipper facility.
- Scenario 5: A 220m^3 surface release of MDO over 6 hours in the event a loss of containment after a vessel collision at the Halibut A platform.

2.1.5 Summary of hydrocarbon characteristics used in oil spill trajectory models

The physical characteristics of the oil types that were used for modelling are defined in Table 2-2. (These hydrocarbons were chosen to represent the current WCDS as outlined in the Producing and Non-Producing EPs section 7.8).

Table 2-2 Summary of hydrocarbon characteristics used in oil spill trajectory models (RPS, 2025) (RPS, 2019)

	Density @15 °C	API	Dynamic Viscosity @15 °C	Pour Point °C	Wax Content %	Oil Property Category
Kipper condensate	760.0kg/m^3	54.5	0.64cP	-39.0	2.3	Group 1
Moonfish crude	887.0kg/m^3	27.8	4.50cP	33	38.5	Group 4
Barracouta condensate	772.3kg/m^3	51.6	0.99cP	-39.0	1.8	Group 1
MDO	829.1kg/m^3	37.6	4.00cP	-14°	NA	Group 2

3 First strike response actions (0 - 48 hours)

3.1 Flowchart of initial actions

This Section details the actions that Esso will undertake in the event of a hydrocarbon spill resulting from an Esso activity.

All staff are to be guided by the spill response incident flow chart in

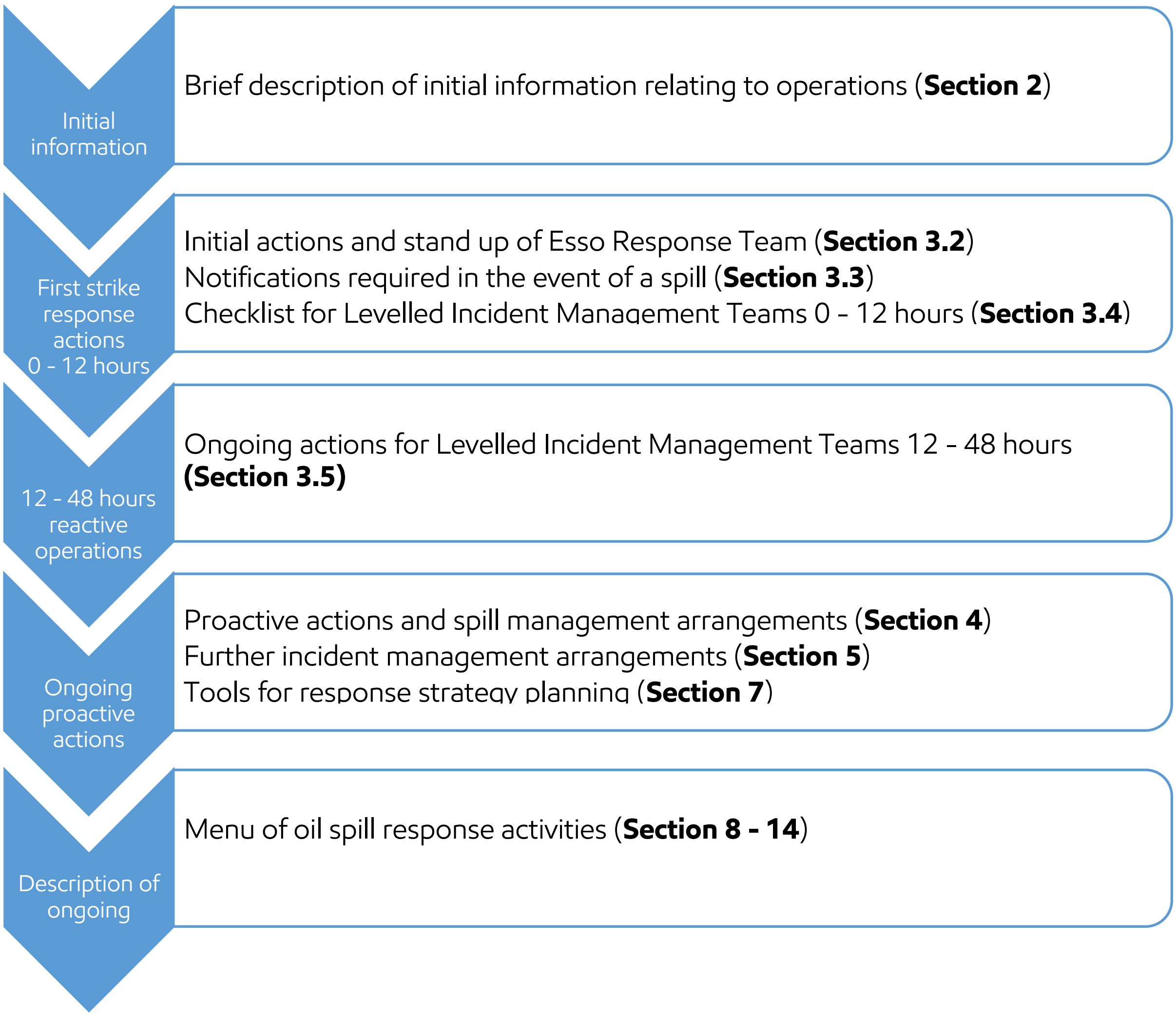

Figure 3-1 Spill response incident flow chart

Spill response should be sustained until termination end points (refer to Strategy summary sections within each response strategy) and environmental performance objectives are reached for each response strategy.

Upon detection of a spill, Esso will undertake an initial three step process, as in Figure 3-2.

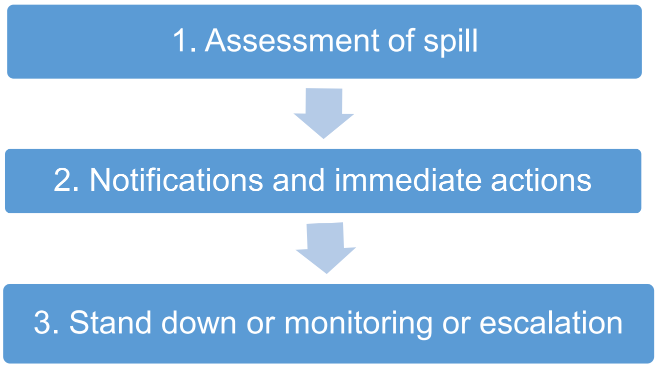

Figure 3-2 Spill detection – initial three step process

3.2 Emergency Response Team immediate actions

In the event of a spill to the marine environment, actions will be undertaken depending on the nature of the incident. The ERT comprises on-site personnel who are responsible for initiating these actions.

These may include the following actions:

- Implement source control options.
- Begin an assessment in order to determine further mitigations.
- Determine the size, bearing/trajectory and fate (weathering) of the spill.
- Identify the potential environmental impacts and mitigations.
- Make the appropriate upline notification (Table 3-4).

Onsite personnel utilise the checklist in Table 3-1 to determine these immediate actions.

Table 3-1 ERT immediate actions

Who	What	Minimum time to implement	✓/✗
Observer of spill	• Report the spill to the Offshore Installation Manager or Vessel Master.	ASAP	
Offshore Installation Manager/Vessel Master	Activate the ERT to conduct following actions, where relevant:	ASAP	
	• Secure operations, assess and report damage.		
	• Isolate spill source if safe to do so – implement pipeline de-pressurisation or leak response procedures.		
	• Refer to *Esso Emergency Response Manual) V2-052-008* for response to unknown source.		
	• Ensure that all personnel are accounted for.		
	• Conduct a hazard assessment to determine the potential for fire, explosion, and hazardous/toxic vapours as well as to define the personal protective equipment (PPE) needed by responders.		

Who	What	Minimum time to implement	✓/✗
	• Implement spill mitigation measures to prevent further oil from entering the water, providing it is safe to do so.		
	• Refer to Section 8.2 for further source control instructions.		
	• Report the incident to the Field Superintendent.		
	• The Field Superintendent is then to initiate upward internal communications to the Offshore Asset Manager.		
	• Include the following information (if known): - number of injuries - note ongoing immediate hazards to life (such as risk of fire or explosion) - description of incident - location of the incident - status of source - time of incident - people and assets involved in the incident - current field objectives/actions - details of support required.		
	• Report on weather and sea states, including: - current/tide-stream speed, direction and period - wind speed, direction and period - wave height and direction - swell height and direction.		
	• Request helicopter overflight.		
	• Determine the spill trajectory noting the speed and direction of the spill.		
	• Determine the product type and volume: - Is the source contained, ongoing, isolated or stopped? - Provide a visual description of the slick (e.g. is it breaking up, floating, sinking, etc.). - Calculate/estimate the spill volume (Bonn Agreement Calculator).		
	• Note any immediate sensitivities in the area at risk from the spill.		

Who	What	Minimum time to implement	✓/✗
	• Evaluate the incident and determine the incident classification/Level (refer to Table 3-2).		
	• Confirm this Level with the Offshore Asset Manager.		
	• Report the incident as per Table 3-4.	<2 hours	

3.3 Immediate notification process

Once a spill has occurred, the relevant Offshore Asset Manager (Producing or Decommissioning) is responsible for assessing the spill level and determining whether the Esso IMT is to be activated.

Notifications and immediate actions are to be carried out concurrently by designated members and functional sections of the ERT or IMT, where appropriate.

In the case that the IMT is activated, resources will be mobilised in line with the guide shown in Table 3-2 and Table 3-3.

Table 3-2 Response level assessment

On the basis of information gathered by the ERT/IMT, and in conjunction with the planning section Chief/Safety, Security, Health, and Environment Team, a spill level is to be determined using the following indicators:

Criteria	Level 1 Indicators	Level 2 Indicators	Level 3 Indicators
Type	Non-persistent oils (>50% loss after 24 hours)	Persistent oils (<50% loss after 24 hours)	Persistent oils (<25% loss after 24 hours)
Location	Located within a 3nm radius of the spill location	Spreading/moving into adjacent waters, presenting a threat to State waters	Spreading/moving into State waters and shorelines
Direction/heading	Not moving/heading offshore	Heading onshore/towards State waters	
Spill status	Small single release	Ongoing/large single release	
Ecological impact	Isolated impacts/no impact; natural recovery expected within days/weeks	Significant impacts across a single area; natural recovery may take weeks/months	Significant impacts across a large area; recovery may take months/years

If any one of the above criteria are triggered, adopt the higher-level response until de-escalation can occur.

Table 3-3 Resourcing guide by level

Level 1 response	Level 2 response	Level 3 response
• Dealt with predominantly by the ERT, using existing Esso business-as-usual resources*. • Supported by Victoria-based Esso resources; may involve the use of Australian Marine Oil Spill Centre (AMOSC) technical advice or resources. • Of short duration. • Requires Level 1 (local) resources.	• Requires assistance external to the site and a formal command and control structure. • Esso IMT stood up; planning 'P' process implemented as soon as possible. • ERT resources supplemented by AMOSC resources, Victoria State and/or National Plan resources. • Of short or medium-term duration. • Potential for significant State government engagement (shoreline and Public and Government Affairs). • Requires both Level 1 and Level 2 resources.	• Requires an expanded IMT and full use of Incident Command System (ICS) processes with multiple planning periods. • Planning 'P' process used fully. • Extensive external national and (potentially) global resources (both in terms of personnel and technical and equipment-based resources). • Results in a lasting campaign/project duration. • Requires significant State and Australian government engagement. • Level 1, 2 and 3 resources mobilised.

*Esso activities involving other facility operators (e.g. a jack up rig for a drilling campaign) may form agreements through bridging documents to coordinate Level 1 response activities within the assigned operating area (usually within a 500m radius from location).

For the purposes of this document, the relevant roles have been grouped and colour coded as follows:

- Emergency Support Group (ESG)
- Incident Commander
- Offshore Installation Manager
- Safety Officer
- Vessel Master
- Planning:
    - Environment Unit Lead
    - Planning Section Chief
    - Situation Unit Lead
- Operations:
    - Operations Section Chief
- Logistics:
    - Logistics Section Chief

The required notifications are outlined in Table 3-4.

Table 3-4 Notifications to make in the event of an oil spill

Who	What	Minimum time to implement	✓/✗
Incident Commander/ Deputy Incident Commander	A reportable incident is one that has caused, or has the potential to cause, moderate to significant environmental damage (interpreted as the following): • Unplanned release of hydrocarbon liquid or chemicals exceeding >80L into the marine environment caused by, or suspected to have been caused by, petroleum activities. • Unplanned injury or death of a cetacean or threatened/migratory/marine species caused by, or suspected to have been caused by, petroleum activities. A list of these species can be found in the Section 3 of the EP. Required for: all spills >80L. Ensure the NOPSEMA Duty Officer has been notified: • Telephone: 1300 674 472 Relay the known key facts of the spill – location, source, size and type – as well as known incident factors causing the spill, and current assessed spill level.	<2 hours	
	Report incident to the Department of Energy, Environment and Climate Action (DEECA) Wildlife Emergencies within 2 hours: • Primary Telephone: 1300 114 828 • Backup Telephone: 136 186 Relay the known key facts of the spill – location, source, size and type – as well as known incident factors causing the spill, and current assessed spill level.	<2 hours	
	Requirement: All Level 2/3 spills that could impact **Victorian** State waters (<3nm). Notify the Department of Transport and Planning (DTP) State Duty Officer: • Telephone: 1800 956 557 If for any reason the State Duty Office cannot be contacted, notify the State Agency Commander: • Telephone: 1800 973 552 Relay the known key facts of the spill – location, source, size and type – as well as incident factors causing the spill, and current assessed spill Level. The initial verbal notification must be followed up by an email containing a more detailed Marine Pollution Incident Report Form to sccvic.sdo.transport@scc.vic.gov.au.	<2 hours	

Who	What	Minimum time to implement	✓/✗
	For Level 2 and Level 3 spills, exchange Liaison Officers between Esso and DTP Safety Resilience and Emergency Coordination.		
	Required for: all spills that could impact **NSW** State waters. Notify the Transport for NSW Duty Officer of the need to stand-up State response arrangements. Transport for NSW Marine Pollution and Emergency Response Duty Officer: Telephone: 02 9962 9074 Notify Transport for NSW via the 24-hour pollution hotline: Telephone: 13 12 36 For more information, refer to the *NSW State Waters Marine Oil and Chemical Spill Contingency Plan* (NSW State Emergency Management Committee, 2022).	<2 hours	
	Required for: all spills that could impact **Tasmanian** State waters. Notify the Environment Protection Authority (EPA) Tasmania of the need to stand-up State response arrangements. EPA Tasmania Pollution Incidents and Complaints: Telephone: 1800 005 171 The initial verbal notification must be followed up by an email containing a more detailed Pollution Incident Report to incidentresponse@epa.tas.gov.au For more information, refer to the TasPlan.	<2 hours	
Vessel Master	Required for: all spills from vessels. Contact AMSA Connect: Tel: 1800 627 484 Notify the AMSA General Manager through the Joint Rescue Coordination Centre: Telephone: +61 (0)2 6230 6811 Notify AMSA Search and Rescue (if required): Telephone: 1800 641 792	<2 hours	
	Follow up with the completion and submission of a pollution report. https://www.amsa.gov.au/forms/harmful-substances-report-polrep-oil	<24 hours	

Who	What	Minimum time to implement	✓/✗
	Relay the known key facts of the spill – location, source, size and type – as well as incident factors causing the spill, and current assessed spill Level.		
Environment Unit Lead	Required for: all spills >80L. Notify the National Offshore Petroleum Titles Administrator (NOPTA) via email: Email: NOPTA: reporting@nopta.gov.au Relay the known key facts of the spill – location, source, size and type – as well as known incident factors causing the spill, and current assessed spill Level.	<6 hours	
	Required for: all spills that impact or have the potential to impact Gippsland Port. Notify Port Authority on (03) 5150 0500 or Phone Gippsland Ports On-call Officer on 0408 185 59 Email: feedback@gippslandports.vic.gov.au	Not specified, but aim for <6 hours	
	Required for: all spills that are within a marine park or could impact a marine park. Notify the Director of National Parks via the 24-hour Marine Compliance Duty Officer: • Telephone: 0419 293 465 Send a follow up email to marine.compliance@environment.gov.au.	<12 hours	
	Follow up verbal notification to NOPSEMA with a written record of the incident as soon as practicable, but in any case, within 3 days[2] of a reportable environmental incident (as described above) unless otherwise agreed by NOPSEMA. This report can be made on NOPSEMA report form N-03000-FM0831, found below: Report of an Accident Dangerous Occurrence or Environmental Incident (FM0831)	<3 days	

[2] As per the Environment Regulations and as outlined in *Notification, Reporting and Recording Requirements for Incidents* (NOPSEMA, 2025).

Who	What	Minimum time to implement	✓/X
	Submit written reportable incident report using NOPSEMA's Secure File Transfer service or by email to submissions@nopsema.gov.au. A copy of the written report must be given to DEECA Earth Resource Regulation within 3 days. ERRChiefInspector@ecodev.vic.gov.au		
	A copy of the written report must also be given to NOPTA within 7 days of giving the written report to NOPSEMA.	<7 days after report given to NOPSEMA	
Once all appropriate authorities have been notified, move onto the appropriate immediate actions tables in Section 3.2 and Section 3.4.			

3.4 Incident Management Team actions 0 – 12 hours

The following Sections detail the actions to be carried out by the IMT within the first 12 hours of an incident occurring. Section 3.4.1 should be completed for all spills, regardless of Level or source. When the incident has been appropriately identified as either Level 1, 2 or 3, the IMT should then refer to Section 3.4.2, or Section 3.4.3. Level 2 and 3 have been combined in Section 3.4.3.

3.4.1 Immediate actions for all spills

Table 3-5 IMT immediate actions for all oil spill Levels

Who	What	Minimum time to implement	✓/X
Duty Incident Commander	• Establish communications with the Offshore Installation Manager/Vessel/ERT Leader, obtain situational awareness briefing and determine the next steps.	ASAP	
	• Confirm the following details with the field-based team: - Incident details – what happened? - What are the current field operations? - What are the immediate incident objectives and priorities? - What support is required from the Esso IMT in order to execute the immediate objectives?		
	• Notify the Emergency Support Group Leader of the incident and request Emergency Support Group support as required.		
	• Notify Safety, Security, Health, and Environment and Public and Government Affairs.		

Who	What	Minimum time to implement	✓/X
	• Activate the Esso IMT – Deputy Incident Commander, Operations Section Chief, Planning Section Chief, Logistics Section Chief, Safety Officer and Environment Unit Lead, following which: - provide an initial incident briefing to the Esso IMT - commence the incident action-planning process - commence the size-up of the incident as appropriate to its nature and scale - establish incident response aim and objectives and offer support to the affected facility - begin working to meet incident and oil spill response objectives.	< 60 mins	
	• In conjunction with the Planning Section Chief, Environment Unit Lead and the Safety, Security, Health and Environment Team, determine and confirm the appropriate response Level. • Use the response level assessment and resourcing (Table 3-2) to drive this process.	4 hours	
Incident Commander, Planning Section Chief and Operations Section Chief	• Determine the response required from Esso: - Stand down – No spill/no oil left. - Level 1 – Monitoring of site-based response until completion. - Level 2 or 3 – Significant field and IMT escalation with significant additional resources required.	5 hours	
Once ERT and IMT-based assessment tasks are completed, move on to appropriate IMT action table: • Level 1 spills - Section 3.4.2. • Level 2/3 spills - Section 3.4.3.			

3.4.2 *Incident Management Team Level 1: 0 – 12 hours Commonwealth waters, localised impacts*

Following the notifications, immediate actions by spill Level are as follows:

- Level 1 - Table 3-6.
- Level 2/3- Table 3-7.

The tables are coded by Planning, Operations, and Logistics sections/areas.

Table 3-6 IMT Level 1 actions: 0 – 12 hours

Who	What	Minimum time to implement	✓/X
	• Commence the planning cycle (the 'stem' of the planning 'P'):	<2 hours	

Who	What	Minimum time to implement	✓/✗
Incident Commander	- establish incident aim - establish incident response aim and objectives - determine appropriate initial strategies and tactics to achieve objectives.		
	• Confirm a hydrocarbon spill to marine or coastal waters has occurred.	<4 hours	
	• In conjunction with the Emergency Support Group leader, ensure all necessary regulatory notifications have been made.	12 hours	
	• Confirm Level of hydrocarbon spill.	<24 hours	
Operations Section Chief	If the source is not controlled, establish a Source Control Branch to develop and implement the Source Control Plan.	ASAP	
	• Undertake aerial surveillance: - deploy surveillance by crew change or contracted aircraft* - initiate mobilisation of a trained aerial observer, Esso or AMOSC - obtain photographs or video footage - obtain completed aerial observer's report and pass to the Planning Section Chief/Situation Unit Lead - As detailed in O1.3 and O1.4 of the OSMP.	ASAP, then twice daily	
	• Deploy a regular watch of the affected assets/vessel – confirm heading/changes to the situation, as detailed in O1.4 of OSMP.	ASAP, then by reporting exception.	
Logistics Section Chief	• Confirm the location of aerial and marine assets currently contracted to Esso.	4 hours	
Environment Unit Lead	• Ensure successful activation of the OSMP 'O' module 4.1.	ASAP	
	• Review the OSMP to determine which other modules may need to be initiated.		
Planning Section Chief	• Initiate elements of O1 of OSMP, including 1.1, 1,2, 1.3 and 1.4.	ASAP	
	• Monitor and predict weather and sea states.	4 hours	
	• Consult meteorology services to determine water current and wind speed data from http://www.bom.gov.au, as detailed in O1.1 of the OSMP.		

Who	What	Minimum time to implement	✓/✗
	• Organise third-party trajectory modelling of the spill trajectory, organise urgent oil-spill trajectory modelling via AMOSC (access to RPS via AMOSC membership), or OSRL.		
	• Prepare and disseminate situational reports as more information becomes available. The Incident Commander is responsible for determining the frequency of these updates.	Ongoing	
	• Consult the preparedness Net Environmental Benefit Analysis (NEBA) and Appendix D: Quick Reference Information to identify potential exposed environmental sensitivities based on spill trajectory, and develop an Incident Action Plan, including a spill-specific NEBA (refer to Section 1.1).	12 hours	
Situation Unit Lead	• Establish a common operating picture – a graphical representation of the spill and its location. • Display overflight, oil spill trajectory modelling/data on common operating picture.	4 hours	
Once these actions are complete, please move to Section 4.			

* Ability to deploy subject to available daylight and weather conditions.

3.4.3 *Incident Management Team Level 2/3: 0 – 12 hours Commonwealth waters, State waters and shoreline impacts*

Table 3-7 IMT Level 2/3 Actions: 0 – 12 hours

Who	What	Minimum time to implement	✓/✗
Incident Commander/Operations Section Chief/Planning Section Chief	Determine and agree on the need for a separate Source Control Branch	ASAP	
IC	Seek alignment on incident objectives from the Emergency Support Group.	ASAP	
	In conjunction with the Emergency Support Group leader, confirm all necessary regulatory notifications have been made as per Table 3-4.	<2 hours	
	Establish a full, locally based Esso IMT, including representatives from the Deputy Incident Commander, Operations Section Chief, Aviation Unit, Logistics Section Chief, Planning Section Chief, Environmental Unit of the IMT Situation Unit and other positions as required.		

Who	What	Minimum time to implement	✓/✗
	Establish a line of communications with the DTP IMT and exchange Liaison Officers.		
	Commence the planning cycle (the 'stem' of the planning 'P'): • establish the incident response aim • establish the incident objectives • determine appropriate strategies and tactics to achieve objectives.	<6 hours	
Incident Commander/Emergency Support Group	For Level 3 spills: Initiate the activation of the ExxonMobil Global Response Team (GRT), to be mobilised within 24 hours. Telephone: +1832624999.	<12 hours	
Operations Section Chief	If the source is not controlled, establish a Source Control Branch to develop and implement the Source Control Plan (this should be made up of pipeline or well engineering teams as appropriate to the incident).	ASAP	
	Undertake aerial surveillance: • initiate aerial surveillance using the crew change helicopter or contracted aircraft*. • initiate the mobilisation of a trained aerial observer, Esso or AMOSC • obtain photographs or video footage of the incident • obtain a completed aerial observer's report and pass to the Planning Section Chief/Situation Unit Lead.	ASAP, then twice daily	
	Deploy a twice-daily watch from assets/vessel – confirm heading/changes to the situation.	ASAP then by reporting exceptions.	
	For Level 3 spills: On the advice of the Drilling Engineer/Source Control Branch, mobilise the AMOSC Subsea first response toolkit.	<4 hours	
	Mobilise a satellite tracking buoy (STB) from Longford Heliport of Long Island Point to spill location (weather dependent).	<12 hours	
	Assess the need for and coordinate the development of specific plans to support the Incident Action Plan, including the following: • wildlife management plan		

Who	What	Minimum time to implement	✓/✗
	• shoreline clean-up assessment technique (SCAT) plan • waste management plan • sample plan • dispersant plan • containment and recovery plan • remediation plan.		
Logistics Section Chief	Request AMOSC personnel come to the site as part of the Esso IMT, and that AMOSC personnel enter the field in the marine or aviation forward operating base. For Level 3 spills, 3 x each position should be requested.	<3 hours	
	Request that AMOSC undertake the call-out of AMOSC Core Group resources.		
	Request that AMOSC mobilise four to six STBs to Longford heliport.		
	Discuss potential equipment and service needs (must be spill-size and type specific) with AMOSC, consisting of equipment to execute the shoreline Tactical Response Plans (TRPs).		
	If escalation is required, mobilise further strike teams and equipment from AMOSC stockpile in Geelong.		
	For worst-case loss of well containment scenarios: • additional booming and skimming equipment from Geelong, Jandakot and/or Exmouth.		
	• Confirm the location of aerial and marine assets currently contracted to Esso.	<4 hours	
	Confirm the location and availability of vessels of opportunity in Victoria, as follows: • Contact Atoll Offshore on 03 5116 1511 • Contact Bhagwan Marine on 08 9424 2300.		
	Confirm the location and availability of aerial assets that may be used for aerial observation tasks • Royal Victorian Aero Club 03 8586 7777 or 0409 105 244		
	Consider utilisation of idle fishing vessels (which meet required specifications) by calling 0427 610 025 or 0429 174 606 (Gippsland Harbour Masters) or 0427		

Who	What	Minimum time to implement	✓/✗
	833 388 or 0437 002 707 (Gippsland Ports Chief Executive Officer).		
	Notify the marine and aviation forward operating base of the need to conduct spill response operations and prepare area and hardstand: • Marine bases: - Marine Supervisor Barry Beach Marine Terminal (BBMT) 0407 846 457 - Lakes Entrances 03 5116 1511 (Atoll Offshore). • Airfields: - Esso Longford Heliport 03 5143 4256 - Bairnsdale Airport 0447 132 980.	<6 hours	
	Identify and call-out Esso Core Group members – establish current location and timeframe to deploy to field-based incident command post.	<6 hours	
	For Level 3 spills: Request OSRL technical resources and notify the OSRL Duty Manager of the potential need for resources, as follows: • Contact the OSRL Duty Manager on +6562661566 or +44(0)2380331551. • Initially request up to 5 x technical advisors to mobilise to Esso IMT. Eighteen personnel can be requested in total for large scale incidents.	<6 hours	
	Notify the waste contractor of potential resource needs – specific amounts of liquid and solid waste types to be determined.	<12 hours	
	Assist Operations with assessing the need for and coordinating the development of specific plans to support the Incident Action Plan, including the following: • wildlife management plan • SCAT plan • waste management plan • sample plan • dispersant plan • containment and recovery plan • remediation plan.	<12 hours	
	Prepare Long Island Point-based nearshore/shoreline oil spill response equipment for deployment, to be deployed within 24 hours.	<12 hours	

Who	What	Minimum time to implement	✓/✗
Logistics Section Chief/Planning Section Chief	Contact the waste management provider to be available within 24 hours. Refer to Planning Section Chief for advice on potential volumes and types of waste.	<12 hours	
Planning Section Chief	Initiate elements of O1 of OSMP, including O1.1, O1,2 (detailed below in the following steps).	ASAP	
	Monitor and predict weather and sea states: • Consult meteorology services to determine water current and wind speed data, either from http://www.bom.gov.au, as detailed in O1.1 of OSMP.	4 hours	
	Conduct third-party trajectory modelling of the spill trajectory - organise urgent oil spill-trajectory modelling using AMOSC (RPS via AMOSC membership), or OSRL.	4 hours	
	Identify if the spill crosses into State waters, shorelines, or impacts other sensitivities.		
	Prepare and disseminate situational reports as more information becomes available. The Incident Commander is responsible for determining the frequency of these updates.	Ongoing	
Situation Unit Lead	Establish a common operating picture – a graphical representation of the spill and its location.	4 hours	
	Display overflight and oil spill trajectory modelling/data on the common operating picture.		
Environment Unit Lead	Consult the NEBA (refer to Section 7.2), identify potential exposed environmental sensitivities based on spill trajectory, and develop an Incident Action Plan, including a spill-specific operational NEBA (refer to Section 1.1).	ASAP	
	Activate the OSMP 'O' modules O1.3, O2.1, O2.3 and O4.1.		
	Review the OSMP to determine which other modules may need to be initiated.		
	Liaise with the relevant States Scientific Support Coordination if it is anticipated that State waters or shorelines will be impacted.	6 hours	

Who	What	Minimum time to implement	✓/✗
	Assess the need for and coordinate additional personnel to support the Environmental Unit.	12 hours	
	Assess the environmental consequences of any actions.		
	Participate in the development of plans for the next operational period.		
Once these actions are complete, please move to Section 4.			

* Ability to deploy subject to available daylight and weather conditions.

3.5 Incident Management Team actions 12 – 48 hours

Following the immediate action and assessment process, Esso will establish an IMT structure appropriate to mount actions as required for the response. Recommended minimum IMT structures shown in Figure 3-3 and Figure 3-4.

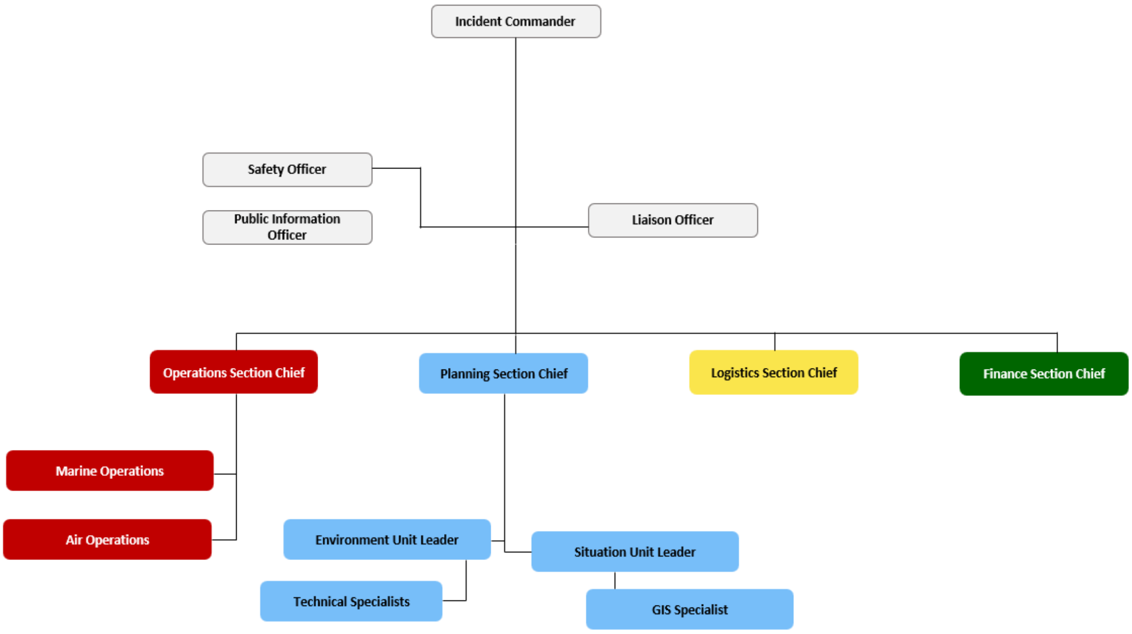

Figure 3-3 Level 1 - Recommended IMT for localised response activities and impacts (offshore IMT)

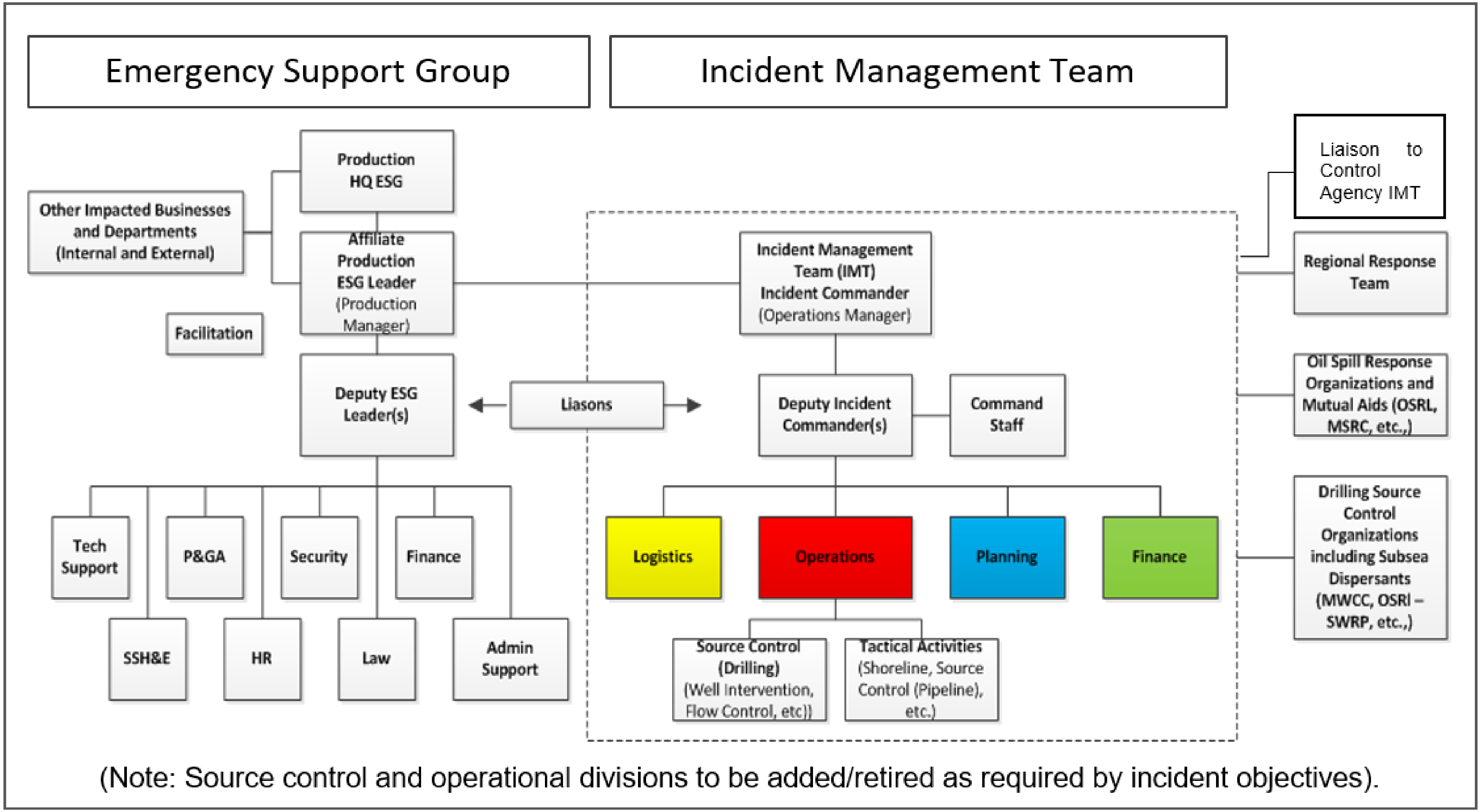

Figure 3-4 Level 2/3 - Esso IMT for expanded multi-jurisdictional impacts

Once the IMT is established, the following checklists are to be used by the functional areas of the IMT to assist each area to execute tasks in support of spill response strategies. Following the 0 to 12-hour actions, actions for the 12 to 48-hour period by spill Level are as follows:

- Level 1 Commonwealth waters, localised impacts: Table 3-8.
- Level 2/3 Commonwealth waters, no predicted State water or shoreline impacts: Table 3-9.
- Level 2/3 State water and predicted shoreline impacts: Table 3-10.

Note: From this point forward, ***IMT members are to utilise their Incident Management Handbooks*** and IMT role descriptions to guide their daily activities, with this OPEP providing guidance.

Sections of the OPEP continue to be colour coded to provide section-specific guidance to command, Planning, Operations, and Logistics sections/areas.

3.5.1 Incident Management Team Level 1: 12 – 48 hours Commonwealth waters, localised impacts

Table 3-8 IMT Level 1 actions: 12 – 48 hours Commonwealth waters, localised impacts

Level 1 - Commonwealth waters, localised impacts only IMT			**Completed?**
Establish and staff the Esso IMT that oversees the implementation of oil spill response measures			
Incident Commander	Day 1	• Establish IMT: - Identify Incident Commander/Operations Section Chief Planning Section Chief and environmental units.	
Incident Commander	Day 2	• Review team make-up for current, and future operational period. Are the functional areas aligned with the needs of the response?	
Draft and execute an Incident Action Plan			
Incident Commander	Day 1	• Commence planning cycle ('stem of P').	
Planning Section Chief	Day 1	• Complete the initial Incident Action Plan (ICS 201 sheet): - establish current operational period aim, objectives, strategy, tactics and resources - draft 24 and 48-hours incident potential worksheet (size up). - complete NEBA - confirm potential environmental sensitivities - confirm feasibility of first strike marine response for containment and recovery or dispersant operations - confirm feasibility of first strike surveillance monitoring and visualisation (SMV) aviation response.	
		• Inform DTP of Esso intent – provide ICS 201 and situational report.	

Level 1 - Commonwealth waters, localised impacts only IMT			Completed?
		• Undertake risk assessment of any proposed tactical execution of strategy (below actions – marine/aviation operations).	
Operations Section Chief Branch Manager	Day 1	• As needed, execute source control arrangements: - activate Australia Wells Team Tier II-III Emergency Response Plan - containment contracts/assistance contracts - activate pipeline repair - activate marine salvers.	
Planning Section Chief	Day 2	• IMT continues planning cycle (stem of the planning 'p'). • Review the ICS 201 from the previous day: - confirm suitability of the aim, objectives, strategies, tactics and resources for the operational period - review the appropriateness of the spill response Level - continue execution of previous day's plan and modify as needed.	
Operations Section Chief	Day 2	• Plan and execute immediate/first strike operations (as per response strategy checklists) as determined appropriate:	
		• Marine operations – dispersant and containment and recovery: - Vessels – Vessels of opportunity - Equipment – Esso, AMOSC - Personnel – Esso/Esso Core Group/ AMOSC Core Group.	
		• Aviation operations – surveillance operations: - Aircraft	
Logistics Section Chief	Day 2	• Monitor asset staging: - Assess if business as usual locations and assets are adequate for the response.	

3.5.2 *Incident Management Team Level 2/3: 12 – 48 hours Commonwealth waters, no predicted shoreline impacts*

Table 3-9 IMT Level 2/3 actions: 12 – 48 hours Commonwealth waters, no predicted shoreline impacts

Level 2 & 3 - Commonwealth waters, no predicted shoreline impacts **IMT**			**Completed?**
Establish and staff a full Esso IMT that oversees the implementation of oil spill response measures			
Incident Commander	Day 1	• Establish Esso IMT: - call out Incident Commander/Operations Section Chief/Logistics Section Chief/Planning Section Chief/situation and environmental unit - staff each function with teams – in person and/or virtual.	
Incident Commander	Day 2	• Review team make up for current, and future operational period.	
		• Assess if the functional areas aligned with the needs of the response.	
Draft and execute an Incident Action Plan			
Incident Commander	Day 1	• Commence planning cycle ('stem of P').	
Planning Section Chief	Day 1	• Complete the initial Incident Action Plan (ICS 201's): - establish current operational period aim, objectives, strategy, tactics and resources - complete NEBA - confirm the low potential for shoreline impact, or shoreline impact for monitoring only (>100g/m^2).	
		• Assess weather and sea state for the next 48 hours for suitability to conduct marine response and/or aviation response activities.	
		• Exchange Liaison Officers between Control Agency IMT, AMSA and Esso.	
		• Use Liaison Officers to inform Control Agency IMT of Esso ICS 201 outputs and situational reports.	
Operations Section Chief Branch Manager	Day 1	• As needed execution source control arrangements: - activate Australia Wells Team Tier II-III Emergency Response Plan - Pipeline Emergency Response Plan - containment contracts/assistance contracts	

Level 2 & 3 - Commonwealth waters, no predicted shoreline impacts IMT			Completed?
		- Subsea first response toolkit– AMOSC, Oceaneering. - Subsea well intervention service - OSRL - Wild Well Control.	
		• Activate pipeline repair.	
		• Activate marine salvors.	
Planning Section Chief	Day 2	• Review the ICS 201 from the previous day. Assess: - the aim, objectives, strategies, tactics and resources suitability against the current conditions for the operational period - review response organization and staffing needs - continue execution of previous day's plan - if needed, modify the plan	
		• In consultation with Incident Commander, assess readiness to move into proactive planning phase.	
		• IMT commences planning cycle (planning 'p').	
Operations Section Chief	Day 2	Plan and execute immediate/first strike operations (as per response strategy sections). Include: - Marine operations – dispersant, containment and recovery - Vessels – Vessels of opportunity - Equipment – Esso, AMOSC, National Plan (via AMOSC[3]) and OSRL - Personnel – Esso, AMOSC, AMOSC Core Group, National Plan, ExxonMobil GRT, OSRL.	
		• Aviation operations – surveillance, and dispersant operations - Aircraft.	
	Day 2	• Request and stage resources into Gippsland to enable long term operations to occur:	

[3] Esso will enter a contractual arrangement with AMSA to access the National Plan resources, which are requested via AMOSC.

Level 2 & 3 - Commonwealth waters, no predicted shoreline impacts IMT			Completed?
Logistics Section Chief		- Integration of Level 2 and Level 3 resources into the response.	
		• Execute waste management plan: - call out third-party contractor - estimate volumes of liquid waste consistent with large scale containment and recovery.	
		• Equipment mobilisation – temporary storage and decontamination.	
		• Supporting resources for response personnel.	

3.5.3 *Incident Management Team Level 2/3: 12 – 48 hours State waters and shoreline impacts*

Table 3-10 IMT Level 2/3 actions: 12 – 48 hours State waters and shoreline impacts

Level 2/3 – State waters and shoreline impacts IMT			Completed?
Establish an IMT that oversees the implementation of oil spill response measures – Unity of Command Model with Victoria DTP			
Establish and staff a full Esso IMT			
Incident Commander/ Emergency Support Group Lead	Day 1	• Nominate Liaison Officers for Control Agency IMT.	
		• Nominate senior company representative to participate in Joint Strategic Coordination Committee.	
Planning Section Chief	Day 1	• Establish full Esso IMT.	
		• Call out Incident Commander/Operations Section Chief/Logistics Section Chief/Planning Section Chief/situation and environment units.	
		• Staff each function with additional personnel as required.	
	Day 2	• Review team make-up for current, and future operational period.	
		• Ensure that functional areas are aligned with the needs of the response.	
Draft and execute an Incident Action Plan			

Level 2/3 – State waters and shoreline impacts IMT			Completed?
Incident Commander	Day 1	• Commence planning cycle ('stem of P').	
Planning Section Chief	Day 1	• Complete the initial Incident Action Plan (ICS 201 forms): - establish current operational period aim, objectives, strategy, tactics and resources - complete NEBA - determine the potential shoreline impact - assess weather and sea State for the next 48 hours for suitability to conduct marine response and/or aviation response activities.	
		• NEBA outcomes to inform the selection of strategies from Section 8 onwards.	
		• Exchange Liaison Officers between Control Agency IMT and Esso IMT.	
		• Use Liaison Officers to inform Control Agency IMT of Esso ICS 201 outputs.	
Operations Section Chief	Day 1	• Plan and execute immediate/first strike operations (as per the list below), and include the following:	
		• Shoreline operations: - close off sensitive areas through the implementation of TRPs - provide materials and personnel to State response teams to undertake shoreline SCAT surveys - provide materials and personnel to State response teams to undertake further shoreline protection - marine operations – vessel-based dispersant and containment and recovery operations - vessels – direct vessel of opportunity fleets - equipment – source from Esso, AMOSC, National Plan (via AMOSC[4]) and OSRL.	

[4] Esso will enter a contractual arrangement with AMSA to access the National Plan resources, which are requested via AMOSC.

Level 2/3 – State waters and shoreline impacts IMT			Completed?
		• Personnel – source from Esso, AMOSC, AMOSC Core Group, National Plan (via AMOSC), ExxonMobil GRT, OSRL.	
		• Aviation operations – surveillance and dispersant operations.	
		• Operations to follow the relevant section of *ExxonMobil Field Response Manual* and/or TRPs.	
Safety Officer	Day 1	• Complete Safety Risk Assessment of all operational activities. • Incorporate Safety Risk Assessment into a Safety Plan.	
Operations Section Chief Source Control Branch Director	Day 1	• Execution of source control arrangements as required: - activate Australia Wells Team Tier II-III Emergency Response Plan. - Pipeline response plan.	
		• Activate source control resource contracts/assistance contracts: - Subsea first response toolkit – AMOSC - Subsea Well Intervention Services – OSRL - Wild Well Control.	
		• Activate pipeline repair.	
		• Activate marine salvers	
Environment Unit Lead	Day 1/2	• Undertake an environmental risk assessment of each proposed tactical execution of strategy (below actions – shoreline/marine/aviation operations).	
Planning Section Chief	Day 2	• Review the ICS 201 from the previous day. - Are the aims, objectives, strategies, tactics and resources still current given the current conditions for the operational period? - review response organisation and staffing needs - continue execution of previous days plan - modify the plan.	
		• In consultation with Incident Commander, assess readiness to move into the Proactive Planning Phase.	

Level 2/3 – State waters and shoreline impacts **IMT**			**Completed?**
		• IMT commences proactive planning cycle (Planning 'P')	
Logistics Section Chief	Day 2	• Request and stage resources into Gippsland to enable long-term operations to occur: - integration of Level 2 and Level 3 resources into the response.	
		• Equipment mobilisation for temporary storage and decontamination.	
Operations Section Chief	Day 2	• Execute the waste management plan: - call out the third-party contractor - ongoing waste management will be managed through approved and licensed transport companies and waste management facilities under the Environmental Protection Act and EPA Victoria Guidelines.	

4 Spill management arrangements

Logistical and support arrangements for the supply of people, equipment and resources will operate in a Levelled approach per Figure 4-1.

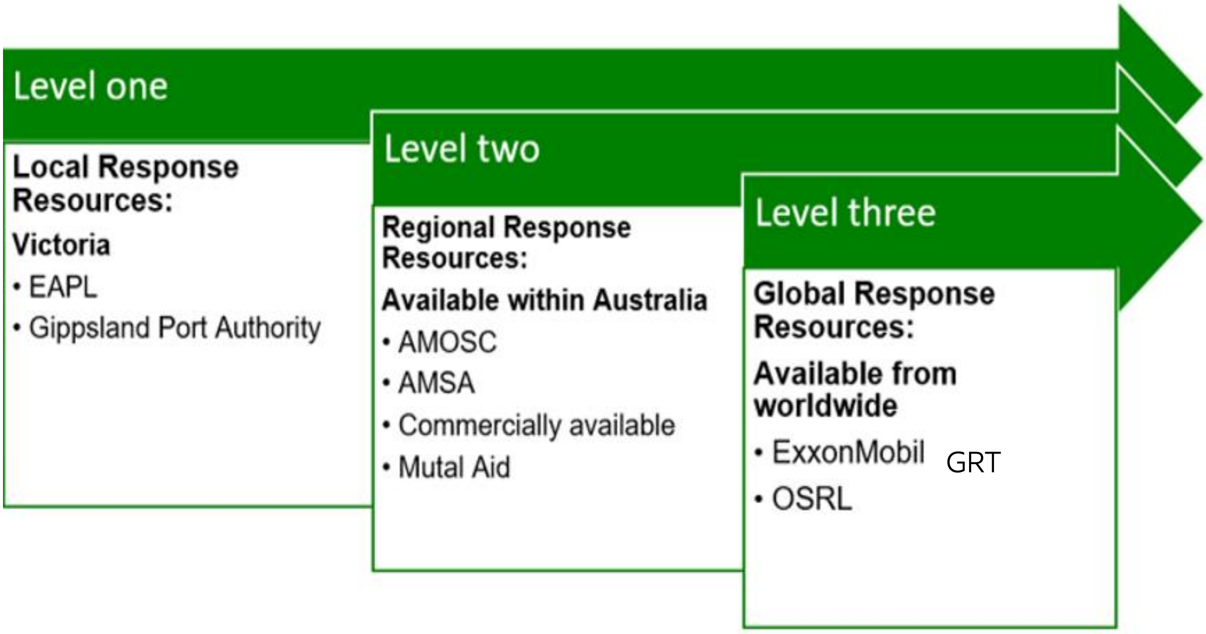

Figure 4-1 Levelled response arrangements

4.1 Level 1 response resources

4.1.1 Esso Australia Pty Ltd (Esso)

Esso maintains a stockpile of Level 1 response equipment, with a focus on surveillance and monitoring, and vessel dispersant operations. Esso will obtain any further required Level 1 equipment from the AMOSC stockpile in Geelong, which can be mobilised within <12 hours.

Through this agreement, Esso can access AMOSC equipment, including:

- shoreline protection/deflection boom
- shoreline skimming systems
- offshore booming packages
- offshore skimming systems
- shoreline temporary storage units
- dispersant spray systems
- decontamination kits.

Esso maintains trained oil spill response personnel to mobilise an initial response to support the enactment of TRPs, and shoreline clean-up.

4.1.2 Gippsland Port Authority

Equipment caches are stored at Port Welshpool, Paynesville and Lakes Entrance; and a crew of operational staff trained in incident control and pollution response is available around the clock. Gippsland Ports' also have staff on the Victorian Marine Pollution Response Team who are trained to assist in marine pollution events Statewide.

Equipment available through DTP stored at Gippsland Ports include:

- containment booms (curtain, fence, and shoreline)

- skimmers
- storage tanks (stationary and towable)
- vacuum system
- shoreline clean-up kits.

Up-to-date information on the equipment can be accessed via the Noggin™ Crisis and Incident Management platform.

4.2 Level 2 response resources

Level 2 response is conducted by Esso using resources available from within Australia.

In response to a Level 2 incident, Esso has the capability to mobilise sufficient oil spill response specific resources via AMOSC, National Plan, third-party contractors, and mutual aid (industry stockpiles via the AMOS plan). A Level 2 or 3 response would evolve from the Initial Response Phase into a Planned Phase – Decision Making, before graduating to a Planned Phase – Project implementation. Staffing requirements for field response in the Initial Response Phase would be met by the following, with additional support continuing to be provided based on jurisdictional requirements in later phases.

4.2.1 Australian Marine Oil Spill Centre

As a member of AMOSC, Esso has access to AMOSC's equipment and personnel as outlined in the *AMOS Plan Section III 2021* (AMOSC, 2021). Equipment and resources from the Geelong, Jandakot, Broome, and Exmouth stockpiles are available for mobilisation to Gippsland. The bulk of the equipment, based in Geelong, is available within <12 hours. Additional equipment in Jandakot, Exmouth and Broome can be mobilised to Gippsland as needed by road or air.

A response via the Duty Officer will be received within 15 minutes of the first call to AMOSC. AMOSC staff availability – 12 staff provided at best endeavors within 3 hours and guaranteed onsite (terrestrially) within 12 hours. Equipment mobilisation times vary according to stockpile location (refer to Table 4-1). A full inventory of AMOSC equipment is available through the AMOSC Member's Hub available to Esso employees. It can be accessed under the AMOSPlan and Equipment Dashboard Report.

In addition to the AMOSC stockpiles, membership of AMOSC provides access through the AMOSPlan to equipment, personnel, and resources owned or held by other oil companies within Australia. Further details of mutual aid capability are available in the AMOSPlan.

To mobilise, contact AMOSC via the duty officer (24/7/365) on 0438 379 328 to determine what AMOSC resources may be required.

- AMOSC Activation: 0438 379 328 (24/7 hotline).

Table 4-1 Estimated mobilisation timeframes for AMOSC stockpiles to Bass Strait

AMOSC stockpile	Mobilisation timeframe
Geelong	<12 hours
Exmouth	3 - 7 days
Broome	3 - 7 days
Jandakot	3 - 7 days

4.2.2 Australian Maritime Safety Authority National Plan equipment

Esso has access to National Plan equipment Australia-wide through AMOSC and the National Plan. AMSA maintains significant National stockpiles of equipment in Adelaide, Brisbane, Darwin, Devonport, Jandakot, Karratha, Melbourne, Sydney, and Townsville. The closest National Plan stockpile is located in Melbourne, less than 7 hours from the furthest point of eastern Gippsland in Victoria. A full inventory of this AMSA stockpile equipment is available from the *AMSA Contractor Portal* (AMSA, 2025b).

In addition to this, AMSA maintains State stockpiles of equipment. The closest of which is maintained in Gippsland within Victoria. An up-to-date inventory of AMSA equipment is available from the *AMSA Contractor Portal* (AMSA, 2025c).

4.2.3 Oil spill response personnel

In addition to the Level 1 capacity provided by trained Esso oil spill response personnel, Esso can activate and mobilise AMOSC Staff and AMOSC Core Group. In addition, personnel are available through the National Plan National Response Team. The National Response Team is trained and managed in accordance with the *National Plan: National Response Team Policy* (AMSA, 2023b), approved by the National Plan Strategic Coordination Committee. Trained oil spill response specialists from the National Response Team (including aerial observers, containment and recovery crews, and shoreline clean-up personnel), will be deployed under the direction of the relevant Control Agency in a response.

4.2.4 General personnel

Surge labour hire personnel can be accessed through local providers. To coordinate the hiring of additional personnel required for an extended response, an IMT member should request this through the ExxonMobil Contractor Services portal.

4.3 Level 3 response resources

Level 3 response is conducted by Esso using internationally available resources.

ExxonMobil global resources — such as the GRT— can be mobilised to Gippsland or the IMT. Additional resources, personnel and equipment shall be sourced internationally from OSRL through their bases around the world to Gippsland.

4.3.1 ExxonMobil Global Response Team

The ExxonMobil GRT is a Level 3 IMT and is made up of approximately 450 trained personnel (November 2025) from across all business and service lines.

- GRT Activation: +1-832-624-9999 (24/7 hotline)

The GRT's structure and processes are based on the ICS. All GRT members receive initial training in the ICS and oil spill response. Additional training is provided based on role and function.

In the event of a major incident, the GRT can provide personnel and expertise to the Business Line to undertake an effective and sustained response. Services that can be provided by the GRT include, and are not limited to, the following.

4.3.1.1 Command

- Provide experienced Incident Commanders and facilitators to work with the local business line in coordinating the response.

4.3.1.2 Operations

The GRT is able to provide experienced response team and coordination of third-party experts for activities including:

- on water recovery
- protection/deflection
- shoreline clean-up
- SCAT
- waste management
- surveillance and monitoring
- dispersant application
- oiled wildlife response (OWR).

4.3.1.3 Planning

- Development of the Incident Action Plan.
- Resource tracking.
- Volunteer management.
- Situation mapping/Common Operating Picture.
- Oil spill modelling.
- Environmental specialist.
- SCAT coordination.
- Documentation and translation services.

4.3.1.4 Logistics

- Mobilisation of equipment and personnel (including third-party equipment).
- Customs/freight clearance advice.
- Staging area set up.
- Security of impacted sites.
- Personnel transportation.
- Accommodation for response personnel.
- Food and beverage for response personnel.
- Procurement services of required materials and services.
- Communications equipment and services.
- Establish and manage large incident command centre.

4.3.1.5 Finance

- Claims handling.
- Time and cost tracking.
- Guidance on ExxonMobil's system of management controls.
- Response inquiry centre - establish and manage a call centre to handle these inquiries in the local language.

4.3.1.6 Safety, security and health

- Industrial hygiene professionals to assist with establishing a safe working environment.
- Safety plans - undertake task risk assessment and implementing mitigating measures.
- Medical professionals to ensure the well-being of the responders.
- Security specialist to assist with planning and monitoring security in the areas of operations.

4.3.1.7 Public and government affairs

- Media and social media monitoring.
- Develop communications materials and incident website.
- Organise press conferences, town hall meetings and official visits.

4.3.1.8 Law

- Provide guidance on all matters of a legal nature.

4.3.2 OSRL

OSRL is a global Level 3 response contractor specialising in oil spill response. As a member of OSRL, Esso has access to comprehensive response services through the Service Level Agreement (SLA). These services include:

- **24/7 Emergency Response:** On-call Duty Managers are available at all times, to provide expert, timely advice and to mobilise Level 3 resources, ensuring a prompt initiation of response efforts.
- **Technical Advisory Services:** Members are able to mobilise the 5x5 Technical Advisory Service, through which five highly trained specialist personnel can be mobilised for the first 5 days with no additional charge. Following this, up to 13 additional personnel can be mobilised to support with the incident response. This means a total of 18 response personnel are available for any one

incident. OSRL personnel specialise in site set up, surveillance and monitoring, offshore response, shoreline response, dispersant application, SCAT, and IMT set-up.

- **Oil Spill Modelling:** OSRL offers both 2D and 3D oil spill tracking and trajectory services, including stochastic and subsurface modelling, utilising advanced software.
- **Equipment:** Through the Service Level Agreement, Esso can access up to 50% of the available equipment that is maintained in strategically positioned stockpiles around the world. The closest of these is located in Singapore and includes equipment for containment and recovery, subsea and surface dispersant application, wildlife response, shoreline protection and shoreline clean-up. A Response Readiness Report is available on OSRL's website and is updated every month. This can be found on Activation Procedure | Notify or Mobilise OSRL for Spill Response, or by contacting OSRL directly. Mobilisation of OSRL equipment from Singapore to Victoria is estimated at 12 hours, while mobilisation from the United Kingdom to Victoria is estimated at 30 hours.
- **Dispersant application:** Esso has access to the Global Dispersant Stockpile, through which stockpiles of dispersant are available. The closest of these stockpiles is located in Singapore, and up-to-date volumes and quantities can be found in the Response Readiness Report (Activation Procedure | Notify or Mobilise OSRL for Spill Response). Further stockpiles are located in USA, France, South Africa, and Brazil. Mobilisation times of OSRL dispersant from Singapore to Victoria is estimated at 12 hours.
- **Wildlife Response:** Members have access to the services of both the Global Oiled Wildlife Response Service and Sea Alarm through OSRL. The Global Oiled Wildlife Response Service provides a four-person assessment team to determine the scope and scale of an incident; assess existing wildlife response capabilities (personnel, facilities and equipment) and recommend the most appropriate wildlife strategies. The Global Oiled Wildlife Response Service provides:
    - an operations and planning specialist
    - a field capture specialist
    - a rehabilitation/facility specialist
    - an incident-specific specialist or veterinarian.

These roles are all on-site for an initial four-day period, with the completion of an assessment report, which determines the most effective response options and operational wildlife response services. The team may be extended for up to two weeks in the Wildlife Branch of operations to initiate the wildlife response.

Sea Alarm guarantees two experts to deliver strategic and technical advice to the client. One expert can be mobilised on-site, and one will provide remote advice and support. They will typically support the IMT, acting in a technical advisory role as part of the planning section (environmental unit) to assist Wildlife Incident Action Plan development and advise the client's Wildlife Branch on operational and safety issues. It should be noted that both Global Oiled Wildlife Response Service and Sea Alarm do not provide hands-on roles.

- OSRL activation: +65 6266 1566 or +44(0)238033 1551 (24/7 hotline).

4.4 Operational hubs available for use

Esso has a number of operational hubs located in metropolitan Melbourne and Gippsland, which have been predetermined as suitable areas to stage marine, aviation and personnel operations for oil spill response (Table 4-2). If available for use, incident command points will be located in Victorian government identified regional Incident Command Centres (refer to Victorian Emergency Operations Handbook, pp 117).

Table 4-2 Location of operational hubs available to Esso during a response

Type of area	Location	Address
Incident Command Centre	Esso headquarters, Docklands Melbourne	9/644 Collins Street Melbourne, Victoria

Type of area	Location	Address
Gippsland incident command points	Bullock Island, Lakes Entrance	2 Bullock Island Lakes Entrance, Victoria
Equipment staging area	Longford Plants, Longford	Garretts Rd, Longford, Victoria
	BBMT	Main Access Rd, Agnes Victoria
Marine staging areas	BBMT	Main Access Rd, Agnes Victoria
	Bullock Island, Lakes Entrance	2 Bullock Island Lakes Entrance, Victoria
Fixed wing staging areas and heliports	Bairnsdale Airport	345 Bengworden Road, Bairnsdale, Victoria
Heliports only	Longford Heliport	Garretts Rd, Longford, Victoria

The relative location of these points is show in Figure 4-2.

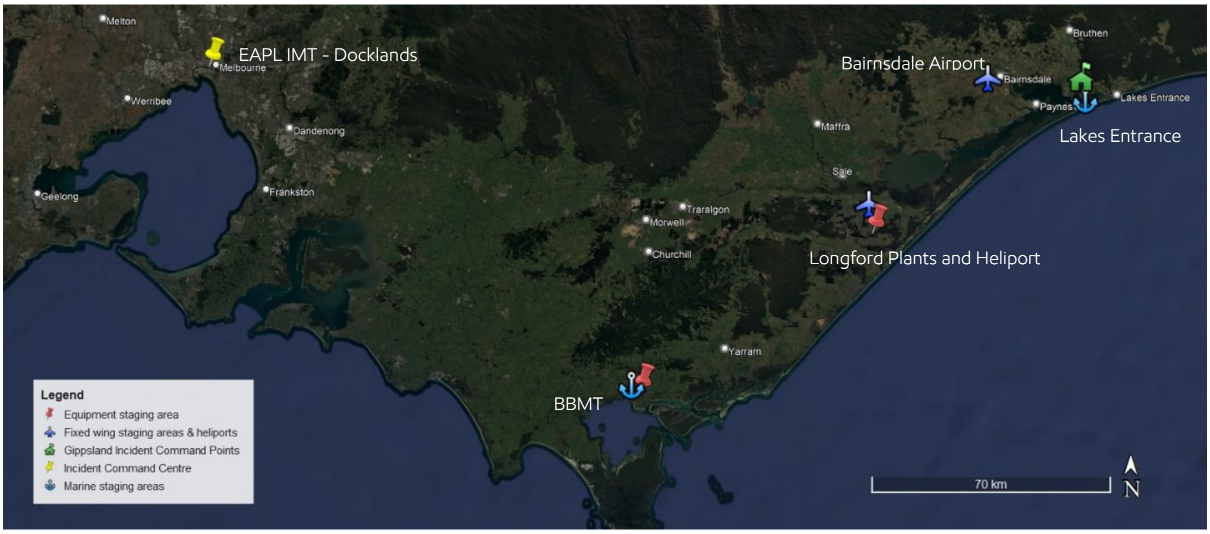

Figure 4-2 Map detailing relative locations of operational hubs in the region

4.5 Control Agencies and Jurisdictional Authorities

The responsibility for an oil spill is dependent on location and spill origin. The National Plan sets out the divisions of responsibility for an oil spill response. Definitions of Control Agency and Jurisdictional Authority are as follows:

- Control Agency: The organisation assigned by legislation, administrative arrangements or within the relevant contingency plan, to control response activities to a maritime environmental emergency. Control Agencies have the operational responsibility of response activities but may have arrangements in place with other parties to provide response assistance under their direction.
- Jurisdictional Authority: The agency which has responsibility to verify that an adequate spill response plan is prepared and, in the event of an incident, that a satisfactory response is implemented. The Jurisdictional Authority is also responsible for initiating prosecutions and the recovery of clean-up costs on behalf of all participating agencies.

During a response, a Control Agency will be assigned by legislation, administrative arrangements or within the relevant contingency plan, to control response activities to a maritime environmental emergency. These parties are responsible for the response activities overall but may have agreements with other organisations who can provide response assistance under the direction of the Control Agency.

The Control Agency assigned will depend on the location source, the location of the impacted areas, and the nature and scale of the incident. These divisions of responsibility are outlined in the National Plan. The Control Agency is responsible for appointing the Incident Controller to control the operational response to an incident.

The National Plan sets out the national arrangements, policies and principles for the management for marine pollution incidents that apply to all of Australia. It outlines the various obligations of the states and industry sectors for marine pollution prevention, preparation, response and recovery. All States are required to nominate a responsible Control Agency to manage marine pollution matters in their area of jurisdiction.

4.5.1 Victorian Control Agency responsibilities

In Victoria, the DTP will assume responsibility for marine pollution incidents in coastal waters, up to 3nm from shore, in accordance with the *Marine (Drug, Alcohol and Pollution Control) Act 1988* (Vic), and the *Emergency Management Act 2013* (Vic).

If an incident occurs within a port, this will be under the management of the Port Authority. Esso, as the petroleum titleholder, is the Control Agency for marine pollution incidents in Commonwealth waters (beyond 3nm from shore) resulting from an offshore petroleum activity. In the event of a marine pollution incident originating in Commonwealth waters that impacts or threatens State waters, DTP assumes jurisdictional authority for such incidents within coastal waters from a State consequence management perspective. Esso will work with DTP to ensure an adequate response, including provision of personnel, equipment and other response resources.

DTP's role of Control Agency will not extend to response operations in Commonwealth waters including those directly associated with source control or relief well drilling; management of these operations will be performed by Esso. Emergency management Liaison Officers may be required between DTP's and Esso's IMT.

Under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) (referred to herein as the Environment Regulations), titleholders have a legislative responsibility for managing oil spill risks of petroleum activities. This includes the requirement to prepare and maintain an OPEP as part of the accepted Environment Plan, setting out adequate arrangements for responding to and monitoring oil pollution. It is an expectation that the titleholder will conduct initial necessary response actions in state waters, in accordance with their OPEP and continue to manage those operations until formal incident control can be established by DTP and continue to provide planning and resources after the establishment of incident control by DTP.

Regardless of the size of the spill, if wildlife impacts occur in Victoria, then the DEECA will manage any wildlife elements. More information on wildlife jurisdiction can be found in Section 14.

Further details on Victoria's maritime emergency arrangements, are contained within the *State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3* (DTP, 2025a).

4.5.2 Cross-jurisdictional arrangements

An example of a cross-jurisdiction marine pollution incident might be where a spill originates in Commonwealth waters and results in DTP exercising its Control Agency obligations in State waters. In the event of a cross-jurisdictional marine pollution incident, the Esso and DTP will work collaboratively, sharing response resources and providing qualified personnel to the DTP IMT. Where State waters are impacted by cross-jurisdictional marine pollution incidents, DTP will only assume the role of Control Agency for response activities occurring in Victorian State waters, in accordance with the *State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3* (DTP, 2025a). DTP have been consulted and have agreed this is in line with the *Victorian Joint Industry and State Oil Pollution Responses Guidance Note 2025* (DTP, 2025b).

To facilitate effective coordination between the two Control Agencies and their respective IMTs, a Joint Strategic Coordination Committee will be established. The control and coordination arrangements for cross-jurisdictional maritime emergencies are outlined in Figure 4-3.

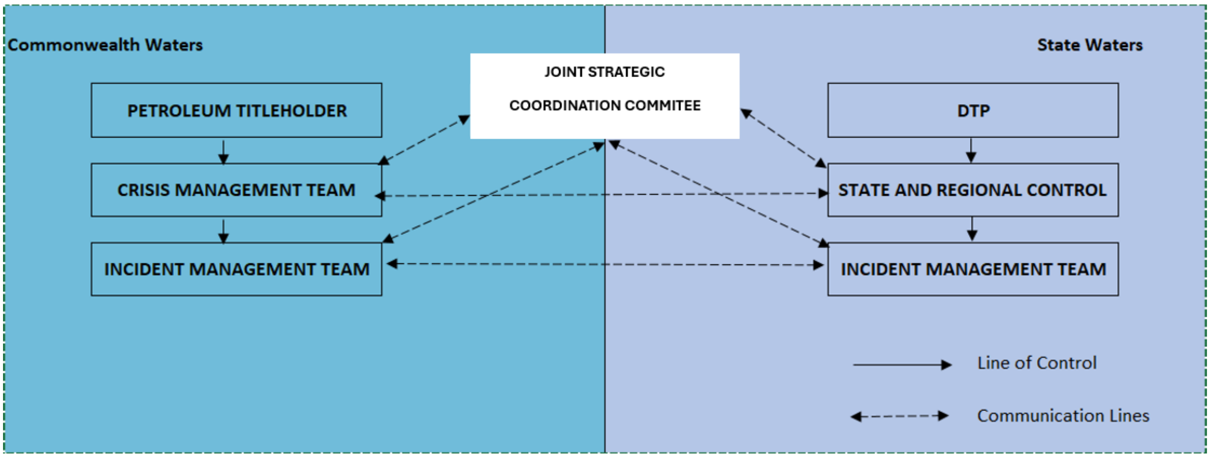

Figure 4-3 Joint Strategic Coordination Committee arrangements

The role of the Joint Strategic Coordination Committee is to ensure appropriate coordination between the respective IMTs established by multiple Control Agencies. The key functions of the Joint Strategic Coordination Committee include:

- ensuring key objectives set by multiple IMTs in relation to the marine pollution incident are consistent and focused on achieving an effective coordinated response
- resolving competing priorities between multiple IMTs
- resolving competing requests for resources between the multiple IMTs, including those managed by AMSA, such as national stockpile equipment, dispersant aircraft and the National Response Team
- resolution of significant strategic issues as they arise during the incident response
- ensuring that there is a shared understanding of the incident situation and its meaning amongst all key stakeholders
- ensuring there is agreement on how information is communicated to the public, particularly those issues that have actual or perceived public health implications
- ensuring adequate coordination and consistency is achieved in relation to access and interpretation of intelligence, information and spill modelling to promote a common operating picture.

The Joint Strategic Coordination Committee is a committee, not a team operating from a specified location. The Joint Strategic Coordination Committee will be administered by DTP and the inaugural Committee meeting will be convened by the State Controller Maritime Emergencies once both the titleholder and DTP formally assume the role of Control Agency in respective jurisdictions.

The Joint Strategic Coordination Committee will be jointly chaired by the State Controller Maritime Emergencies and Esso's nominated senior representative, who will determine who will sit in the committee for a coordinated response. As the relevant Jurisdictional Authority in Commonwealth waters, NOPSEMA may opt to participate in the Joint Strategic Coordination Committee as they see fit.

While the above arrangements described are specific to Victoria, Esso will work with other NSW or Tasmania State government IMT's in a similar manner should their State waters or shorelines be impacted.

For further information on Tasmanian cross jurisdiction arrangements, refer to *EPA Tasmania - Offshore Petroleum Industry Guidance Note* (EPA Tasmania - Offshore Petroleum Industry Guidance Note.).

4.5.3 Offshore petroleum incident coordination framework

In the event of an offshore petroleum incident occurring in Commonwealth waters, a central incident coordination committee known as the Offshore Petroleum Incident Coordination Committee may be formed by the Commonwealth Government, and chaired by the Department of Industry, Innovation and

Science. The aim of the Offshore Petroleum Incident Coordination Committee is to effectively coordinate Australian Government efforts and resources and communicate to affected stakeholders on matters related to the Commonwealth waters incident. It should be noted that the Offshore Petroleum Incident Coordination Committee is not a mechanism to deploy Commonwealth Government resources, exercise incident control or implement operational response arrangements.

4.5.4 Division of responsibilities

Spill response activities are shared between a number of Control Agencies and support agencies (organisations that help with the provision of labour, platforms, or services). The relevant Control Agencies in Victoria are outlined in Table 4-3.

Table 4-3 Control agencies for spills in Victoria

Location of spill	Source	Level	Control Agency for oil spills	Supporting agency	Jurisdictional Authority
Commonwealth waters (>3nm from shorelines)	Petroleum activities	1	Esso	AMSA. OWR supported by DEECA	NOPSEMA
		2 and 3			
	Ship associated with petroleum activities	1	Esso	OWR supported by DEECA.	AMSA and NOPSEMA
		2 and 3	AMSA		
State waters or shorelines (<3nm of coastline)	Petroleum activities	1	Esso	EPA Victoria, local State Port Authorities. OWR supported by DEECA and State-based wildlife agencies.	DTP
		2 and 3	DTP		
	Ship associated with petroleum activities	1	Esso	EPA Victoria, Ports, Maritime Safety. OWR supported by DEECA and State-based wildlife agencies.	DTP
		2 and 3	DTP		
Port Waters	Vessels	1	Port Authority	Esso. OWR supported by DEECA.	Port Authority/DTP
		2 and 3	DTP		

In all instances of spills from Esso's petroleum activities, Esso's response activities should be considered to be regulated by NOPSEMA and directed by this OPEP, until such time as another Control Agency verifies its intention to stand up and assume control.

As a response grows in size and complexity, a range of other parties and agencies may become involved, either to acquit a legislative obligation, or to provide support to a Control Agency.

In all cases, for spills originating from Esso assets and activities, Esso will facilitate the provision of resources to the Control Agency for their use in mitigating the consequences of the spill.

In the event that the impacts of a spill are likely to cross State borders, then neighbouring relevant Control Agencies should be notified. If necessary, a separate incident command centre may be set up to coordinate the response. Relevant authorities from neighbouring States are as per Table 4-4.

Table 4-4 Cross-border jurisdictions during a response

State	Location of spill	Level	Control Agency name	Supporting agency	Jurisdictional Authority
NSW	Commonwealth waters (>3nm from shorelines)	2 and 3	AMSA	OWR supported by NSW EPA and Environmental Services Functional Area	AMSA
	State waters or Shorelines (<3nm of coastline)	1	Port Authority of NSW		Transport for NSW and AMSA
		2 and 3	Transport for NSW (Maritime Branch)		
Tasmania	Commonwealth waters (>3nm from shorelines)	2 and 3	AMSA	OWR supported by the Department of Natural Resources and Environment Tasmania (NRE Tas)	AMSA
	State waters or Shorelines (<3nm of coastline)	1	Tasmanian Ports Corporation (TasPorts)	OWR supported by NRE Tas	EPA Tasmania
		2 and 3	EPA Tasmania		

4.6 Interface with other documents

This OPEP is a component of the EP in force for the specific Esso petroleum activities taking place and outlines the measures that Esso will put in place for hydrocarbon spills from that activity.

The OPEP also has a relationship with a number of other key Esso documents as outlined in Figure 4-4.

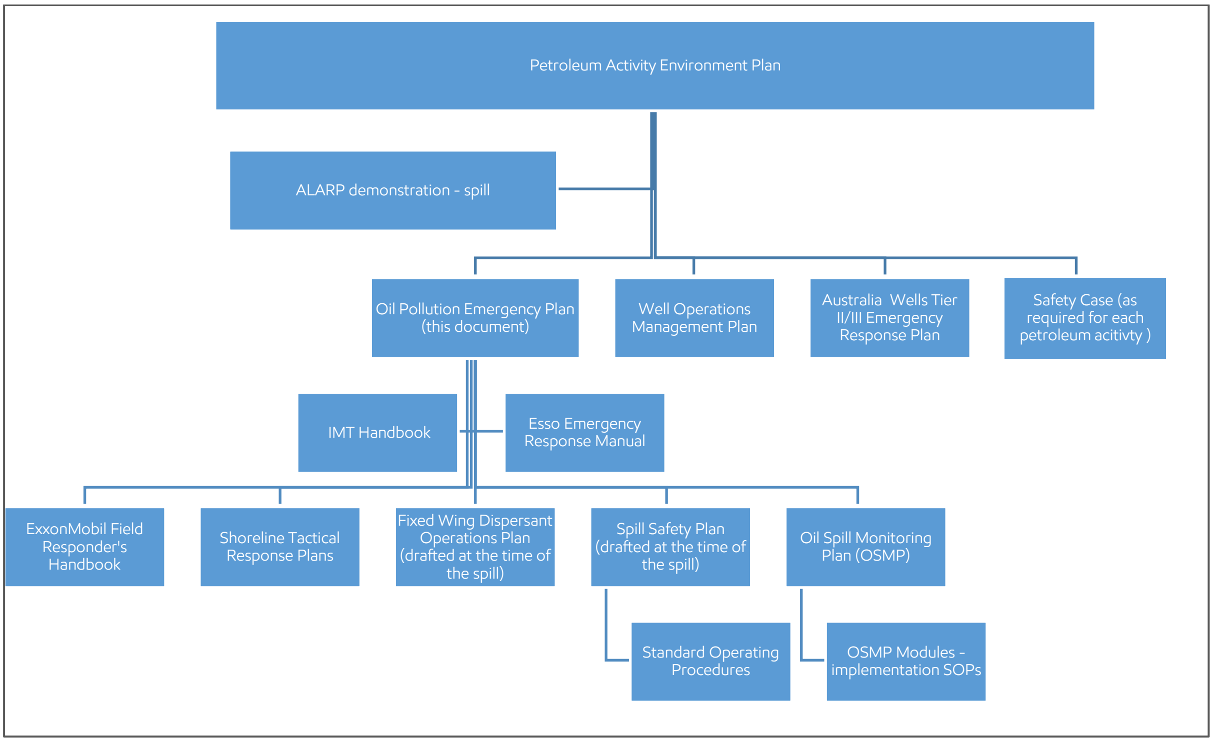

Figure 4-4 OPEP relationship with other key Esso environmental documents

This OPEP also has a number of linkages to external third-party spill response plans or documents. These outline how Esso is to engage with national and State Government agencies for the provision of assistance to Esso, or from Esso to those parties, for spill response activities, and who is ultimately 'in charge' of clean-up efforts in a particular geographical area. These links are detailed in Table 4-5.

Table 4-5 External plans and documents that inform actions under the OPEP

Plan	Purpose
National Plan Link	Outlines the resources and services that may be provided by AMSA and other government agencies to assist Esso. Details nationally consistent processes and procedures for spill response management and tactics and outlines a range of guidance documents on the same.
State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3 (DTP, 2025a) Link	Specifies Control Agency responsibilities and obligations under Victorian laws in Victorian waters. Specifies the mechanism by which Esso will engage to support the State for oil spill response and wildlife affected by marine pollution.
Victorian State Emergency Management Plan (State of Victoria, 2024) Link	Outlines agency obligations for emergency management in Victorian State waters and shorelines.
Victorian Emergency Animal Welfare Plan (DEECA, 2024) Link	Provides principles and policy for use in emergency planning, response and recovery phases for addressing animal welfare in an emergency. It defines the roles and responsibilities of agencies and organisations and their operational interactions.

Plan	Purpose
Western Australian Oiled Wildlife Response Plan (Department of Transport and AMOSC, 2022b) (WAOWRP) Link And *Western Australian Oiled Wildlife Response Manual* (Department of Transport and AMOSC, 2022a) (WAOWRM) Link	While these documents are Western Australia specific, content within them can be applied to the petroleum industry as a whole throughout Australia. Due to the absence of an oiled wildlife specific plan in Victoria, the WAOWRM and WAOWRP have been used to inform this OPEP. They establish the framework for responding to potential or actual oiled wildlife impacts in Western Australian waters, within the framework of an overall maritime environmental emergency. The manual aims to standardise operating procedures, protocols and processes for OWR. Prepared in collaboration with the DTP and the AMOSC on behalf of the petroleum industry.
TasPlan Link	Specifies response agency responsibilities and obligations under Tasmanian laws in Tasmanian waters. Specifies the mechanism by which Esso will support the State for oil spill response.
NSW State Emergency Management Plan (NSW Emergency Services Coordination, 2023) Link	Provides clarity as to command and control, roles and coordination of functions in emergency management, not specific to oil spills.
NSW State Waters Marine Oil and Chemical Spill Contingency Plan (NSW State Emergency Management Committee, 2022) Link	Specifies Control Agency responsibilities in the event of an oil spill, and obligations under NSW laws in NSW State waters. Specifies the mechanism by which Esso will support the State for oil spill response.
NSW Wildlife in Emergencies Sub Plan (NSW State Emergency Management Committee, 2023) Link	Describes the strategic emergency management arrangements for any emergency affecting wildlife in NSW, including Lord Howe Island.
NSW Environmental Services Functional Area Supporting Plan (NSW EPA, 2024) Link	Describes the emergency management arrangements for the protection of the environment in NSW during an environmental emergency.
AMOSPlan Link	Outlines the support (people, services and equipment) from AMOSC to Esso. Outlines the mutual aid (people, services and equipment) available from AMOSC's members to Esso. Details process to access surge spill response people, services and equipment.

5 Incident management arrangements

5.1 Incident management structure

By following the checklists in Section 3, an appropriately sized and resourced Esso IMT will have been set up, with operational resources deployed and pre-moved to execute confirmed and likely time-sensitive response strategies.

Once established, the task of the Esso IMT is to establish situational awareness by gathering information, analysing this data, and applying the appropriate, defensible procedures and processes described in the OPEP and EP to reduce harm to the environment.

The cornerstone document to guide the response to this end is the production and execution of the Incident Action Plan – the business plan for the response.

In its basic form, an Incident Action Plan is a simple document that tells responders what they need to do to resolve/mitigate an unplanned incident. It will include an aim, objectives, description of the situation, a worst-case 'size up' consequence description, a NEBA, a description of what resources are at risk, and the activities that will be undertaken to resolve the situation/minimise environmental impacts.

For all Level 1 oil spills, an Incident Action Plan will be documented on ICS 201 forms.

Additional forms may be used as required. Refer to the Incident Action Plan preparation section within the Incident Management Handbook.

For Level 2 and Level 3 spills, a more comprehensive Incident Action Plan is to be developed. This will require appropriate IMT resources to ensure that the Incident Action Plan is developed properly and that operations are simultaneously undertaken. The content of the Incident Action Plan will be determined by the Incident Commander in consultation with the Planning Section Chief.

Refer to Incident Action Plan preparation section within the Incident Management Handbook

As the spill will impact the environment, the Incident Action Plan must also include two additional pieces of analysis specific to the oil spill response:

- A description of the ICS 232 – Resources at risk (derived from the execution of the SMV strategy).
- A NEBA – analysis of the overall net environmental benefits of executing various oil spill response strategies. Refer to Section 7.2 for more information on how this is conducted.

The typical daily work pattern for the production of the Incident Action Plan is per Table 5-1.

Table 5-1 Typical daily work pattern for the production of an Incident Action Plan

Time	Meeting [ICS 230]	Attendance: 1. Facilitators 2. Attendees
ASAP (<4 hours)	• Initial ICS 201 Incident brief. • Handover and initial briefing.	• Current Incident Commander or Planning Section Chief. • Incoming Command Staff and General Section Chiefs as required.
ASAP (<4 hours)	• Initial incident, Incident Commander/Unified Command meeting	• Incident Commander/Unified Command or Planning Section Chief. • Command Staff, Situation Unit Lead, Documentation Unit Lead and ICS specialist as required.

Time	Meeting [ICS 230]	Attendance: 1. Facilitators 2. Attendees
08:00	• Objectives meeting. • Review/identify objectives for the next operational period.	• Incident Commander/Unified Command or Planning Section Chief. • Command Staff, General Section Chiefs, documentation Unit lead and ICS specialist as required.
10:00	• Command and General Staff meeting. • Incident Commander/Unified Command gives direction to Command and General Staff including incident objectives and priorities.	• Planning Section Chief. • Incident Commander, General Staff, Situation Unit Lead, Documentation Unit Lead.
11:00	• Strategic stakeholder briefing. • Brief the Offshore Petroleum Incident Coordination Committee /NOPSEMA/States.	• Esso Emergency Support Group Leader. • Esso Incident Commander, Liaison Officer, Offshore Petroleum Incident Coordination Committee, NOPSEMA, DTP.
13:00	• Tactics meeting. • Develop/review primary and alternate strategies to meet incident objectives for the next operational period.	• Planning Section Chief. • OSC, Logistics Section Chief, Finance Section Chief, Resource Unit Lead, Documentation Unit Lead, Situation Unit Lead, Environment Unit Lead, Safety Officer, Communications Unit Lead and ICS specialist as required.
15:00	• Planning meeting. • Review status and finalise strategies and assignments to meet incident objectives for the next operational period.	• Planning Section Chief. • Incident Commander /Unified Command, Command Staff, General Staff, Resource Unit Lead, Documentation Unit Lead, Situation Unit Lead, Environment Unit Lead, Communications Unit Lead and ICS specialist as required.
17:00	• Operations brief. • Present Incident Action Plan and assignments to the Supervisors/Leaders for the next operational period.	• Incident Commander /Unified Command, Planning Section Chief, Situation Unit Lead, Operations Section Chief, Safety Officer. • Command Staff, General Section Chiefs, Communication Unit Lead, Environment Unit Lead and ICS specialist as required.

This cycle is represented in the planning 'P' below in Figure 5-1 with key written outputs and required documentation to be completed for each section. More information can be found in the Esso Incident Management Handbook.

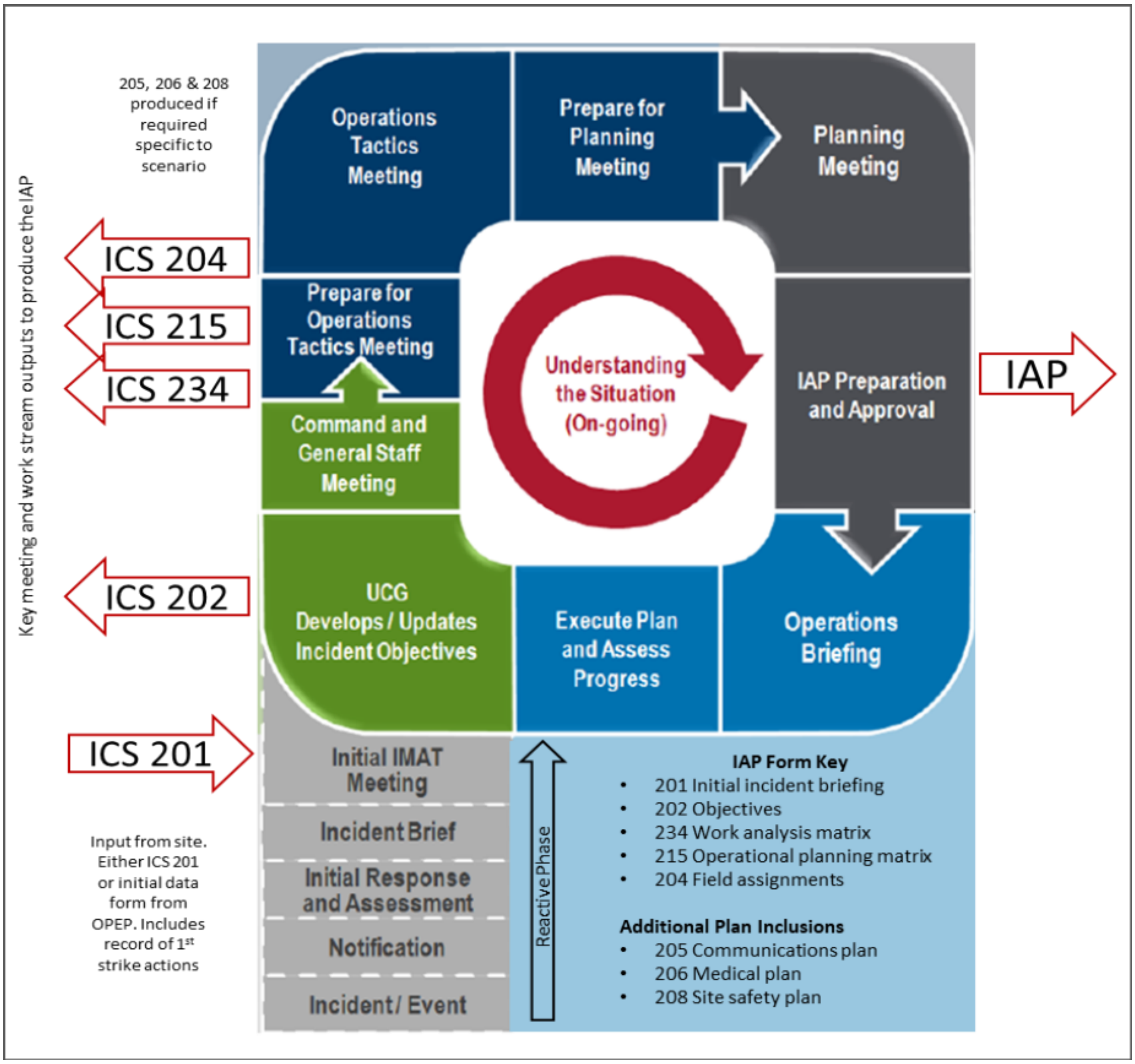

Figure 5-1 Incident planning 'P' with key written outputs and phases of ICS process demonstrated

Esso has adopted the global ExxonMobil standard of the ICS as its internal incident management system. ICS is aligned with the Australian Interagency Incident Management System adopted by Australian Governments under the National Plan.

At the core of ICS is the concept of the planning 'P'. This is a standardised, systemic process used to identify and then action all incidents. It follows a basic five-phase process outlined below:

1. Understand the situation.
2. Establish incident objectives and strategy.
3. Develop the plan that details the tactics to achieve the strategies.
4. Prepare and disseminate the plan.
5. Execute, evaluate, and revise the plan.

These steps are illustrated in Figure 5-1.

Phase 1 is also known as the assessment/reactive stage, and this involves actions that Esso will undertake in the field as directed by the Esso IMT based on a first-pass assessment of the situation. They are the best planned, reactive actions that can be reasonably expected to assist in achieving Esso's Environmental Performance Outcomes (EPO) – more detail can be found in the response strategy sections (Sections 8 -

15). Should the assessment indicate a Level 2 or Level 3 spill, many of these actions will be focused on the mobilisation of resources likely to be used in future operational periods for the tactical spill response.

Phases 2 to 5 are within the proactive planning, as this is the more settled, longer-term project planning mode that Esso will undertake. It requires the mobilisation and setup of a full IMT and will be supported by Esso's Emergency Support Group for strategic support.

Esso considers the use of ICS as one of the key controls to develop a robust and defensible Incident Action Plan, which in turn is critical to achieve the best environmental outcomes at the time of the spill.

Once Esso has moved through the first 48 hours of response, laying the foundation for an ongoing response, the IMT and spill response operations will settle on a planning and operations implementation cycle, based on the ICS planning 'P'.

The IMT is expected to go through the planning 'P' every operational period. While in the initial phases of a response, an operational period may be daily, however this period may extend over time to several days, weeks or months. The Incident Action Plan can be adjusted accordingly.

Spill response operations are to continue during each operational period to put in place desired environmental outcomes until termination criteria are met for each spill response strategy.

Figure 5-2 outlines the IMT structure to be adopted in the event of a Level 3 oil spill incident. Refer to Section 5.3 for further details.

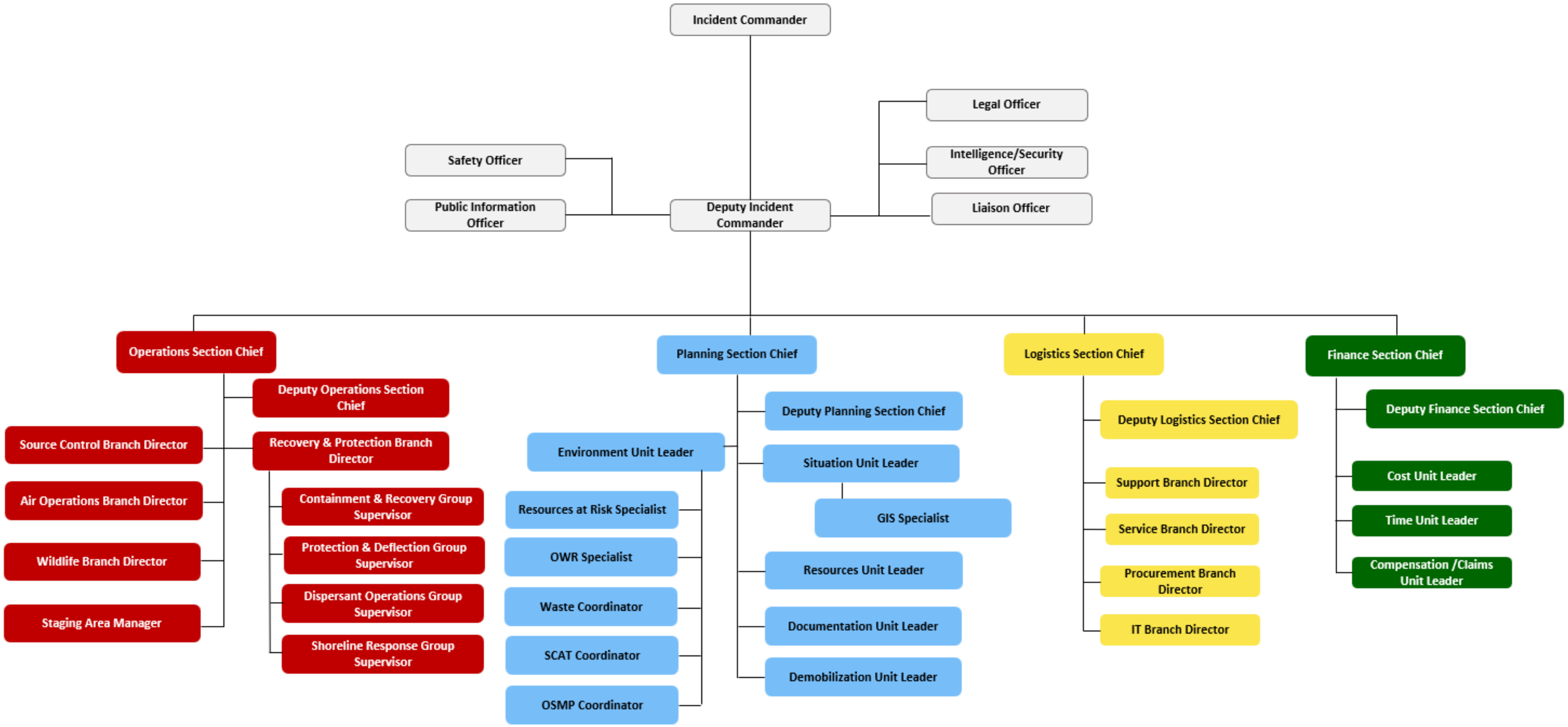

Figure 5-2 Level 3 oil spill incident IMT structure

5.2 Roles and responsibilities - Incident Management Team

Table 5-2 gives an overview of the high-level responsibilities of each of the roles listed in Figure 3-3. For full responsibilities and complete checklists for all IMT roles, refer to the ExxonMobil Incident Management Handbook. The tables are coded by Planning, Operations, Logistics, and Finance sections/areas.

Table 5-2 High level roles and responsibilities of the key IMT

Role	Function	Responsibilities
Incident Commander	Command	• Overall management of the incident. • In charge of reviewing and approving the Incident Action Plan.
Safety Officer	Command	• Developing and recommending measures for ensuring safety during all aspects of the response. • Establishing safe work practises in the ICS 201-5 and ICS 208 Site Safety Plans. • Conducting safety briefings and disseminate safety information to all elements of the response.
Liaison Officer	Command	• Conduit for assisting and cooperating agency representatives. Important when incidents are multi-jurisdictional.
Public Information Officer	Command	• Developing and releasing information about the incident to media outlets, personnel, and any other appropriate agencies. • Creating a media strategy and monitoring media channels.
Operations Section Chief	Operations	• Managing all tactical operations related to the incident. • Assists with the preparation of the Incident Action Plan. • Activates and supervises operational elements in line with the Incident Action Plan.
Air Operations/Marine Operations	Operations	• Managing elements of their respective response areas. • Making and monitoring the response groups and task forces for specific sections of the response.
Planning Section Chief	Planning	• Collecting, evaluating and disseminating incident information in order to understand the current situation. • Maintaining status of resources. • Managing both internal and external notification processes. • Developing draft ICS forms for Incident Commander/UC approval. • Assist with the facilitation of meetings (refer to Table 5-1) • Overall responsibility for creating the Incident Action Plan.
Situation Unit Lead	Planning	• Primary role in charge of information management, both classified and unclassified. • Preparation of projections, maps and intelligence information.

Role	Function	Responsibilities
		• Creating and maintaining a situation status display
Environment Unit Lead	Planning	• Responsible for environmental matters associated with the response such as strategic assessment, modelling, surveillance, sensitive area identification and environmental monitoring. • Following the notification process (refer to Table 3-4).
Logistics Section Chief	Logistics	• Providing and managing facilities, services, people and materials to support the incident. • Sourcing any equipment and facilities to support both incident response and personnel.
Finance Section Chief	Finance	• Responsible for all financial, administrative and cost analysis aspects of the incident. • Identifying appropriate funding sources and developing daily cost reports.

5.3 Incident Management Team response resources

5.3.1 IMT response requirements

The ICS incident management system used by Esso ensures a structured and scalable approach to incident response with all roles and responsibilities as detailed in Esso Incident Management Handbook. The IMT structure for a Level 3 oil spill incident is shown in Figure 5-2 and is based on a loss of well control spill scenario. The number of personnel required for the various IMT roles is based on the following assumptions:

- For each 24-hour operational period, two shifts will be implemented: a day shift and a night shift. Some IMT roles may be required for both the shifts while others may be required only for one shift per day (e.g. day shift). This is defined as shift cover for the purpose of IMT resourcing assessment.
- Based upon the nature and scale of the incident, roster rotation may be required and will be based on a 2 weeks on/2 weeks off schedule. This is defined as rotational roster cover for the purpose of IMT resourcing assessment.

Table 5-3 IMT resource requirements

Role	Resourcing needs assessment				Tiered response resources		
	Shift cover		Rotational roster cover	Number of personnel required	Primary	Secondary	Tertiary
	Day shift	Night shift					
Incident Commander	1	1	4	4	Esso	Esso	ExxonMobil GRT
Deputy Incident Commander	1	0	2	2	Esso	Esso	ExxonMobil GRT
Safety Officer	1	0	2	2	Esso	Esso	ExxonMobil GRT

Role	Resourcing needs assessment				Tiered response resources		
	Shift cover		Rotational roster cover	Number of personnel required	Primary	Secondary	Tertiary
	Day shift	Night shift					
Public Information Officer	1	0	2	2	Esso	Esso	ExxonMobil GRT
Legal Officer	1	0	2	2	Esso	Esso	ExxonMobil GRT
Intelligence/Security Officer	1	0	2	2	Esso	Esso	ExxonMobil GRT
Liaison Officer	1	0	2	2	Esso	Esso	ExxonMobil GRT
Operations Section Chief	1	1	4	4	Esso	Esso	ExxonMobil GRT
Deputy Operations Section Chief	1	0	2	2	Esso	Esso	ExxonMobil GRT
Source Control Branch Director	1	0	2	2	Esso	Esso	ExxonMobil GRT
Air Operations Branch Director	1	0	2	2	Esso	ABM via AMOSC	ExxonMobil GRT
Wildlife Branch Director	1	0	2	2	AMOSC	OSRL	ExxonMobil GRT
Staging Area Manager	1	0	2	2	Esso	AMOSC	ExxonMobil GRT
Recovery and Protection Branch Director	1	0	2	2	Esso	AMOSC	ExxonMobil GRT
Containment and Recovery Group Supervisor	1	0	2	2	Esso	AMOSC	ExxonMobil GRT
Protection and Deflection Group Supervisor	1	0	2	2	Esso	AMOSC	ExxonMobil GRT
Dispersant Operations	1	0	2	2	Esso	AMOSC	ExxonMobil GRT

Role	Resourcing needs assessment				Tiered response resources		
	Shift cover		Rotational roster cover	Number of personnel required	Primary	Secondary	Tertiary
	Day shift	Night shift					
Group Supervisor							
Shoreline Response Group Supervisor	1	0	2	2	Esso	AMOSC	ExxonMobil GRT
Planning Section Chief	1	1	4	4	Esso	Esso	ExxonMobil GRT
Deputy Planning Section Chief	1	0	2	2	Esso	Esso	ExxonMobil GRT
Situation Unit Lead	1	1	4	4	Esso	Esso	ExxonMobil GRT
GIS Specialist	1	1	4	4	Esso	Esso	ExxonMobil GRT
Resources Unit Leader	1	1	4	4	Esso	Esso	ExxonMobil GRT
Documentation Unit Leader	1	1	4	4	Esso	Esso	ExxonMobil GRT
Demobilisation Unit Leader	1	0	2	2	Esso	Esso	ExxonMobil GRT
Environment Unit Lead	1	1	4	4	Esso	AMOSC	ExxonMobil GRT
Resources at Risk Specialist	1	0	2	2	Esso	AMOSC	ExxonMobil GRT
OWR Specialist	1	0	2	2	Esso	AMOSC	ExxonMobil GRT
Waste Coordinator	1	0	2	2	Esso	Esso	ExxonMobil GRT
SCAT Coordinator	1	0	2	2	OSMP Contractor	AMOSC	ExxonMobil GRT
OSMP Coordinator	1	0	2	2	OSMP Contractor	OSMP Contractor	ExxonMobil GRT

Role	Resourcing needs assessment				Tiered response resources		
	Shift cover		Rotational roster cover	Number of personnel required	Primary	Secondary	Tertiary
	Day shift	Night shift					
Logistics Section Chief	1	1	4	4	Esso	Esso	ExxonMobil GRT
Deputy Logistics Section Chief	1	0	2	2	Esso	Esso	ExxonMobil GRT
Support Branch Director	1	0	2	2	Esso	Esso	ExxonMobil GRT
Service Branch Director	1	0	2	2	Esso	Esso	ExxonMobil GRT
Procurement Branch Director	1	0	2	2	Esso	Esso	ExxonMobil GRT
IT Branch Director	1	0	2	2	Esso	Esso	ExxonMobil GRT
Finance Section Chief	1	0	2	2	Esso	Esso	ExxonMobil GRT
Deputy Finance Section Chief	1	0	2	2	Esso	Esso	ExxonMobil GRT
Cost Unit Leader	1	0	2	2	Esso	Esso	ExxonMobil GRT
Time Unit Leader	1	0	2	2	Esso	Esso	ExxonMobil GRT
Compensation/ Claims Unit Leader	1	0	2	2	Esso	Esso	ExxonMobil GRT
IMT Personnel required				102			

Esso maintains tiered response capability to manage incidents using a combination of internal and external resources. The Offshore IMT has responsibility for managing all incidents that exceed the capacity of the facility ERT, including oil spills. The Offshore IMT is based in Esso's Melbourne office but may also include remote support from the Sale office or other locations. Trained personnel are available to fulfil Incident Commander, Operations Section Chief, Planning Section Chief, Logistics Section Chief, Safety Officer, and Environment Unit Lead roles within 1 hour of Esso IMT activation. Additional personnel will be activated on an as needs basis. In addition to the Offshore IMT, Esso can draw on trained personnel from across its Australian operations to support response activities. Competency and training requirements for the IMT roles are detailed in the relevant EP. As of November 2025, Esso has the following internal personnel available to support an IMT, as seen in Table 5-4.

Table 5-4 Esso IMT resource capability

Role	Number of personnel available
Incident Commander	6
Safety Officer	7
OSC	10
Aviation	2
Marine	2
Planning Section Chief	7
GIS Specialist	1
Environment Unit Lead	4
Documentation Unit Leader	3
Logistics Section Chief	6

AMOSC and OSRL have been identified to support some roles in the IMT. Agreements are in place with both organisations with support available per their Service Level Agreement/Service Level Statement. Esso is a participating member of AMOSC. This arrangement provides Esso with access to AMOSC Staff and more than 100 AMOSC Core Group personnel (as of November 2025) under the AMOSPlan for support in the event of an oil spill incident. At the time of writing, AMOSC is progressing a merger with OSRL; post-merger it is anticipated that the AMOSC Service Level Statement will be provided by a country specific supplementary service via OSRL with no change anticipated to service levels. ExxonMobil is also a participant member of OSRL. Under the membership Service Level Agreement, ExxonMobil has guaranteed access to oil spill response support including 18 personnel to support IMT and/or field response roles. OSRL maintains a global pool of 80 dedicated responders and access to these additional resources may be available on a case-by-case basis.

The ExxonMobil GRT can also be called upon to support response activities. The GRT is an internal Level 3 response team that can provide incident support to ExxonMobil affiliates globally, which may be achieved through either remote or in-country support. Remote support is available within 12 hours and in-country support within 72 hours. Table 5-5 presents the number of GRT personnel available to support incident management as of November 2025.

Table 5-5 GRT member numbers for the relevant section roles

Section	GRT member numbers
Command • Incident Commander • Safety • Public and Government Affairs • Law, liaison, other	147 (total) • 12 • 50 • 57 • 28
Operations	81

Section	GRT member numbers
Planning	102
Logistics	79
Finance	31

ExxonMobil also has a global agreement with The Response Group which can be utilised by Esso for additional support if required.

Esso can also call upon additional support from its Emergency Support Group. The Emergency Support Group provides strategic crisis management support to the IMT. Support is provided by the Emergency Support Group to the IMT through a range of activities include mobilising additional internal resources, managing external and upline communications, and coordinating business continuity activities, allowing the IMT to focus on managing the tactical response. Scale and capability of the Emergency Support Group is outside the scope of this assessment, but to provide context of Esso's broader emergency response capacity, at the time of writing the Emergency Support Group has approximately 46 team members on the roster. The Emergency Support Group would operate from Esso's Melbourne office. Refer to Figure 5-3 for the Emergency Support Group structure.

5.4 Incident Management Team controls, Environmental Performance Outcomes, Environmental Standards, and Measurement criteria

The environmental performance standards (EPSs) for the Esso IMT are shown in Table 5-6.

Figure 5-3 Emergency Support Group structure

Table 5-6 EPOs and EPSs for IMT

Performance outcome	Control	Performance standard	Measurement criteria
OPEP01-EPO01: To coordinate spill response operations in a timely manner in order to minimise the impact to the environment	**OPEP01-CM01:** An IMT is ready to respond	**OPEP01-EPS01:** Trained personnel are available to fulfil Incident Commander, Operations Section Chief, Planning Section Chief, Logistics Section Chief, Safety Officer and Environment Unit Lead roles within 1 hour of call out.	• Training records confirm personnel for designated IMT positions have required training and competency as outlined in Section 8 of the Producing and Non-Producing EPs. • The offshore oil spill competency matrix, IMT tracking spreadsheet is updated every 6 months to ensure the IMT personnel are available to fill the IMT roles as per Table 5-4.

Performance outcome	Control	Performance standard	Measurement criteria
			• Quarterly call out tests confirm IMT personnel available and ability to fill position within 1 hour of call out.
	OPEP01-CM02: Additional response support is available to respond (GRT)	**OPEP01-EPS02:** GRT support is available within: • <12 hours from notification for remote support • <72 hours for in country support.	• IMT logs or test records detail timing and availability of GRT personnel tested every 5 years.
	OPEP01-CM03: First strike response actions are implemented timely.	**OPEP01-EPS03:** Actions are implemented per timeframes detailed in Table 3-1 and Section 3.4.	Where IMT is activated (as per Section 3.3): • IMT logs or test records from annual exercise, detail that first strike response actions and IMT 0 – 12-hour actions were completed consistent with timeframes specified in the OPEP. • IMT 0 to 12-hour checklists have been completed
	OPEP01-CM04: Notifications are made timely	**OPEP01-EPS04:** Authorities are notified in accordance with regulatory requirements per Table 3-4 of OPEP.	• IMT logs or test records from annual exercise, record timing of notifications made the regulatory authorities. • Evidence of notification (records/reports) to authorities are kept on file.

6 External notifications and reporting requirements

This Section summarises the notifications to main organisations in the event of a spill.

Refer to Table 3-4 for a checklist of all required notifications to be made in the event of an incident.

6.1 National Offshore Petroleum Safety and Environmental Management Authority

NOPSEMA is Australia's independent regulator for safety, well integrity, and environmental management of offshore petroleum, greenhouse gas storage, and offshore renewable energy activities in Australian Commonwealth waters. NOPSEMA was established under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) and is responsible for the assessment, acceptance and compliance of Environment Plans, Safety Cases and Well Operations Management Plans for petroleum activities in Commonwealth waters.

Operators of facilities have a duty to notify and report any incidents that occur at or near facilities to NOPSEMA under Clause 82 of Schedule 3 to the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). ***If a reportable incident occurs, NOPSEMA must be verbally notified within 2 hours of the spill occurring on 1300 674 472***, and the call should relay the known key facts of the spill including location, source, size and type, as well as known incident factors causing the spill, and current assessed spill Level.

A reportable incident is one that has caused, or has the potential to cause, moderate to significant environmental damage (interpreted as the following for Esso activities):

- unplanned release of hydrocarbon liquid or chemicals exceeding >80L into the marine environment caused by, or suspected to have been caused by, petroleum activities
- unplanned injury or death of a cetacean or threatened/migratory/marine species caused by, or suspected to have been caused by, petroleum activities. A list of these species can be found in the EP.

A written report must be provided as soon as practicable, but within 3 days of the incident. The written report must be submitted to submissions@nopsema.gov.au or via secure file transfer at: https://securefile.nopsema.gov.au/filedrop/submissions.

A final report must be provided to NOPSEMA within 30 days. Refer to N-03300-GN2303 *Notification and reporting of accidents and dangerous occurrences for further guidance* (Notification and reporting of accidents and dangerous occurrences).

6.2 Australian Maritime Safety Authority

The AMSA is Australia's national statutory authority responsible for maritime safety, marine environmental protection, and maritime and aviation search and rescue across Australia's vast maritime jurisdiction. AMSA was established in 1990 under the *Australian Maritime Safety Authority Act 1990* (Cth).

For all spills involving vessels, and/or where National Plan equipment is required for a response, AMSA should be informed at the first available opportunity via the Joint Rescue Coordination Centre on +61 (0)2 6230 6811 or 1800 641 792 (within Australia).

A *Harmful substances report (POLREP)—oil (form 197)* (AMSA, 2024) form should be submitted. This should be filled out in line with the Marine Order 91 (Marine pollution prevention — oil) 2025.

Further information can be obtained from the AMSA website (AMSA, 2025a).

6.3 Department of Environment, Energy and Climate Action

The DEECA, retains responsibility for titles administration, well integrity and environment, and are the regulators for environmental management for offshore energy operations in Victorian coastal waters (≤3nm from shore) This is administered under the *Offshore Petroleum and Greenhouse Gas Storage Act*

2010 (Vic). They also act as the lead agency for responding to wildlife impacted by marine and freshwater pollution. DEECA, supported by additional partner agencies such as Parks Victoria and Phillip Island Nature Park, will assess and determine and lead wildlife response activities.

The ***DEECA wildlife emergencies should be notified within 2 hours on 1300 114 828***, and the speaker should relay the known key facts of the spill such as location, source, size and type, as well as incident factors causing the spill, and current assessed spill Level. If a back-up number is required, call 136 186.

6.4 Department of Transport and Planning

The DTP in Victoria plays a key role in the management of maritime emergencies, including oil spill incidents within Victorian State waters. Victoria's coastline and ports face risks of maritime pollution from several sources such as commercial shipping, offshore oil and gas production, and domestic vessel activities.

In Victoria, DTP will assume responsibility for marine pollution incidents in coastal waters, up to 3nm from the shore. This does not negate the need for titleholders to have adequate plans and resources in place to appropriately respond to an incident in State waters.

For any incidents that have the potential to impact Victorian coastal waters, the ***DTP Safety Duty Officer should be notified as soon as practicable on 1800 956 557***. In the verbal report, the speaker should relay the known key facts of the spill such as location, source, size and type, as well as known incident factors causing the spill, and current assessed spill Level. If for any reason the Safety Duty Officer cannot be contacted, notify the ***State Agency Commander on 1800 973 552***.

The DTP prepared the *State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3* (DTP, 2025a), on behalf of the Emergency Management Commissioner, in accordance with:

- *Marine (Drug, Alcohol and Pollution Control) Act 1988* (Vic)
- *Marine Safety Act 2010* (Vic)
- Part 6A of the *Emergency Management Act 2013* (Vic)
- *Victorian State Emergency Management Plan* (State of Victoria, 2024)
- National Plan
- *Intergovernmental agreement on the National Plan to combat pollution of the sea by oil and other noxious and hazardous substances* (AMSA, 2023a)
- *Inter-governmental Agreement on the National Maritime Emergency Response Arrangement* (AMSA, 2008).

The *State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3* (DTP, 2025a) provides the Victorian Marine Pollution Contingency Plan and should be referred to in the event of an incident, as it describes the emergency management arrangements for response to marine pollution from vessels, offshore petroleum activities and other sources in State waters.

6.5 Transport for New South Wales

In the event that a slick crosses into NSW State waters, the ***Transport for NSW Response Duty Officer must be notified on 02 9962 9074 or use the 24-hour hotline on 13 12 36***. For further information, refer to the *NSW State Waters Marine Oil and Chemical Spill Contingency Plan* (NSW State Emergency Management Committee, 2022), NSW State Emergency Management Plan, NSW Wildlife in Emergencies Sub Plan, and Environmental Services Functional Area Supporting Plan.

Refer to Table 4-4 for further information on cross-jurisdictional authorities, and Table 4-5 for links to external documents.

6.6 Environment Protection Authority Tasmania

There is a duty under Section 32 of the Environmental Managementt and Pollution Control Act 1994 (Tas) to notify the EPA or the Local Council about pollution that causes or may cause environmental harm or nuisance.

In the event that a slick crosses into Tasmanian waters, ***EPA Tasmania must be verbally notified on 1800 005 171***. This should be followed by a written notification addressed to incidentresponse@epa.tas.gov.au. For further information, refer to the TasPlan.

Refer to Table 4-4 for further information on cross-jurisdictional authorities, and Table 4-5 for links to external documents.

7 Response strategy planning

7.1 Overview of response strategies

In the event of an oil spill, response options and tactics employed will vary depending on a number of factors related to the specific spill incident including oil type, volume, location of spill and whether it is a discrete spill or an ongoing release. The response options available for the Bass Strait are listed below:

- source control
- surveillance, monitoring and visualisation
- containment and recovery
- application of chemical dispersant
- mechanical dispersion
- shoreline protection
- shoreline clean-up
- OWR.

In-situ burning was considered however has not been included as a viable response strategy for the following reasons:

- this response strategy is not approved as part of the National Plan
- this response strategy has not been used previously in Australia
- potential issues with local community and stakeholder engagement due to visual amenity
- the atmospheric emissions resulting from this are generally not acceptable.

An effective response strategy may require a combination of different response options and may be scaled up or down depending on the nature and scale of the oil spill event. This plan details the following information for each response option:

- overview and description of the response strategy
- incident management roles during an incident
- assessment of the response capability
- demonstration of how strategy meets environmental performance criteria.

EPOs, EPSs and measurement criteria have been identified and put in place to ensure environmental impacts from response activities are acceptable and reduced to as low as reasonably practicable (ALARP).

In addition, EPOs, EPSs and measurement criteria have been identified to ensure resources remain current and available to respond to an oil spill event. The EPOs and EPSs are detailed within each respective response strategy section. These will be monitored and reported as per the implementation strategy as per Section 8 of the EP.

7.2 Net Environmental Benefit Analysis

A process known as NEBA considers the advantages and disadvantages of oil spill response options in terms of their respective potential impacts on the environment. NEBA recognises that oil spill response activities have the potential to cause environmental impacts but may be justifiable due to overriding benefits and/or the avoidance of further impacts from the spill. The NEBA process can be applied to all response strategies.

The Esso NEBA process has been developed using the guidance documents *Response strategy development using net environmental benefit analysis (NEBA)* (IPIECA-IOGP, 2015d) and *Guidelines on implementing spill impact mitigation assessment* (IPIECA-IOGP, 2017a). While International Petroleum Industry Environmental Conservation Association (IPIECA) typically follows a four-step process, Esso have combined Step 2 and 3 through the use of the Esso NEBA matrix tool. While this is an alternative approach, this method remains in line with the guidance outlined by IPIECA. The steps to be followed are shown in Table 7-1.

Table 7-1 Esso NEBA process

Step	Activities
1	Identify and categorise sensitivities Identify and prioritise an area's ecological, socioeconomic, and cultural resources according to environmental sensitivity.
2	Evaluate feasible response options Evaluate feasible response options, including natural recovery, and compare them to each other, in order to define environmental benefits and drawbacks for all options.
3	Select suitable response options Select the response option or combination of options that result in the greatest environmental benefit and/or least adverse effects on key resources.

7.2.1 Step 1 - Identifying and categorising sensitivities

A preparedness NEBA template has been produced comprising Step 1 and 2 of the NEBA process (Table 7-1). This tool has identified resources at risk in over 40 geographic areas in an oil spill event which are located within the Bass Strait described area (refer to Section 3 Description of Environment within the relevant EP). The resources identified span Victoria, Tasmania, and NSW.

The protection priorities defined in the Quick Reference Guides (QRGs) and the preliminary preparedness NEBA can be referenced in the event of an incident and used as a template during the response. In the event of an incident, it will be necessary to confirm the protection priorities are current and supported by stakeholders and check the response strategies are indeed feasible given the specifics of the situation.

Each resource at risk has been subdivided further into resource types e.g. sandy beach, shipwrecks, fisheries, estuaries, rocky shores etc. Each of these resource types has been allocated:

1. Intrinsic protection priority.
2. Spill impact ranking.
3. Protection priority ranking.

The intrinsic protection priority is ranked as Lower, Moderate and Higher for each of the following three dimensions:

- irreplaceability/significance of a resource (Navigatus Consulting Limited , 2011)
- vulnerability of a resource to oiling (NOAA ESI, 2019)
- influence (criticality to human beings, ecosystems or their components).

Once each has been ranked individually, the overall intrinsic protection priority is calculated using Table 7-2.

Table 7-2 Overall intrinsic protection priority ranking

Dimension 1	Dimension 2	Dimension 3	Overall intrinsic protection priority rating
Higher	Higher	Moderate	Higher
Higher	Moderate	Moderate	Higher
Moderate	Moderate	Moderate	Moderate
Higher	Higher	Lower	Moderate

Dimension 1	Dimension 2	Dimension 3	Overall intrinsic protection priority rating
Higher	Lower	Lower	Moderate
Lower	Lower	Lower	Lower
Moderate	Moderate	Lower	Moderate
Moderate	Lower	Lower	Lower
Higher	Moderate	Lower	Moderate

The spill impact ranking is ranked as Lower, Moderate or Higher, and is determined based on the following impacts:

- time before exposure
- duration of exposure
- size/scale
- intensity
- surface thickness
- dissolves aromatics
- entrained hydrocarbons.

Refer to Table 7-3 for further information on how the spill impact ranking is calculated.

Table 7-3 Ranking table used to determine the spill impact ranking for each resource at risk

Consequence level	Lower	Moderate	Higher
Impact			
Time before exposure (weathering)	>48 hours	24 hours	12 hours
Duration of exposure	Short term (hours-days effects highly transitory)	Medium term (weeks – months. Trigger/cause is temporary, effects decline over time)	Long term (years. Effects are ongoing. Consider persistence or bioaccumulation potential.)
Size/scale	Localised (not a significant portion of any sensitive areas)	Moderate (a significant proportion of a habitat, watershed, or single ecological area: a significant proportion of the range of occurrence of a population of a species)	Widespread (encompassing entire ecosystems, watersheds or bioregions: effecting most of the global range or occurrence of an entire species)
Intensity (oiling potential/exposure)	Minor	Moderate	Significant
Surface thickness	0.5 - 10g/m^2	10 - 25g/m^2	>25g/m^2
Dissolved aromatics	576 - 4800ppb.hours	4800 – 38,400 ppb.hours	>38,400 ppb.hours

Consequence level	Lower	Moderate	Higher
Entrained hydrocarbon	960 - 9600 ppb.hours	9600 – 48,000 ppb.hours	>8000 ppb.hours
Sensitivity			
Irreplaceability/significance of resource (Navigatus Consulting Limited , 2011)	• Common, plentiful. • Global population would suffer minor damage. • Fish species – vulnerable or iconic e.g. weedy sea dragon, Australian grayling. • Crustaceans, molluscs, invertebrates – vulnerable or iconic. • Recognised importance at State level e.g. national parks, marine parks/ reserves and coastal parks/reserves.	• Less common or plentiful but not rare or unique. • Global population would suffer moderate damage. • Marine mammals, birds – vulnerable or iconic e.g. southern right whale, Australian fur seal, hooded plover (*Thinornis cucullatus*), little tern (*Sternula albifrons*), eastern curlew (*Numenius madagascariensis*), little penguin. • Fish species – endangered. • Endangered crustaceans, molluscs, invertebrates. • Plant species – vulnerable or iconic. • Nationally recognised for protection of special features and internationally recognised for co-management with human uses e.g.	• Unique or rare. • Global population is particularly susceptible. • Marine mammals, birds – endangered e.g. fairy tern (*Sternula nereis*), great knot (*Calidris tenuirostris*), pied oyster catcher (*Haematopus longirostris*). • Critically endangered crustaceans, molluscs, invertebrates. • Fish species – critically endangered. • Plant species – endangered. • Nationally protected and internationally recognised sites representative of major habitats and communities e.g. World Heritage areas, Commonwealth marine reserves, marine national parks,

Consequence level	Lower	Moderate	Higher
		marine sanctuaries and UNESCO biosphere reserves.	and Ramsar wetlands.
Vulnerability of resource to oiling (inability to resist or recover from damage) (NOAA ESI, 2019)	• Resilient. • Open marine environment, seabed (water depth >10m), cliffs/exposed rocky headlands, coastal sites of geological significance, shipwrecks, man-made structures. • Commercial aspects of boatyards, slipways and marinas. • Cetaceans/marine mammals.	• Moderately resilient. • Subtidal rocky reefs and artificial reefs. • Fine, medium to coarse grained sandy and gravel beaches. • Cultural sensitivities. • Industrial water intakes. • Fur seals/shorebirds.	• Not resilient. • Estuaries. • Intertidal rocky shores. • Intertidal flats. • Intertidal, emergent, subtidal aquatic vegetation. • Marshes and mangroves. • Commercial fisheries and recreational fishing. • Recreation. amenity. • Seabirds.
Influence (criticality to human beings, ecosystems of their components)	• Providing few or no services (supporting, regulating, provisioning, cultural).	• Considered moderately important, providing a range of ecological, cultural, social, or commercial services for humans of biodiversity. • Important to aboriginal or non-aboriginal community with Statewide significance e.g. native title determination. • State significant recreational use,	• Highly productive and/or diverse, critical for human well-being (such as subsistence), functions/services providing critical support for key human/biological communities (such as clean water), considered highly important by public. • National cultural significance.

Consequence level	Lower	Moderate	Higher
		community, or amenity values.	• Nationally significant recreational us, community or amenity values.

The intrinsic protection priority and the spill impact ranking are then combined to give an overall protection priority ranking as shown in Table 7-4. The combined sensitivity dimensions (intrinsic protection priority) weigh approximately equally against the combined effects dimensions (spill impact ranking), but the intrinsic protection priority should generally be the determining factor in close calls.

Table 7-4 Interpretive examples of intrinsic protection priority and spill impact ranking combinations

Protection priority ranking	Intrinsic protection priority	Spill impact ranking
1	Higher	Higher
2	Higher	Moderate
	Moderate	Higher
	Moderate	Moderate
3	Higher	Lower
	Moderate	Lower
	Lower	Higher
	Lower	Moderate
4	Lower	Lower

In a spill incident, the NEBA template will be updated to reflect overall incident specific protection priority ranking for each resource at risk. This is achieved by:

- determining spill impact ranking using data from incident-specific trajectory modelling and surveillance
- review of the intrinsic protection priority with stakeholders who have current and local knowledge of the resource areas.

Once this has been completed, the NEBA can be updated to select response strategies to protect the highest priority resources at risk.

7.2.2 Step 2 - Evaluate feasible response options

Following the identification and classification of sensitivities, feasible response options should now be evaluated. This requires an assessment of all possible response options, including an evaluation of the impact of carrying these strategies out on the previously identified sensitivities (IPIECA-IOGP, 2015d). The overall effects of carrying out individual response activities should be compared to that of no response strategy, or natural selection.

The preparedness NEBA details the advantages and disadvantages for each response strategy based on each resource type, taking into account the impact of the response itself on the resource. The potential effects of response options (both positive and negative) are assessed compared to the 'no intervention' option and the strategies are then identified as:

- proposed
- viable
- not recommended
- not applicable
- not viable.

Definitions for the above can be referenced in Table 7-5.

The potential response options for a spill have been categorised as one of the above in the preparedness NEBA for each of the resource types within each resource area. This information is summarised in Appendix D.

In an actual incident, the spill responses should be reviewed and updated to consider hydrocarbon type, safety, feasibility, timing, and current and local and knowledge of the resource areas.

7.2.3 Step 3 - Selecting suitable response options

This step requires a range of stakeholders to reach consensus on the relative priority of the environmentally sensitive resources and to understand the trade-offs associated with available response technologies (IPIECA-IOGP, 2015d).

Two trade-off aspects are balanced in this step (i.e. protection and response, and the benefits and drawbacks of selected response options). For the former, this priority may be influenced by the ease of protection and response, recovery times, and the importance for subsistence, economic value, and seasonal changes (IPIECA-IOGP, 2015d).

Once the response options and priorities have been selected, this should be reviewed by relevant IMT members and considerations to logistics, safety and resources finalised. The NEBA is an ongoing process and should be updated on a regular basis for the duration of the spill to allow for real-time alignment with changing field conditions and address the health of response personnel, community health, and socioeconomic considerations (e.g. beach closures). Further, these tools should be used to gain stakeholder input on local or regional priorities, expand awareness, and gain trust in the decision-making process.

Net environmental benefit should always be a key factor when making decisions on the optimum spill response options to implement.

7.2.4 Preparedness NEBA

In the event of an incident, it will be necessary to check the priorities defined in Appendix D are current and supported by stakeholders, and check the response strategies are indeed feasible given the specifics of the oil spill situation.

Activity specific protection priorities and selection of response options are summarised in Appendix D.

A preparedness NEBA comprising of Step 1 and 2 of the NEBA process described in Table 7-1 has been prepared by Esso. This can be referenced in the event of an incident and used as a template during the response. This NEBA assessment of potential applicable response options considers different types of hydrocarbon spills and resources. A summary of this NEBA can be seen in Table 7-6 where the following spill response strategies have been assessed as potentially applicable for combatting an oil spill.

Where shoreline impacts are predicted, a response-specific NEBA will be undertaken, in conjunction with State agency, to determine and agree on the appropriate response strategies. Each tactic will be applied in a manner as determined by the Incident Action Plan, adapted at the time to the current weather and sea conditions.

Table 7-5 NEBA summary key

P	Proposed	The tactic will be deployed where safe to do so and where the NEBA indicates the strategy will result in net environmental benefit, and if the

		response or the spill is likely to impact State waters, the response will be approved by the State Authority.
V	Viable	The tactic will be considered as a viable option, but deployment may not be warranted because of the size of spill, conditions, and other factors at the time of the spill.
NR	Not recommended	The tactic may be viable but is not recommended either due to safety considerations or impacts of the tactic itself.
NV	Not viable	The potential to deploy the tactic effectively is limited.
NP	Not practical	The tactic cannot be implemented for the resource type, e.g. resource type is inaccessible.
NA	Not applicable	The resource type does not warrant this response.

Table 7-6 Evaluation of possible applicable response strategies relevant to oil types

Oil spill response strategy	Response tactic	Kipper condensate	Moonfish crude	Barracouta condensate	Light marine oil	Reasoning
Surveillance, monitoring and visualisation	Vessel surveillance	P	P	P	P	Provision of real time information for spill trajectory, weathering, and behaviour, which can help to inform other response strategies. This can be targeted at specific slicks and done alongside other vessel-based response operations. Can be performed on all spills, oil types, and offshore receptors (refer to Section 9.1.1).
	Aerial surveillance	V	V	V	V	Provision of real time information for spill trajectory, weathering, and behaviour, which can help to inform other response strategies. This can assist with identifying sensitivities, and can be performed on all spills, oil types, and offshore receptors (refer to Section 9.1.1).
	Oil spill trajectory modelling	P	P	P	P	Prediction of spill trajectory which can be used to prepare and implement response strategies. This can be implemented rapidly and repeated daily for up-to-date models. It requires no in-field personnel and can be modelled as closely as possible to the oil type (refer to Section 9.1.2). Accuracy of modelling is reduced in near-shore marine environments and estuaries.
	Tracking buoys	P	P	P	P	Provision of real time information for spill trajectory, which can help to inform other response strategies. This can be deployed rapidly over several days, and can be used on all spills, oil types, and offshore receptors (refer to Section 9.1.3).
	Satellite imagery	P	P	P	P	Indication of oil spill extent over a wide range and can be obtained in a variety of weather conditions, for all offshore receptors (refer to Section 9.1.4).

Oil spill response strategy	Response tactic	Kipper condensate	Moonfish crude	Barracouta condensate	Light marine oil	Reasoning
Chemical dispersion	Vessel application	NR	V[1]	NR	NR	Dispersant should only be considered as a viable strategy if all below criteria are met: - water depth must exceed 10m - slick must be located outside of State waters (unless approval is given by State authorities) - floating oil thickness must be ≥50g/m^2. In addition to this, sufficient testing must be carried out prior to spraying to ensure the dispersant type is effective on the oil type. As both condensates are Group 1, surface dispersant application would not be recommended as a strategy, as the hydrocarbon will readily evaporate and disperse naturally. Application of dispersant to condensate is also likely to increase toxicity in the water column and could also affect or interrupt the natural dispersion processes. Dispersant is also not viable on light marine oil spills, as the effectiveness on Group 1 and 2 oils is reduced. Moonfish crude is a Group 4 oil. Heavier oil types are potentially amenable to dispersant application, however its generally not recommended on heavier oil types due to a lack of response to the dispersant by the oil and/or requiring several treatments before the oil response. Field tests would need to be conducted prior to any large-scale application efforts. Dispersant application is retained as a potential response option for Moonfish crude in the event that field tests in the event of a spill have a positive result (refer to Section 11.1.2 and 11.1.3).
	Aerial application	NR	V[1]	NR	NR	

Oil spill response strategy	Response tactic	Kipper condensate	Moonfish crude	Barracouta condensate	Light marine oil	Reasoning
	Subsea dispersant injection	NA	NA	NA	NA	Not applicable, as dispersant is not recommended on condensate. The scenarios in the modelling report are condensate spills only (RPS, 2025) (refer to Section 11.1.4).
Mechanical dispersion	Use vessels' propellors to mechanically agitate the water to assist in the dispersion of the slick	P	P	P	P	Likely to be effective on both condensates, with the aim of this strategy to assist with the natural process of dispersion. This can be used to target specific areas of the slick to reduce the concentration of condensate at the surface. Can be done alongside other vessel-based response operations. Mechanical dispersion is likely to have limited effectiveness on Moonfish crude due to it being a Group 4 oil type. Heavier oils do not usually respond effectively to this response strategy although it could be attempted. Safety considerations for high volatile organic compound emissions from spilt hydrocarbons (refer to Section 12). This strategy can be applied for all offshore receptors in the Preparedness NEBA.
Containment and recovery	Use offshore booms/skimmers or other collection techniques deployed from vessel/s to contain and collect oil	NR	V[1]	NR	NV	Containment and recovery is only deemed effective on floating oil thicknesses of ≥50g/m^2 (IPIECA-IOGP, 2015b). As the condensates are Group 1 oils and light marine oils are Group 2, containment and recovery is unlikely to be effective as large quantities of the slick are expected to disperse and evaporate rapidly and is unlikely that a spill would reach adequate thickness. Therefore, containment and recovery is not viable. While the Group 4 Moonfish crude is much more amenable to containment and recovery response, if the

Oil spill response strategy	Response tactic	Kipper condensate	Moonfish crude	Barracouta condensate	Light marine oil	Reasoning
						thickness of floating oil does not reach the criteria, another response option may be considered more appropriate. The results from the deterministic modelling predicted no floating oil observed above the 50g/m² threshold for Moonfish crude (RPS, 2025). However, containment and recovery is retained as a potential response strategy (refer to Section 10). Targeted containment and recovery may be utilised to reduce impact to sensitive areas where access for shoreline protection is limited.
Protection and deflection	Protection booming in nearshore waters and at shorelines to prevent oiling of sensitive resources and redirect oil	P²	P²	P²	P²	If sensitive shoreline resources are predicted to be impacted, this strategy should be considered. The effectiveness of this response will be impacted by local weather conditions, sea state, currents, tidal variations, access constraints, and implementation time. This strategy is generally considered more efficient on areas of low to moderate tidal ranges, in areas of relatively low wave energy, due to lower potential for boom failure. If timings allow, protection and deflection should be implemented to prevent or limit the contamination of sensitive resources and shorelines, reducing both environmental impact, and waste produced. This strategy can be implemented for all oil types (refer to Section 13.1). The results from the deterministic modelling predicted a maximum length of 16km of shoreline accumulation ≥100g/m² (RPS, 2025).
Shoreline clean-up	Removal of stranded hydrocarbons by means of shoreline	P²	P²	P²	V²	If shorelines are predicted to be impacted, shoreline clean-up should be considered if appropriate to the circumstances. Considerations such as persistence of

Oil spill response strategy	Response tactic	Kipper condensate	Moonfish crude	Barracouta condensate	Light marine oil	Reasoning
	clean-up techniques including physical removal of bulk oil, surf washing, flushing, bioremediation, or natural dispersion					the oil, access to the site, substrate type, wave action, and overall sensitivity need to be accounted for when deciding the best course of action. It should be noted there may be circumstances where a shoreline response will not have a net benefit to the environment, and NEBA assessments must be conducted at all stages of the process (refer to Section 13.2). The results from the deterministic modelling predicted a maximum volume of 155.8m^3 of shoreline accumulation (RPS, 2025).
OWR	Prevention of oiling by way of keeping wildlife away from the oil, including activities such as hazing, pre-emptive capture, oiled wildlife capture	P[2]	P[2]	P[2]	P[2]	This can be used to deter wildlife from areas of contamination to reduce oiled wildlife impacts. Requires species experts to tailor hazing efforts to the targeted species, however, can be applied to a rage of fauna. This can be implemented for both condensate and crude (refer to Section 14). For light marine oil and condensate spills, hazing is proposed on shoreline receptors, and viable in open marine environments and estuaries. This is due to the effectiveness of hazing being higher closer to shore.
	Cleaning and rehabilitation of oiled wildlife	P[2]	P[2]	P[2]	P[2]	If wildlife is contaminated, a clean-up effort should be considered. The effectiveness of this response will be impacted by resources available, species targeted, season, and number of animals impacted. This can be implemented for both condensate and crude (refer to Section 14).
In-situ burning	Controlled burning of oil spill	NA	NA	NA	NA	Not applicable to condensate wells due to safety hazards. This response is not listed within the National

Oil spill response strategy	Response tactic	Kipper condensate	Moonfish crude	Barracouta condensate	Light marine oil	Reasoning
						Plan. Approval would need to be sought from State authorities.

[1]These response strategies are only recommended if floating oil is observed at ≥50g/m^2. Below this, would be deemed inefficient and therefore unsuitable.

[2]If shoreline/wildlife impacts are predicted and likely to occur these tactics would be recommended.

7.3 Operational Net Environmental Benefit Analysis instructions

For all spills, a spill-specific NEBA needs to be developed for operations, as outlined in Table 7-1. Instructions for using Esso's NEBA worksheet are in Table 7-7.

Table 7-7 Steps of Esso's operational NEBA process

Step number	Steps of operational Esso NEBA process
1	Locate the NEBA worksheet (AUGO-EV-ELI-013 - NEBA Template) tool available on Esso's network.
2	Fill out the incident details, situational awareness and geographical location sections within the first sheet, relevant to the incident.
3	Use the key in the first sheet to identify the required locations to be included within the situation-specific NEBA assessment, and their respective sheet numbers.
4	Using the relevant sheet numbers, copy the list of resources at risk into the master NEBA worksheet in sheet 3.
5	Referring to Oil Spill Response Atlas[5] maps, remove any non-relevant resource types according to the areas of the environment that are predicted to be impacted by the spill.
6	Using sheet 2a and 2b, review the protection priority of the remaining resources. Refer to Quick Reference Information for specific activities Appendix D.
7	Review and expand on each of the advantages and disadvantages of each given response strategy for each resource type listed, according to incident-specific details and further response considerations. Use information from the Response Strategy sections of the OPEP, and TRPs where relevant.
8	List any further response considerations where appropriate.
9	Use this as a tool to facilitate discussions with stakeholders to select the response strategies most appropriate for the resources at risk listed.
10	Evaluate effectiveness of each, considering trade-offs. Response strategies can be designated as proposed, viable, not recommended, not viable, not practical, or not applicable, as seen in Section 7.2.4.
11	Summarise the preferred strategy into the Incident Action Plan.

Detailed information on priorities for protection, potential impacts, and preferred response strategies will be used in conjunction with incident-specific trajectory modelling and real-time conditions to determine the most

[5] The Oil Spill Response Atlas is a national database and decision support system in a computerised GIS format. It is designed to provide comprehensive information about Australia's coastal resources and spill response logistics. The Oil Spill Response Atlas includes information on shoreline geomorphology, marine habitats, environmental resources, cultural and heritage sites, commercial resources, logistics and infrastructure information to support spill response. The Oil Spill Response Atlas is accessed through AMSA in emergency situations.

appropriate incident-specific response. Using the outputs of the NEBA as a feed into the planning 'P' process, the IMT will then draft/validate tactical plans for specific areas and execute those plans.

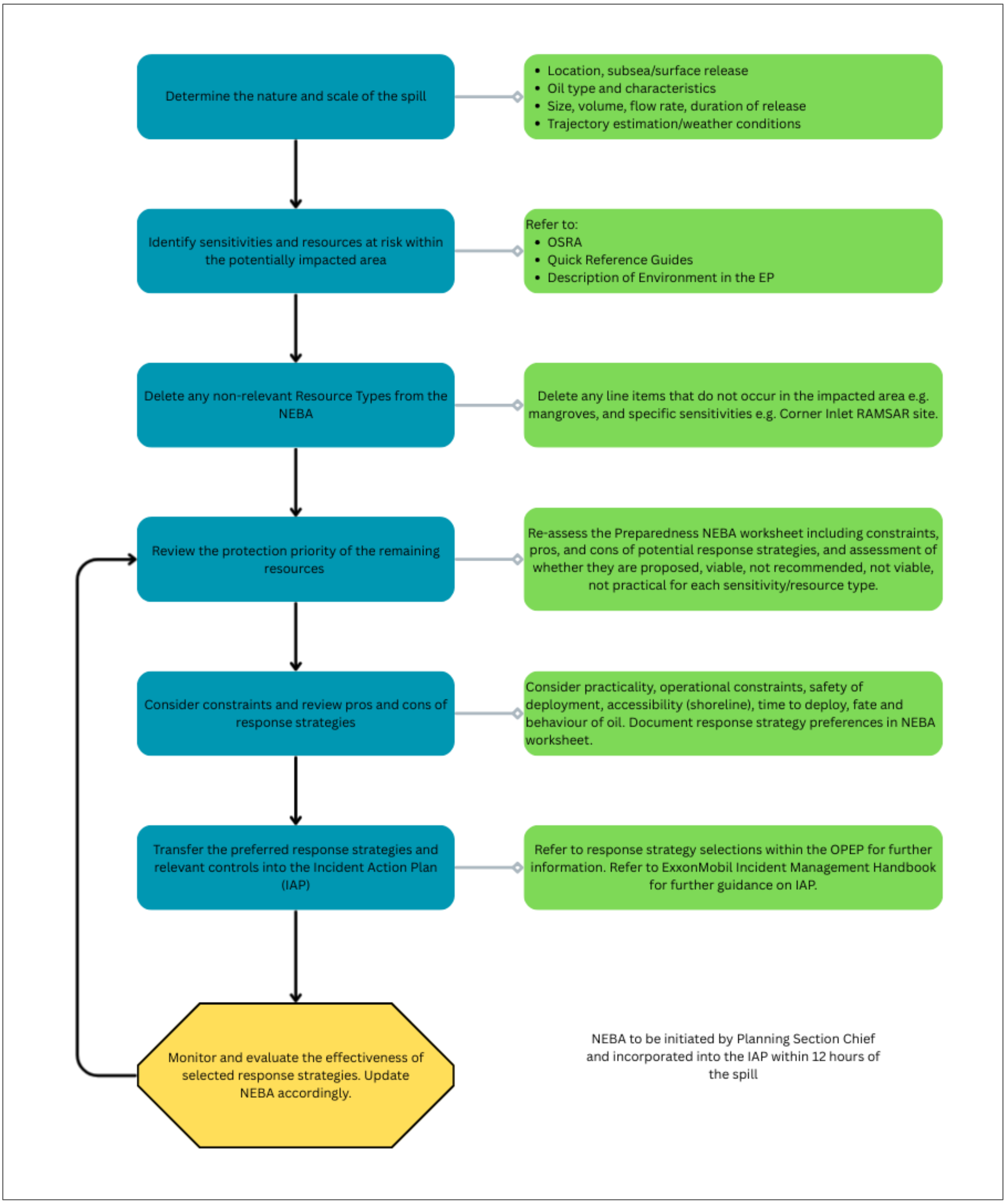

Figure 7-1 NEBA process flowchart

7.4 Resource requirements and capabilities of oil spill response

Oil pollution preparedness and response arrangements should be commensurate with the identified risk and be fit for purpose, performance based, adaptable, scalable, sustainable, and clearly identify roles and responsibilities. All necessary arrangements to support timely response to foreseeable oil pollution emergencies must be in place prior to an activity commencing and be maintained for the duration of the activity.

As per *Oil spill preparedness and response: an introduction* (IPIECA-IOGP, 2019), the results from the spill modelling and impact assessment of the WCDSs provide important input related to the likelihood of different spill scenarios, the ecological and socio-economic consequences of the scenarios, and the likelihood of exposure and oil volumes in geographical areas. Such information supports response planning analysis including NEBA, establishing response strategies and assessing resource needs across all response Levels.

Assessment of oil spill response strategies aims to identify:

- viable strategies for delivering a response with the greatest net environment benefit
- tactical measures required to implement the identified response strategies, considering technical, practical and safety factors
- resources required according to response Level to mount the tactical measures and achieve an effective and realistic response.

In order to address these items, detailed assessments of the selected WCDSs were carried out in order to establish:

- response strategies and required capability to respond to each WCDS
- resource requirements for mobilisation and implementation of each response strategy
- assessment of the availability of resources from Level 1, 2, and 3 equipment stockpiles.

The results have been used to generate a summary of resources required, resources available and expected timeframes to mobilise the personnel and equipment for each response option.

For each WCDS, a full range of response strategies were considered. Strategies which were not viable (e.g. due to oil type or proximity to sensitive receptors) were identified.

Note that these are the proposed response strategies based on the available spill response modelling information. Actual response strategies implemented will be decided by the IMT using accurate SMV data, an operational NEBA, and in consultation with relevant State Control Agencies. Guidance will be sought from other relevant State agencies as to external factors which may influence the implementation of planned response strategies (e.g. natural disasters, pandemics).

Resource requirements were determined for each response strategy applicable to each WCDS. Resource requirements are determined based on deterministic modelling outputs which indicate the location and intensity of the worst-case impact.

General considerations for resource requirements for each response strategy are outlined in Table 7-8.

Table 7-8 Considerations for resource requirements for response strategies

Response strategy	Considerations for resource requirements
SMV	• Time to shoreline impact. • Location and type of oil. • Extent of slick. • Weather conditions. • Distance from shoreline.
Source control	• Well and facility design. • Reservoir characteristics. • Release rates. • Response time model for relief well drilling.
Dispersant application	• Type of oil. • Location of spill in proximity to sensitive receptors. • Surface oil loading. • Time since release/window of opportunity. • Water depth. • Distance from shoreline. • Application rate. • Sorties per day.

Response strategy	Considerations for resource requirements
	• Area of oil amenable to dispersant and length of time predicted to be observed.
Containment and recovery	• Type of oil. • Location and loading to sensitive receptors. • Surface oil loading. • Waste storage capability. • Weather conditions. • Area of oil amenable to containment and recovery and length of time predicted to be observed.
Mechanical dispersion	• Type of oil. • Surface oil loading. • Time since release.
Shoreline protection	• Time to shoreline impact. • Type of oil. • Geographical distance of potential impact. • Location of sensitive receptors. • Shoreline characteristics/access. • Weather conditions.
Shoreline clean-up	• Time to shoreline impact. • Type of oil. • Shoreline loading. • Geographical distance of impact. • Location and loading to sensitive receptors. • Shoreline characteristics/access.
OWR	• Time to shoreline impact. • Type of oil. • Shoreline loading. • Potential for protected species to be located in the area. • Sensitivity of species e.g. endangered species. • Sensitivity of site e.g. nesting sites. • Season. • Zoonotic diseases.

7.4.1 Assessment of resource requirements

An assessment of required resources has been completed based on various outputs from the oil spill modelling report (RPS, 2025). These outputs were assessed using thresholds from the deterministic modelling conducted, where deterministic runs were selected to represent the possible WCDS for the Bass Strait producing and non-producing activities.

For example, the deterministic run with the maximum length of accumulated shoreline loading of oil ≥100g/m^2 was used to represent the WCDS for shoreline protection and deflection within the Bass Strait region (RPS, 2025). Therefore, WCDS resources for shoreline protection and deflection have been determined based on this scenario.

Details of which scenario is relevant to assessment of resource requirements for each response strategy is outlined in Table 7-9. The assessments can be found in the relevant response sections of this OPEP (Sections 8-15) under Response Capability.

A summary of the required capabilities is included in the relevant QRGs (refer to Appendix D).

Table 7-9 Applicable WCDS to response strategy resource requirements

Response strategy	Modelling report output used to determine WCDS	Relevant WCDS model run number
SMV (Section 9)	Applicable to all scenarios	Applicable to all scenarios.
Containment and recovery (Section 10)	Highest levels of floating oil exposure at ≥50g/m^2	Results in the report for deterministic analysis of Scenarios 2 (run 40) and 7 (run 3) show exposure to floating oil at ≥50g/m^2. However, these two scenarios are for a spill of condensate (RPS, 2025). Containment and recovery is not recommended for condensate spills. Single strike team requirements calculated as WCDS and are retained as a secondary strategy.
Dispersant application (Section 11)	Highest levels of floating oil exposure at ≥50g/m^2	Results in the report for deterministic analysis of Scenarios 2 (run 40) and 7 (run 3) show exposure to floating oil at ≥50g/m^2. However, these two scenarios are for a spill of condensate (RPS, 2025). Containment and recovery is not recommended for condensate spills. Single strike team requirements calculated as WCDS and are retained as a secondary strategy.
Shoreline protection (Section 13.1)	Maximum length of accumulated shoreline loading of oil ≥100g/m^2	Scenario 8, run 92. 3302m^3 subsea release of Kipper condensate over 16 days following a pipeline rupture loss of containment incident at the HLA600 pipeline. (RPS, 2025).
Shoreline clean-up (Section 13.2)	Largest volume of oil ashore of oil measuring ≥100g/m^2	Scenario 7, run 52 1123 m^3 subsea release of Kipper condensate over 1 hour following a pipeline rupture loss of containment incident at the MLA500 pipeline. (RPS, 2025).
OWR (Section 14)	Earliest arrival times ashore of oil measuring ≥100g/m^2	Scenario 7, run 52. 1123m^3 subsea release of Kipper condensate over 1 hour following a pipeline rupture loss of containment incident at the MLA500 pipeline (RPS, 2025).

7.5 Environmental impact assessment of oil spill response

All oil spill response activities are implemented with the aim of reducing the overall environmental impact of the spill however, each activity in itself may also impact the environment, therefore it is important to understand potential impacts, assess the level and acceptability of potential impacts, and reduce impacts to ALARP.

This Section addresses assessment and evaluation of the consequence of mobilising the response strategies in the Bass Strait, which considers specific environmental aspects and receptors in the Bass Strait environment. The environmental receptors that may be impacted in a spill scenario have been described in the Description of Environment, under Section 3 of the relevant EP. The environmental impact assessment of each response option has been undertaken in accordance with the following sections of the EP:

- environmental impact assessment (including assessment of consequence)

- demonstration of ALARP
- demonstration of acceptability.

After identifying and describing the possible response options, an assessment was carried out to identify environmental receptors and potential interactions between the response activities and the receiving environment. The environmental receptors identified as occurring in the area are described in the Description of Environment, under Section 3 of the relevant EP. The environmental aspects have been identified for each oil spill response option and are shown in Table 7-10.

Based upon an understanding of the environmental aspects, potential impacts were defined and ecological and social receptors identified enabling a systematic evaluation to be undertaken. Many aspects align with those already described in the EP, such as aspects associated with vessels, therefore this volume only evaluates aspects and impacts that are unique to oil spill response activities. However, it should be noted that some vessel operations relating to oil response strategies may take place in other geographical areas that were not previously considered in detail in the relevant EP. An example of this could include vessel operations closer to, or within State waters.

Table 7-10 Applicable environmental aspects

Environmental Aspect	Source Control	SMV	Containment and recovery	Chemical dispersant	Mechanical dispersion	Shoreline	OWR	Environmental impact assessment
Emissions to air (as a result of support operations)	✓	✓	✓	✓	✓	✓	✓	Vessel and helicopter impacts are assessed within Section 6 and 7 of the EP.
Physical interaction – other marine users	✓	✓	✓	✓	✓	✓	✓	Vessel and helicopter impacts are assessed within Section 6 and 7 of the EP.
Planned discharge – treated bilge	✓	✓	✓	✓	✓	-	-	Vessel impacts are assessed within Section 6 of the EP.
Planned discharge - deck drainage	✓	✓	✓	✓	✓	-	-	Vessel impacts are assessed within Section 6 of the EP.
Planned discharge - food waste	✓	✓	✓	✓	✓	-	-	Vessel impacts are assessed within Section 6 of the EP.
Planned discharge - sewage and greywater	✓	✓	✓	✓	✓	-	-	Vessel impacts are assessed within Section 6 of the EP.
Planned discharge – cement	✓	-	-	-	-	-	-	Impact assessment for drilling a relief well within Section 8.4 of this OPEP.
Planned discharge - drilling muds and cuttings	✓	-	-	-	-	-	-	Impact assessment for drilling a relief well

Environmental Aspect	Source Control	SMV	Containment and recovery	Chemical dispersant	Mechanical dispersion	Shoreline	OWR	Environmental impact assessment
								within Section 8.4 of this OPEP.
Planned discharge - operational fluids (surface and subsurface)	✓	-	-	-	-	-	-	Impact assessment for drilling a relief well within Section 8.4 of this OPEP.
Physical presence - seabed disturbance	✓	-	-	-	-	-	-	Impact assessment for drilling a relief well within Section 8.4 of this OPEP.
Sound emissions	✓	✓	✓	✓	✓	✓	✓	Impact assessment for drilling a relief well within Section 8.4 of this OPEP.
Planned Discharge of Dispersant	-	-	-	✓	-	-	-	Impact assessment within Section 11.4 of this OPEP.
Socioeconomic (fisheries, tourism, culture)	-	-	✓	✓	✓	✓	✓	Impact assessment within Sections 10.4, 11.4, 13.6, and 14.4, this OPEP.
Water quality – from decanting	-	-	✓	-	-	-	-	Impact assessment within Section 10.4, of this OPEP.
Physical presence - interaction with fauna and flora	-	-	✓	✓	✓	✓	✓	Impact assessment within Sections 10.4, 11.4, 13.6, and 14.4, this OPEP.
Physical presence - sensitive and protected areas and parks	-	-	✓	✓	✓	✓	✓	Impact assessment within Sections 10.4, 11.4, 13.6, and 14.4, this OPEP.
Waste management and secondary contamination	-	-	✓	✓	-	✓	✓	Impact assessment within Sections 10.4, 11.4, 13.6, and 14.4, this OPEP.

Environmental impacts, or consequences, are evaluated in terms of the degree of the effects and the sensitivity of the environment and the community. Esso evaluates three effects dimensions (scale, duration, and intensity) and three environmental sensitivity dimensions (irreplaceability, vulnerability, and influence) (Section 5 of the relevant Producing and Non-Producing EPs).

The determination of impact severity involves evaluating each dimension as lower, moderate, or higher based on qualitative descriptions. Once each dimension is evaluated, results for effect and sensitivity are compared against interpretive criteria to define the overall environmental and public impact consequence level. These determinations are made during the environmental impact and risk assessment workshop(s). A summary copy of these criteria has been included in Table 7-11, see the relevant EP Section 5 for more details.

Table 7-11 Determination of environmental and public impact consequence

Consequence level	Environmental impact	Public impact	Interpretative examples of environmental consequence dimension considerations
I	Potential widespread, long term, significant adverse effects	• Extended (>3 months) national or international media coverage. • Large community disruption or evacuation (>1000 people). • Closure of major transportation route >24 hours.	Sensitivity of receptors are higher. Effects are longer term and widespread and/or of a higher intensity.
II	Potential localised, medium term, significant adverse effects	• National media coverage. • Medium community disruption or evacuation (100 – 1000 people). • Closure of major transportation <24 hours.	Sensitivity of receptors are moderate or higher. Effects are medium to long term and/or have a moderate to higher intensity.
III	Potential short term, minor adverse effects	• Public complaints; small community impact (<100 people). • Closure of secondary transportation route <24 hours. • Level 1 process safety event.	Sensitivity of receptors are lower to moderate. Effects are medium term and/or moderate intensity. Or sensitivity of receptors is lower, but effects are longer term/higher intensity. Or effects are localised, short term and/or low intensity, regardless of receptor sensitivity.
IV	Inconsequential or no adverse effects	• Public complaint. • Temporary closure of minor transportation route. • Minor inconvenience.	Sensitivity of receptors are lower. Effects are generally short term, localised and of low to moderate intensity.

7.6 Demonstration of ALARP for oil spill response

An ALARP assessment has been completed to confirm that risks from implementing oil spill response strategies continue to be reduced to ALARP and all alternative options to meet resource requirements have been considered. Additional, alternative or improved controls considered but not adopted have also been included in the ALARP assessment.

The risk assessment and ALARP methodology is discussed in the relevant EP section 5. The demonstration of ALARP assessment is included within each of the response strategy sections (Sections 8 to 15).

7.7 Preparedness controls, Environmental Performance Outcomes, Environmental Performance Standards and Measurement criteria

Table 7-12 presents Esso's preparedness controls that have been considered for response strategies of Esso based on industry best practices.

Table 7-12 All controls considered for oil spill preparedness capacity

Response strategy	Controls considered	Benefit	Feasibility	Adopted
Source Control	Trained personnel to fulfil Esso IMT roles	Esso's IMT includes trained personnel able fulfil Incident Commander, Operations Section Chief, Planning Section Chief, Logistics Section Chief, Safety Officer, Source Control Branch Director and Environment Unit Lead roles. Having readily available trained personnel can reduce time take to begin responding to an incident.	Maintaining personnel who are trained in ICS to fulfil roles in an IMT is a feasible action.	Adopted **(OPEP01-CM01)**
	Pre-arranged agreement with ROV provider.	Pre-arranged agreement can guarantee availability within a pre-defined timeframe and/or assured accessibility to ROV equipment, enabling shorter response times where applicable.	A pre-arranged agreement is an achievable action that can increase readiness in the event of a spill.	Adopted **(OPEP02-CM01)**
	Support vessel identification.	Identification of suitable support vessels availability can help reduce response time if vessels are needed for spill response.	Identification of suitable support vessels and their location prior to the commencement of jack-up rig activities is a feasible and practical control that can be implemented to increase preparedness.	Adopted **(OPEP02-CM02)**
	OTA Agreement with Oceaneering via AMOSC for access to the AMOSC Subsea first response toolkit.	The OTA Agreement provides access to the Subsea first response toolkit which provides access to: • subsea dispersant injection equipment	Agreements that allow access to well control equipment are feasible and can increase resource availability.	Adopted **(OPEP02-CM03)**

Response strategy	Controls considered	Benefit	Feasibility	Adopted
		• blowout preventer intervention equipment • site survey/debris clearance equipment.		
	Agreement with OSRL for Subsea Well Intervention Services and SIRT.	The agreements with OSRL provide access to the Subsea Well Intervention Services and SIRT equipment which provides access to the subsea incident response toolkit.	Agreements that allow access to well control equipment are feasible and can increase resource availability.	Adopted **(OPEP02-CM04)**
	Memorandum of Understanding (MoU) with Australian Energy Producers (AEP) (formerly APPEA).	AEP MoU states that signatories will make best endeavours to make drilling units available for transfer between operators when requested for emergency response. This may enable a faster response time.	Maintaining the MoU is an achievable and viable action that can increase resource availability.	Adopted **(OPEP02-CM05)**
	Agreement with Wild Well Control.	Agreement with Wild Well Control provides access to specially trained personnel and equipment to assist in the event of a loss of well control.	Agreements that allow access to well control equipment are feasible and can increase resource availability.	Adopted **(OPEP02-CM06)**
SMV	Esso helicopter fleet.	Esso owns and operates its own helicopter fleet that can be used for SMV.	Helicopters available through Esso can be feasibly maintained to reduce the time taken to begin SMV in the event of a spill.	Adopted **(OPEP03-CM01)**
	Arrangement with third-party for provision of fixed wing aircraft.	Arrangement with third-party enables provision of fixed wing aircraft when required.	Pre-arranged agreements for access to aerial assets are feasible and can increase resource availability.	Adopted **(OPEP03-CM03)**
	Esso chartered vessels	The chartered vessels that are used for ongoing Esso operations can be used for SMV if available and can reduce response time.	Vessels available through Esso can be feasibly maintained to reduce the response time in the event of a spill.	Adopted **(OPEP03-CM04)**
	Esso maintains enabling agreements to charter vessels from a number of vessel operators	Esso maintains enabling agreements to charter vessels from a number of vessel operators has provision for the supply of additional vessels when	Accessing additional vessels through enabling agreements with vessel operators is feasible, as the arrangements can be activated when	Adopted **(OPEP03-CM05)**

Response strategy	Controls considered	Benefit	Feasibility	Adopted
	for provision of additional vessels.	required, therefore increasing resource availability.	required to increase resource availability.	
	Membership of AMOSC provides access to oil spill trajectory modelling.	Membership with AMOSC, and the associated Service Level Statement, includes provision for trajectory modelling.	Pre-arranged agreements for accessing trajectory modelling services are practical in the circumstances and increase preparedness.	Adopted **(OPEP03-CM06)**
	Esso owned tracking buoys.	Esso owns two STBs to enable quick deployment.	STBs available through Esso can be feasibly maintained to reduce the time taken to begin SMV in the event of a spill.	Adopted **(OPEP03-CM07)**
	Agreements in place to access satellite imagery through AMSOC and OSRL.	Agreements in place with satellite imagery providers enables access to satellite imagery services.	Pre-arranged agreements for accessing satellite imagery are practical in the circumstances and increase preparedness.	Adopted **(OPEP03-CM08)**
	Agreement with service provider for monitoring and sampling.	Agreement with third-party service provider enables access to monitoring and sampling services and can reduce time required to conduct sampling.	Pre-arranged agreements for conducting monitoring and sampling are practical in the circumstances and increase preparedness.	Adopted **(OPEP03-CM10)**
	ExxonMobil GRT	ExxonMobil have a global team available to assist response for Level 3 activities which will increase resource availability and provide trained personnel within 72 hours.	Maintaining training and competency of GRT is a viable control and can be implemented to increase resource availability in the event of a spill.	Adopted **(OPEP03-CM11)**
Containment and recovery	Esso chartered vessels.	The chartered vessels that are used for ongoing Esso operations can be used for containment and recovery if available and can reduce response time.	Vessels available through Esso can be feasibly maintained to reduce the response time in the event of a spill.	Adopted **(OPEP04-CM01)**
	Esso maintains enabling agreements to charter vessels from a number of vessel operators for provision of additional vessels.	Esso maintains enabling agreements to charter vessels from a number of vessel operators has provision for the supply of additional vessels when required, therefore increasing resource availability.	Accessing additional vessels through enabling agreements with vessel operators is feasible, as the arrangements can be activated when required to increase resource availability.	Adopted **(OPEP04-CM02)**

Response strategy	Controls considered	Benefit	Feasibility	Adopted
	AMOSC membership.	Agreement with AMOSC provides access to additional containment and recovery equipment and personnel, increasing resource availability.	Pre-arranged agreements that increase resource availability by providing access to additional containment and recovery resources are feasible, and are tested regularly, as per the Service Level Statement.	Adopted **(OPEP04-CM03)**
	OSRL membership	Agreement with OSRL provides access to additional containment and recovery equipment and personnel, increasing resource availability.	Pre-arranged agreements that increase resource availability by providing access to additional containment and recovery resources are feasible and are tested regularly as per the Service Level Agreement.	Adopted **(OPEP04-CM04)**
	Agreement with waste management contractor.	Waste arrangements for removal of waste to approved disposal or treatment facilities can reduce the operational limitations associated with waste management, therefore increasing the effectiveness of the response.	Pre-arranged agreements that increase resource availability by providing waste management facilities are feasible.	Adopted **(OPEP04-CM05)**
	ExxonMobil GRT.	ExxonMobil have a global team available to assist response for Level 3 activities which will increase resource availability and provide trained personnel within 72 hours.	Maintaining training and competency of GRT is a viable control and can be implemented to increase resource availability in the event of a spill.	Adopted **(OPEP04-CM06)**
Dispersant application	Esso owned dispersant stocks.	Esso owns stock of dispersant volume (estimated 10m^3) which is available to mobilise for the first 24 hours of a response.	Dispersant available through Esso can be feasibly maintained to reduce the response time in the event of a spill.	Adopted **(OPEP05-CM01)**
	Esso owned dispersant application equipment.	Esso has dispersant application equipment in BBMT, available to mobilise when required.	Dispersant equipment e.g. spray arms available through Esso can be feasibly maintained to reduce the response time in the event of a spill.	Adopted **(OPEP05-CM02)**

Response strategy	Controls considered	Benefit	Feasibility	Adopted
	AMOSC agreement.	Agreement with AMOSC provides access to additional shoreline response equipment and personnel, increasing resource availability.	Response capabilities maintained as per SLS access to mutual aid and the National Plan equipment (which provides dispersant stockpiles).	Adopted **(OPEP05-CM03)**
	OSRL agreement.	Agreement with OSRL provides access to additional dispersant equipment and personnel, increasing resource availability.	Pre-arranged agreements that increase resource availability by providing access to additional containment and recovery resources are feasible and are tested regularly as per the Service Level Agreement.	Adopted **(OPEP05-CM04)**
	Esso chartered vessels.	The chartered vessels that are used for ongoing Esso operations can be used for dispersant application if available and can reduce response time.	Vessels available through Esso can be feasibly maintained to reduce the response time in the event of a spill.	Adopted **(OPEP05-CM05)**
	Esso maintains enabling agreements to charter vessels from a number of vessel operators for provision of additional vessels.	Esso maintains enabling agreements to charter vessels from a number of vessel operators has provision for the supply of additional vessels s when required, therefore increasing resource availability.	Accessing additional vessels through enabling agreements with vessel operators is feasible, as the arrangements can be activated when required to increase resource availability.	Adopted **(OPEP05-CM06)**
	ExxonMobil GRT.	ExxonMobil have a global team available to assist response for Level 3 activities which will increase resource availability and provide trained personnel within 72 hours.	Maintaining training and competency of GRT is a viable control and can be implemented to increase resource availability in the event of a spill.	Adopted **(OPEP05-CM07)**
Shoreline response	Agreement with third-party OSMP consultant, Stantec for personnel and resources required for implementation of OSMP.	Esso has an agreement in place with a third-party OSMP consultant, Stantec, who can provide access to personnel with the required training/experience for SCAT under OSMP module O3.	Pre-arranged agreements for implementing OSMP are practical in the circumstances and increase preparedness.	Adopted **(OPEP06-CM01)**
	Esso maintains enabling	Esso maintains enabling agreements to charter	Accessing additional vessels through enabling agreements	Adopted

Response strategy	Controls considered	Benefit	Feasibility	Adopted
	agreements to charter vessels from a number of vessel operators for provision of additional vessels.	vessels from a number of vessel operators has provision for the supply of additional vessels when required, therefore increasing resource availability.	with vessel operators is feasible, as the arrangements can be activated when required to increase resource availability.	**(OPEP06-CM02)**
	AMOSC agreement.	Agreement with AMOSC provides access to additional shoreline response equipment and personnel, increasing resource availability.	Pre-arranged agreements that increase resource availability by providing access to additional shoreline resources are feasible, and are tested regularly, as per the Service Level Statement.	Adopted **(OPEP06-CM03)**
	OSRL agreement.	Agreement with OSRL provides access to additional shoreline and response equipment and personnel, increasing resource availability.	Pre-arranged agreements that increase resource availability by providing access to additional shoreline resources are feasible, and are tested regularly, as per the Service Level Agreement.	Adopted **(OPEP06-CM04)**
	Personnel hiring agreements.	Esso has personnel hiring agreements in place which can be utilised to provide personnel for shoreline protection and clean-up activities.	Pre-arranged agreements that increase resource availability by providing access to additional shoreline resources are a feasible action.	Adopted **(OPEP06-CM015**
	Agreement with waste management contractor.	Waste arrangements for removal of waste to approved disposal or treatment facilities can reduce the operational limitations associated with waste management, therefore increasing the effectiveness of the response.	Pre-arranged agreements that increase resource availability by providing waste management facilities are feasible.	Adopted **(OPEP06-CM06)**
	Agreement with contractor for heavy lift equipment.	Agreement with third-party provides access to heavy plant equipment for shoreline protection and clean-up.	Pre-arranged agreements that increase resource availability by providing access to additional shoreline resources are a feasible action.	Adopted **(OPEP06-CM07)**
	ExxonMobil GRT.	ExxonMobil have a global team available to assist response for Level 3 activities which will increase resource	Maintaining training and competency of GRT is a viable control and can be implemented to increase	Adopted **(OPEP06-CM08)**

Response strategy	Controls considered	Benefit	Feasibility	Adopted
		availability and provide trained personnel within 72 hours.	resource availability in the event of a spill.	
OWR	AMOSC agreement.	Agreement with AMOSC provides access to additional OWR equipment and personnel, increasing resource availability.	Pre-arranged agreements that increase resource availability by providing access to additional OWR resources are feasible, and are tested regularly, as per the SLS.	Adopted **(OPEP07-CM01)**
	OSRL agreement.	Agreement with OSRL provides access to additional OWR response equipment and personnel, increasing resource availability.	Pre-arranged agreements that increase resource availability by providing access to additional OWR resources are feasible, and are tested regularly, as per the Service Level Agreement.	Adopted **(OPEP07-CM02)**
	ExxonMobil GRT.	ExxonMobil have a global team available to assist response for Level 3 activities which will increase resource availability and provide trained personnel within 72 hours.	Maintaining training and competency of GRT is a viable control and can be implemented to increase resource availability in the event of a spill.	Adopted **(OPEP07-CM03)**
	Agreement with waste management contractor.	Waste arrangements for removal of waste to approved disposal or treatment facilities can reduce the operational limitations associated with waste management, therefore increasing the effectiveness of the response.	Pre-arranged agreements that increase resource availability by providing waste management facilities are feasible.	Adopted **(OPEP07-CM04)**
Waste management	Esso maintains enabling agreements to charter vessels from a number of vessel operators for provision of additional vessels.	Esso maintains enabling agreements to charter vessels from a number of vessel operators has provision for the supply of additional vessels when required, therefore increasing resource availability.	Accessing additional vessels through enabling agreements with vessel operators is feasible, as the arrangements can be activated when required to increase resource availability.	Adopted **(OPEP06-CM02)**
	AMOSC agreement.	Agreement with AMOSC provides access to additional OWR equipment and personnel, increasing	Pre-arranged agreements that increase resource availability by providing access to additional resources	Adopted **(OPEP07-CM01)**

Response strategy	Controls considered	Benefit	Feasibility	Adopted
		resource availability. Temporary waste storage, decontamination stations, PPE stockpile containers and transfer pumps are included.	are feasible, and are tested regularly, as per the SLS.	
	Personnel hiring agreements.	Esso has personnel hiring agreements in place which can be utilised to provide personnel for waste management activities.	Pre-arranged agreements that increase resource availability by providing access to additional resources are feasible actions.	Adopted **(OPEP06-CM015**
	Training/induction of response personnel in shoreline clean-up operations.	Waste volumes can be reduced through provision of just-in-time training to response personnel with oversight by experienced personnel.	Providing training to personnel and maintaining this is a feasible and achievable action that can increase preparedness.	Adopted **(OPEP06-CM015**
	Agreement with waste management contractor.	Waste arrangements for removal of waste to approved disposal or treatment facilities can reduce the operational limitations associated with waste management, therefore increasing the effectiveness of the response.	Pre-arranged agreements that increase resource availability by providing waste management facilities are feasible.	Adopted **(OPEP07-CM04)**
	Agreement with contractor for heavy lift/plant equipment.	Agreement with third-party provides access to heavy plant equipment for shoreline protection and clean-up.	Pre-arranged agreements that increase resource availability by providing waste management facilities are feasible.	Adopted **(OPEP06-CM07)**
	ExxonMobil GRT.	ExxonMobil have a global team available to assist response for Level 3 activities which will increase resource availability and provide trained personnel within 72 hours.	Maintaining training and competency of GRT is a viable control and can be implemented to increase resource availability in the event of a spill.	Adopted **(OPEP07-CM03)**
	Bass Strait Oil Spill Response Waste Management Plan (AUGO-EV-ELI-011)	The *Esso Emergency Response Waste Management Plan* will assist in the development of an incident specific waste management plan.	Having a plan in place is practical in the circumstances, as this can be implemented to increase the effectiveness of waste management during a response.	Adopted **(OPEP08-CM01)**

To ensure risks continue to be reduced to ALARP throughout the lifetime of the activity, and as ongoing monitoring and maintenance of capability, EPOs and EPSs have been established to monitor response capability and ensure it is maintained.

The following definitions are used in this OPEP, as defined in Regulation 5 of the Environment Regulations:

- EPO – a measurable level of performance required for the management of environmental aspects of an activity to ensure that environmental impacts and risks will be of an acceptable level (i.e. a statement of the environmental objective)
- EPS – a statement of the performance required of a control measure.
- Measurement criteria (not defined in the Environment Regulations) – defines the measure by which environmental performance used to determine whether the EPSs and EPOs have been met.

The specific additional controls considered and adopted for each response strategy, as well as the relevant EPOs and EPSs have been provided within the respective response Sections. These will be monitored in accordance with the relevant measurement criteria (e.g. through tests and drills or validation of agreements).

If external factors are identified to have a potential to impact spill response capability (e.g. natural disasters, pandemics) a review of available capability against required capability will be completed to ensure risks continue to be reduced to ALARP. The management of change process will be used to make required changes or updates, if required. EPOs and EPSs for oil spill preparedness controls are outlined in Table 7-13.

Table 7-13 EPOs and EPSs for preparedness controls

EPO	Control	EPS	Measurement criteria
Source control equipment is available when required to prevent further uncontrolled release of hydrocarbons into the marine environment.	Agreement in place with ROV provider.	An ROV appropriate to the task will be available in an estimated 14 days from call out request to arrive in Victoria.	• Current agreement in place with ROV provider confirming approximate call-out response time contracts are validated annually on the emergency preparedness and response (EP&R) compliance tracking spreadsheets.
	Support vessels are identified prior to mobile offshore drilling unit activities to support the mobile offshore drilling unit.	**OPEP02-EPS02:** Suitable vessels and their location during the activity will be identified prior to mobile offshore drilling unit activities.	• Availability and deployment time is demonstrated during the 5 yearly test/drill and is documented in test/drill report.
	OPEP02-CM03: Agreement with Oceaneering via AMOSC for access to the AMOSC Subsea first response toolkit.	**OPEP02-EPS03:** AMOSC subsea first response toolkit access available via agreement.	• Valid agreement in place with AMOSC for access to the Subsea first response toolkit verified via quarterly equipment check.
		OPEP02-EPS03: Agreement in place with Oceaneering to operate AMOSC Subsea first response toolkit.	• Valid agreement in place with Oceaneering to operate the AMOSC Subsea first response toolkit, contracts are validated annually on the EP&R compliance tracking spreadsheets.

EPO	Control	EPS	Measurement criteria
	OPEP02-CM04: Agreement with OSRL for Subsea Well Intervention Services and SIRT.	**OPEP02-EPS04:** Access to OSRL subsea well intervention service and subsea Incident Response Toolkit available via agreement	• Valid agreement in place with OSRL for Subsea Well Intervention Services and SIRT contracts are validated annually on the EP&R compliance tracking spreadsheets.
	OPEP02-CM05: MoU with AEP for emergency response access to drilling unit(s).	**OPEP02-EPS05:** AEP MoU signatories will make best endeavours to make drilling units available for transfer between operators when requested for emergency response.	• Valid AEP MoU in place, MoU is validated annually on the EP&R compliance tracking spreadsheets.
	OPEP02-CM06: Agreement with Wild Well Control for loss of well control resources.	**OPEP02-EPS06:** Access to Wild Well Control specially trained personnel and equipment available via agreement.	• Valid agreement in place with Wild Well Control for access to specialist personnel and equipment, contracts are validated annually on the EP&R compliance tracking spreadsheets.
OPEP03-EPO01: Equipment and third-party services are available to complete oil spill surveillance and monitoring when required to gather information on the extent, severity and persistence of the oil and potential sensitivities at risk.	**OPEP03-CM01:** Access to Helicopter fleet for surveillance and monitoring.	**OPEP03-EPS01:** A helicopter is available to complete surveillance and monitoring in <4 hours of request, subject to safe flying conditions. (Note: assumes good visibility, daylight hours and suitable flying conditions).	• Capability is demonstrated during annual test/drill and is documented in test/drill report. • Availability and response time of helicopter(s) is demonstrated during annual response or test/drill and is documented in incident log or test/drill report.
	OPEP03-CM02: Trained aerial observers are available for SMV.	**OPEP03-EPS02:** Trained aerial observers are available within 12 hours to support surveillance and monitoring via helicopter.	• Availability of aerial observers is demonstrated during annual response and/or test/drill and is documented in incident log or test/drill report. • Training records confirm that adequately trained personnel are available consistent with resourcing requirements.
	OPEP03-CM03: Access to fixed wing aircraft for surveillance and monitoring.	**OPEP03-EPS03:** A fixed wing aircraft is available to complete surveillance and monitoring in <4 hours of request, subject to safe flying conditions.	• Capability is demonstrated during annual test/drill and is documented in test/drill report. • Availability and response time of fixed wing aircraft(s) is demonstrated during annual response or test/drill and is

EPO	Control	EPS	Measurement criteria
		(Note: assumes good visibility, daylight hours and suitable flying conditions).	documented in incident log or test/drill report.
	OPEP03-CM04: Chartered vessel available for SMV.	**OPEP03-EPS04:** Chartered vessel is available to complete surveillance and monitoring in <12 hours from request of service.	• Availability and response time is demonstrated during incident and/or annual test/drill and is documented in incident log or test/drill report.
	OPEP03-CM05: Esso maintains enabling agreements to charter vessels from a number of vessel operators for provision of additional vessels for SMV.	**OPEP03-EPS05:** Esso maintains enabling agreements to charter vessels from a number of vessel operators has provision for the supply of additional vessels for surveillance and monitoring.	• Availability and response time is demonstrated during incident and/or during the 5 yearly test/drill and is documented in incident log or test/drill report.
	OPEP03-CM06: Agreement with AMOSC for trajectory modelling.	**OPEP03-EPS06:** Access to trajectory modelling via AMOSC within <4 hours of service request.	• A valid agreement is in place for trajectory modelling services with AMOSC contracts are validated annually on the EP&R compliance tracking spreadsheets.
	OPEP03-CM07: Tracking buoys are available for SMV.	**OPEP03-EPS07:** Tracking buoys are available to complete surveillance and monitoring within 12 hours of spill occurring subject to safe conditions.	• Functionality is demonstrated during annual oil spill response equipment test/drill and is documented in test/drill report.
	OPEP03-CM08: Agreements in place to access satellite imagery through AMSOC and OSRL.	**OPEP03-EPS08:** Access to satellite imagery is available 24/7 for emergency response support via AMOSC and OSRL.	• A valid agreement is in place for access to satellite imagery 24/7 via AMOSC and OSRL contracts are validated annually on the EP&R compliance tracking spreadsheets.
	OPEP03-CM09: Initial response sampling kits are available to support SMV.	**OPEP03-EPS09:** An initial response sampling kit with required equipment is available when required. Samples obtained <24 hours of spill occurring subject to safe conditions.	• Functionality is demonstrated during annual oil spill response equipment test/drill and is documented in test/drill report.

EPO	Control	EPS	Measurement criteria
	OPEP03-CM10: Agreement with service provider to implement OSMP sampling and monitoring.	**OPEP03-EPS10:** Implementation of sampling and monitoring per the Bass Strait OSMP is undertaken by a capable service provider.	• The annual capability review of the service provider confirms their ability to implement the Bass Strait OSMP, agreement is validated annually on the EP&R compliance tracking spreadsheets.
	OPEP03-CM11: ExxonMobil GRT available to assist for Level 2/3 response activities within country in 72 hours.	**OPEP03-EPS11:** Additional sampling and monitoring personnel resources for Level 2/3 response are available via the GRT.	• Capability and deployment time for GRT support is demonstrated during the 5 yearly test/drill and is documented in test/drill report.
OPEP04-EPO01: Containment and recovery equipment is available when required to recover spilt oil before shoreline or other sensitivity contact.	**OPEP04-CM01:** Chartered vessels with containment and recovery capability are available.	**OPEP04-EPS01:** Access to vessels with containment and recovery capability will be available within 12 hours.	• Availability and response time is demonstrated during incident and/or annual test/drill and is documented in incident log or test/drill report.
	OPEP04-CM02: Esso maintains enabling agreements to charter vessels from a number of vessel operators for provision of additional vessels for containment and recovery.	**OPEP04-EPS02:** Esso maintains enabling agreements to charter vessels from a number of vessel operators has provision for the supply of additional vessels.	• Availability and response time is demonstrated during incident and/or during the 5 yearly test/drill and is documented in incident log or test/drill report.
	OPEP04-CM03: Agreement in place to access containment and recovery equipment via AMOSC.	**OPEP04-EPS03:** Esso will have required contracts, agreements and memberships with AMOSC in place to provide oil spill response resources. Response capabilities maintained per AMOSC Service Level Statement.	• Valid contracts, agreements or memberships that demonstrate access to containment and recovery resources, including equipment and personnel, contracts are validated annually on the EP&R compliance tracking spreadsheets.
	OPEP04-CM04: Agreement in place to access containment and recovery	**OPEP04-EPS04:** Esso will have required contracts, agreements and memberships with OSRL in place to provide oil spill	• Valid contracts, agreements or memberships that demonstrate access to spill response equipment and personnel contracts are

EPO	Control	EPS	Measurement criteria
	equipment via OSRL.	response equipment and personnel.	validated annually on the EP&R compliance tracking spreadsheets.
	OPEP04-CM05: Agreement in place with waste management contractor to transport and dispose of waste.	**OPEP04-EPS05:** Current contract in place for onshore waste management for transport and disposal of waste.	• Valid agreement in place with waste contractor to manage disposal of oily wastes and oily mixtures to approved disposal or treatment facilities, contracts are validated annually on the EP&R compliance tracking spreadsheets.
	OPEP04-CM06: ExxonMobil GRT available to assist for Level 2/3 response activities within country in 72 hours.	**OPEP04-EPS06:** Additional containment and recovery personnel resources for Level 2/3 response are available via the GRT.	• Availability and deployment time for GRT support is demonstrated during the 5 yearly test/drill and is documented in test/drill report.
OPEP05-EPO01: Dispersant and equipment for applying dispersant is available when required to reduce consequences to surface and shoreline values and sensitivities.	**OPEP05-CM01:** Dispersant stock readily available in BBMT for early response.	**OPEP05-EPS01:** Sufficient dispersant volume (estimated $5m^3$) is available to mobilise for the first 24 hours of the response.	• Annual dispersant testing report confirms approximately $5m^3$ dispersant is available.
	OPEP05-CM02: Dispersant application systems are available at BBMT for early response.	**OPEP05-EPS02:** Dispersion application systems e.g. spray arms, are maintained in response ready condition at BBMT.	• Annual equipment inspection report confirms required equipment remains available and maintained.
	OPEP05-CM03: Agreement with AMOSC for access to additional dispersant capabilities.	**OPEP05-EPS03:** AMOSC agreement give access to Mutual aid and National Plan dispersant stockpiles within 24 hours of request..	• The annual assurance assessment report confirms response capabilities have been maintained per the Service Level Statement.
	OPEP05-CM04: Agreement with OSRL for access to additional dispersant capabilities.	**OPEP05-EPS04:** OSRL response capabilities are maintained per Service Level Agreement including access to OSRL global dispersant stockpile within 12 hours.	• The 2 yearly assurance assessment report confirms response capabilities have been maintained per the Service Level Agreement.

EPO	Control	EPS	Measurement criteria
	OPEP05-CM05: Chartered vessels with dispersant application capability are available.	**OPEP05-EPS05:** Chartered vessels are available to complete surface dispersant application in <12 hours from request of service.	• Availability and response time is demonstrated during incident and/or annual test/drill and is documented in incident log or test/drill report.
	OPEP05-CM06: Esso maintains enabling agreements to charter vessels from a number of vessel operators for provision of additional vessels for containment and recovery.	**OPEP05-EPS06:** Esso maintains enabling agreements to charter vessels from a number of vessel operators has provision for the supply of additional vessels.	• Availability and response time is demonstrated during incident and/or during the 5 yearly test/drill and is documented in incident log or test/drill report.
	OPEP05-CM07: ExxonMobil GRT available to assist for Level 2/3 response activities within country in 72 hours.	**OPEP05-EPS07:** Additional dispersant application personnel resources for Level 2/3 response are available via the GRT.	• Capability is demonstrated during the 5 yearly test/drill and is documented in test/drill report.
OPEP06-EPO01: Equipment and personnel available to support shoreline protection and clean-up when requested to reduce oil impact on shoreline environmental sensitivities.	**OPEP06-CM01:** Agreement with service provider to implement OSMP sampling and monitoring.	**OPEP06-EPS01:** Implementation of sampling and monitoring per the Bass Strait OSMP is undertaken by a capable service provider.	• The annual capability review of the service provider confirms their ability to implement the Bass Strait OSMP, contracts are validated annually on the EP&R compliance tracking spreadsheets.
	OPEP06-CM02: Esso maintains enabling agreements to charter vessels from a number of vessel operators for provision of additional vessels.	**OPEP06-EPS02:** Esso maintains enabling agreements to charter vessels from a number of vessel operators has provision for the supply of additional vessels for shoreline protection.	• Availability and response time is demonstrated during incident and/or during the 5 yearly test/drill and is documented in incident log or test/drill report.
	OPEP06-CM03: Access to shoreline protection and deflection and shoreline clean-up	**OPEP06-EPS03:** Equipment is maintained in accordance with AMOSC requirements.	• The annual assurance assessment report confirms response capabilities have been maintained per the Service Level Statement.

EPO	Control	EPS	Measurement criteria
	equipment via AMOSC.	Equipment is available for deployment within 24 hours. Response capabilities maintained per AMOSC Service Level Statement.	• Equipment availability verified in the quarterly status review documents
	OPEP06-CM04: Agreement in place with OSRL to access shoreline equipment.	**OPEP06-EPS04:** Esso will have required contracts, agreements and memberships with OSRL in place to provide oil spill response equipment and personnel.	• Contracts, agreements or memberships that demonstrate access to spill response equipment and personnel, contracts are validated annually on the EP&R compliance tracking spreadsheets.
	OPEP06-CM05: Personnel hiring agreements.	**OPEP06-EPS05:** Current agreements in place with labour hiring companies.	• Agreement documents, contracts are validated annually on the EP&R compliance tracking spreadsheets.
	OPEP06-CM06: Agreement with waste management contractor for the removal and processing of waste.	**OPEP06-EPS06:** Current contract in place for onshore waste management.	• Agreement contract in place, contracts are validated annually on the EP&R compliance tracking spreadsheets. • Capability is demonstrated during 2 yearly test/drill and is documented in test/drill report.
	OPEP06-CM07: Agreement with contractor for heavy plant equipment for the provision of machinery.	**OPEP06-EPS07:** Current agreement in place with contractor for heavy plant equipment. Equipment is available for deployment within 48 hours.	• Agreement documents, contracts are validated annually on the EP&R compliance tracking spreadsheets. • Capability is demonstrated during annual test/drill and is documented in test/drill report.
	OPEP06-CM08: ExxonMobil GRT available to assist for Level 2/3 response activities within country in 72 hours.	**OPEP06-EPS08:** ExxonMobil have a global team available to assist response for Level 2/3 activities.	• Capability is demonstrated during 5 yearly test/drill and is documented in test/drill report.
OPEP07-EPO01: Equipment and personnel	**OPEP07-CM01:** Agreement in place with AMOSC	**OPEP07-EPS01:** Esso have required contracts, agreements and memberships with AMOSC	• Contracts, agreements or memberships that demonstrate access to OWR equipment and personnel contracts are validated

EPO	Control	EPS	Measurement criteria
to support OWR are available when requested to monitor, evaluate and reduce environmental impact on fauna.	for access to OWR equipment.	in place to provide OWR equipment and personnel for deployment. Response capabilities maintained per AMOSC Service Level Statement.	annually on the EP&R compliance tracking spreadsheets...
	OPEP07-CM02: Agreement in place with OSRL for access to OWR equipment.	**OPEP07-EPS02:** Esso have required contracts, agreements and memberships with OSRL in place to provide OWR equipment within 72 hours.	• Contracts, agreements or memberships that demonstrate access to OWR equipment and personnel contracts are validated annually on the EP&R compliance tracking spreadsheets.
	OPEP07-CM03: ExxonMobil GRT available to assist for Level 2/3 response activities within country in 72 hours.	**OPEP07-EPS03:** ExxonMobil have a global team available to assist response for Level 2/3 activities.	• Capability is demonstrated during 5 yearly test/drill and is documented in test/drill report.
	OPEP07-CM04: Agreement with waste management contractor for the disposal and processing of waste.	**OPEP07-EPS04:** Current contract in place for onshore waste management. Equipment is available for deployment within 48 hours.	• Contracts and agreements are validated annually on the EP&R compliance tracking spreadsheets. • Capability is demonstrated during test/drill and is documented in test/drill report verified via a 2 yearly test.
OPEP08-EPO01: Equipment and personnel to manage waste are available when requested to reduce secondary contamination impacts on shoreline environmental sensitivities.	**OPEP08-CM01:** *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011).	**OPEP08-EPS01:** The Esso *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011) will assist in the development of an incident specific waste management plan.	• Waste management plan is tested in the 2 yearly test/drill.

8 Source control

8.1 Overview

Source control activities are implemented to prevent or minimise the release of hydrocarbons into the marine environment. The release of hydrocarbons may occur from one of the following scenarios:

- operational spills (overfills, transfers and process equipment and drains system)
- storage tank or piping leak/rupture
- pipeline leak/rupture
- loss of well control (i.e. blowout).

The origin and nature of the hydrocarbon spill will determine the type of source control activities required and the duration of the response. Source control activities may include:

- isolation of tanks/pipes
- ROV intervention
- well capping
- relief well construction
- use of a well kill equipment skid
- use of resources from a third-party response provider (e.g. Wild Well Control Inc.)
- pipeline isolation, de-pressuring and repair.

These available source control options are detailed in the sections below. The source of the spill will be assessed and evaluated by the ERT and IMT on a case-by-case basis. The origin and nature of the spill (wells, pipeline or vessel) and metocean conditions will influence the source control response options selected based on technical feasibility. The advantages and disadvantages of source control as a response strategy are shown in Table 8-1.

Table 8-1 Advantages and disadvantages of source control response strategy

Advantages	Disadvantages
Stops/minimises the flow of hydrocarbons into the environment.	Potential increase in environmental impacts from response activities (e.g. planned discharges).
	Presents safety risks to response personnel.

8.1.1 Isolation of tanks/pipes

The primary response on detecting a leak in the subsea production system is to isolate the affected wells or drill centre to prevent further inflow of production fluids to the leak site; this is typically done via a controlled shutdown. The applicable flowline could be de-pressured via topsides to reduce the leak rate.

Isolation provides a way for separating process systems and equipment from one another and may be used to prevent flow of hydrocarbons, stopping the source of a spill. Many types of isolations exist on both surface and subsea infrastructure, pipelines, wells and vessels. Isolation of a pipeline is the primary source control for containing/stopping a pipeline rupture/failure.

Consult the *Esso Emergency Response Manual* and Esso pipeline safety management plan for further information on isolation.

8.1.2 Remote operated vehicle intervention

ROVs can be used subsea to inspect the condition of wellheads, pipelines and subsea equipment and have arms which may be used to manipulate valves and manually isolate equipment. Work class ROVs can be fitted with a range of equipment including: debris clearing tools, subsea dispersant spraying capabilities, inspection cameras, 2D and 3D sonar equipment and cutting tools. These capabilities make ROVs essential during emergency response operations involving subsea source control incidents.

For subsea wells, a site survey may be necessary to conduct visual and/or sonar observations of the well location and its surrounding area. This would require a vessel equipped with an ROV spread and crew. Depending on the condition of the wellhead or subsea blowout preventer (if applicable), debris removal may be required to enable access to the wellhead or blowout preventer connector for subsea dispersant application (if required for oil wells), and capping operations. This involves the use of specialized equipment to clear the area around the wellhead, enabling safe and effective intervention activities.

ROVs may be available in contracted work vessels, and/or through contracts with third parties, including Oceaneering, TMT, etc.

8.1.3 Well kill equipment skid

The well kill equipment skid can be used for bullhead killing or lubricating production wells in the event of a critical well failure. The dedicated well kill equipment skid is a standalone hydraulic/diesel drive unit which requires minimal platform facility support. The well kill equipment skid is stored at BBMT when it is not in use offshore.

The well control skid is dispersed across the current rig and wireline sites offshore. Due to its availability in the field, it can be relocated to a Level 2/3 event if needed. This strategy also ensures the equipment is functioning and actively maintained.

Refer to the *Australia Wells Tier II-III Emergency Response Plan* document for more information on a well kill equipment skid.

8.1.4 Well capping stack

A capping stack is a piece of equipment that is placed over a blown-out well as a cap. Its purpose is to stop or redirect the flow of hydrocarbons, establishing a barrier to the marine environment. A capping stack is installed on the wellhead/subsea blowout preventer to stop or divert hydrocarbon flow. A capping stack can provide a safe barrier until the well can be killed. Subsea capping stacks are deployed by way of construction support vessels with adequately rated active heave compensated cranes. Capping stack compatibility can vary depending on the specific well, extent and nature of the blowout, type and rate of discharge, and condition of the well, which would be assessed using an ROV during a subsea source control incident.

While it is possible to deploy a subsea capping stack at depths up to 3800m, several factors must be considered when determining technical feasibility. Due to the shallow depths of subsea wells in Bass Strait, a loss of containment would likely result in a significant gas plume at the surface and therefore would prevent direct vertical access to the subsea wellhead. In this situation, an offset installation method (e.g. OSRL's offset installation equipment and Wild Well Control's Delmar shallow water capping system or Wild Well Control Delmar system) would be required to deploy a subsea capping stack. However, it should be noted that these offset installation methods have limited applicability in the Bass Strait region given that the minimum water depth in which they can be deployed – that is, 75m for the offset installation equipment system. In addition, there is significant lead time and challenges associated with mobilization and deployment of these systems. For the offset installation equipment system in particular, deployment in relatively congested Bass Strait well centres is likely unfeasible due to the subsea footprint requirements for this type of system, including establishment of subsea corridors to run the offset installation equipment carrier and placement of subsea anchors.

8.1.5 Third-party well control equipment

In the event of a Level 2/3 incident, Esso may elect to mobilise AMOSC's Subsea first response toolkit, maintained through Oceaneering, comprising of three separate packages of equipment:

- subsea dispersant injection
- subsea blowout preventer intervention
- site survey/debris clearance.

Details of the equipment provided by AMOSC, and the logistics plan for obtaining the equipment are located in the *Australia Wells Tier II-III Emergency Response Plan* document.

Esso also have access to OSRL's SIRT. The OSRL SIRT was engineered and built by Oceaneering and has the equivalent capabilities of the AMOSC Subsea first response toolkit, plus a heavier capacity debris clearance kit. Details of the equipment provided by OSRL, located in Norway or Brazil.

Esso may also elect to mobilise Wild Well Control WellCONTAINED™ intervention equipment. Wild Well Control is able to provide equipment equivalent to the AMOSC Subsea first response toolkit, with a heavier capacity debris clearance kit. Wild Well Control can be called out in the event of a well control event to provide blowout modelling, logistics support, expertise, and assist with relief well planning.

Refer to the *Australia Wells Tier II-III Emergency Response Plan* document for more information on third-party equipment.

8.1.6 Relief well

Relief well drilling is the primary method used to control a well leak when it cannot be managed through a controlled shutdown or on-site systems. A relief well is constructed like a standard well. It is directionally drilled to intersect the original well above the point of release and dynamically kill it by pumping kill-weight drilling fluid to overcome reservoir pressure and stop the flow of the original well. The operation requires the availability of a suitable mobile offshore drilling unit and a NOPSEMA-accepted Safety Case. Esso utilises RigLogix to identify rig availability within Australia and the broader Asia Pacific region. If a suitable MODU is available within Australia, Esso can request access to the rig by way of AEP Mutual Assistance Agreements with other Australian operators. There may be scenarios where a suitable MODU may need to be sourced outside of Australia – i.e., lack of available rigs in country that are suitable for relief well scope, or shorter lead times for availability of rigs outside of Australia.

In the event a relief well is required, a relief well group would be set up, and would be responsible for the planning, procurement, and execution of the relief well, with potential support from the Reservoir Geoscience Team depending on the specific circumstances. In the event of an incident, the Relief Well Group will be led by the designated relief well group supervisor or their delegate. Staffing for this group will be determined at the time of the incident to ensure appropriate resources are allocated.

Additional details on relief well planning can be found in the current Well Operations Management Plan for each relevant well. In a loss of well control scenario that requires a relief well to be drilled, it is estimated that the well would be under control within 98 days of the initial response. Ninety-eight days includes notification process, transit time, towing, loading and drilling. Find more details on the mobilisation times to drill a relief well can be found in the Response time breakdown Section 7 of Producing and Non-Producing EPs.

Refer to the *Australia Wells Tier II-III Emergency Response Plan* document for more information on relief well drilling equipment, and rig availability processes.

8.1.7 Pipeline de-pressuring and watering out

Pipelines can be de-pressured and watered out to reduce the flow of hydrocarbons released from a pinhole. Watering out pipelines replace hydrocarbons with produced water and reduces the volume of hydrocarbons released to sea.

Pipeline de-pressuring procedures are in place for each pipeline which provide guidance on how to safely de-pressure a pipeline at the relevant end and start platforms. All platforms have watering out procedures available.

8.1.8 Pipeline repair

Pipeline repair activities will be dependent on the type of initiating event and the feasible engineering solutions to repair the hole. Repairs to stem the flow of hydrocarbons would be completed using an ROV from a vessel and may require the use of:

- cap
- plug
- clamp
- repair sleeve.

Caps or plugs may be feasible for use to repair a pipeline after rupture however are less likely to be feasible given the difficulty in installation over a large area.

Once the hydrocarbon flow has been stemmed (or the pipeline pressure has reached equilibrium with the water if repair is not feasible), the pipeline will be repaired to reinstate production. For pinhole leaks and minor holes this could involve operation with the cap/plug/clamp/sleeve in place.

For a full rupture, a diving support vessel with divers or a construction or pipe lay barge fitted with a dive spread will be required. This would need to mobilise from South East Asia or Europe and would likely need a number of regulatory documents prepared including a safety case, a dive safety management system and a dive project plan.

Pipeline repair time is estimated to be a minimum of 45 days. Note that this is not considered a source control response option as repair of the pipeline to reinstate production will not reduce the volume of hydrocarbon released.

8.1.9 New technologies under investigation

ExxonMobil continues to study new offshore drilling technologies including ways to mitigate the potential impacts of an uncontrolled flow of hydrocarbons to the environment for a loss of well control incident. The following strategies are not proposed to be implemented but were evaluated and demonstrate Esso's commitment to continually improving knowledge and technology for source control response.

- **Seawater injection method** (Nedwed T. a., 2021) utilises seawater pumped at a high rate into a failed and leaking blowout preventer to generate enough back pressure to overcome reservoir pressure and stop the flow of hydrocarbons. This method relies on the theory that if enough backpressure is generated as it passes through the leak, it will prevent further influx of reservoir fluids into the wellbore.
- **Rapid crosslinking polymer injection** (Nedwed T. a., 2024) is a method that mixes monomers and a catalyst that causes a rapid polymerisation reaction, resulting in a stable solid. The reaction can occur under extreme temperatures and pressures and can withstand significant contamination from other fluids and solids. The rapid crosslinking polymer is pumped into the well where the reaction is triggered strategically, thereby effectively plugging the blowout wellbore.
- **Kinetic blowout stopper** (Gallagher et al., 2019) is a new type of additional emergency shearing gate valve that can be fitted to a blowout preventer stack. Designed to shear anything above the drill bit/bottom hole assembly, it can seal a blowout well regardless of flow rate. The kinetic blowout stopper is operated by a rig-independent control system and operates separately from other surface control systems. Further information can be found on the following website. (https://shearanything.com/).

8.1.10 Vessel spill source control

Unplanned hydrocarbon release can occur during bunkering and cargo loading activities or from general vessel activities. Possible spill scenarios include pipe/hose rupture, coupling failure, tank overfilling, or vessel collisions.

Vessel source control involves a range of response actions, with the safest and most appropriate measures determined by the Vessel Master based on the specific incident. The response activities will be informed by the individual vessels' Shipboard Oil Pollution Emergency Plan, and all source control will be undertaken under these instructions. The success of response actions depends on sea state conditions, availability of alternative storage, access to trained personnel, and the specific location and nature of the incident.

8.1.11 Strategy summary - Source control

Well intervention, subsea infrastructure repairs, pipeline repair and vessel salvage will be used as appropriate to the source of the spill to control and cease the uncontrolled flow of hydrocarbons into the marine environment.

Relevant EPOs and EPSs are provided in Section 8.3.2.

Table 8-2 provides the overall source control objective, critical outputs, critical IMT tasks, and termination criteria.

Table 8-2 Source control strategy objectives, critical outputs, critical IMT tasks, and termination criteria

Source control	
Response objective	To prevent further uncontrolled release of hydrocarbons into the marine environment.
Critical outputs	<u>Well Intervention/relief well drilling</u> All source control operations will be done in accordance with the: • *Australia Wells Tier II/III Emergency Response Plan* (for source control using the well kill skid) • *Drilling Emergency Preparedness and Response Manual* (where required) relevant to that particular well, and the source control options within that plan.

Source control	
	Depending on the circumstances, the plans outline the following options for source control incident response: • blowout preventer intervention • well capping and/or containment • seabed debris clearance • subsea dispersant application • relief well drilling. Pipeline/subsea infrastructure All pipeline/subsea infrastructure will be done in accordance with the *Pipeline Safety Management Plan*. Pipeline repairs include the use of ROVs with cutting or working tools, valve interventions, and pipeline de-pressurisation. Vessel salvage Esso will provide support to AMSA or Marine Safety Victoria (advised through DTP) to ensure appropriate salvage operations.
Planning section instructions	As per individual asset source control plan/Incident Action Plan.
Operations section instructions	
Logistics section instructions	
Termination criteria	Source control operations will cease based on either of the below triggers: • release of hydrocarbons into the environment has ceased • environment considered safe and free of hydrocarbons.

8.2 Emergency Response Team/Incident Management Team roles

The individual roles and responsibilities for field personnel (ERT) and/or Esso IMT personnel as applicable for source control (in addition to those described in Section 5) are detailed in Table 8-3.

Table 8-3 ERT and IMT roles and responsibilities as relevant to source control

All spills **Source control strategy**			**Completed?**
Objective: To prevent further hydrocarbons from entering the environment			
Incident Commander /Offshore Installation Manager/Vessel Master	Immediate	• Refer to *Emergency Response Manual* document for further instructions on source control.	
		• Refer to *Australia Wells II-III Emergency Response Plan* document for information on source control actions.	
		• Refer to individual asset source control plan, as relevant to the spill situation.	
For operational spills (overfills, transfers and process equipment and drains system)			
	Immediate	• Immediately cease pumping activities/operations.	

All spills **Source control strategy**			**Completed?**
Offshore Installation Manager/Vessel Master		• Immediately shut down the system following a spill.	
		• Close the drainage network a soon as practicable.	
		• Recover hoses and identify leaks/damage.	
		• Utilise on-site spill kits.	
For storage tank or piping leak/rupture spills			
Offshore Installation Manager/Vessel Master	Immediate	• Immediately cease activities.	
		• Evaluate the transfer of inventory from a leaking tank to a secure tank.	
		• Attempt to repair or plug any holes or ruptures.	
		• Recover hoses and identify leaks/damage.	
		• Utilise on-site spill kits.	
For pipeline leak/rupture spills			
Offshore Installation Manager/Vessel Master		• Immediately isolate affected wells to prevent further inflow of production fluids to the leak site.	
		• Refer to *Esso Emergency Response Manual Volume 2 Revision 9* document for information on shut down procedures.	
		• Mobilise ROV contracts to visually inspect any subsea incident.	
For well blowout (surface and subsea)			
Incident Commander /Offshore Installation Manager/Vessel Master		• Refer to *Australia Wells II-III Emergency Response Plan* document for information on source control actions.	

8.3 Response resources

8.3.1 Response capability

Table 8-4 details the resources available to Esso for source control response, that can be implemented within an acceptable timeframe.

Table 8-4 Resource availability – Source control

Equipment type	Organisation	Location/quantity	Estimated mobilisation timeframe
ROV	Oceaneering	Various	Estimated 14 days from call out request to arrive in Victoria.
	TMT Pty Ltd	Various	Estimated 14 days from call out request to arrive in Victoria.
Construction support vessel	Multiple	Various	Esso Supply Chain also has access to Sea/response software through corporatewide OSRL Subsea Well Intervention Services membership. Sea/response can be utilised to provide real-time availability of suitable vessels for source control response missions.
Relief wells	Multiple	If a jack-up rig is required, Esso can rely on the Australian Energy Producers Mutual Assistance Agreements with other Australian operators to assist in sourcing an appropriate unit to conduct relief well operations.	Estimated 98 days. Further details on relief well planning is included in the in-force Well Operations Management Plan for each applicable well.
Well kill skid	Esso	BBMT	Well kill skid is mobilised to platform within 72 hours of first response.
Third-party well control equipment	Wild Well Control	Equipment is located in USA, Dubai, Nigeria, United Kingdom, and Singapore	Deployment timing will depend on vessel availability and transit time.
	AMOSC (Oceaneering)	Equipment is stored in Perth.	Deployment timing will depend on equipment availability and transit time.
	OSRL Subsea Well Intervention Services	15k psi stacks and SIRT toolkit are stored in Brazil and Norway. There is another 15k psi capping stack stored in Singapore. 10k psi stacks stored in South Africa. The offset installation equipment system is stored at their Trieste base in Italy.	Deployment timing will depend on vessel availability and transit time.

8.3.2 *Source control controls, Environmental Performance Outcomes, Environmental Performance Standards and measurement criteria*

Table 8-5 provides consideration of all controls considered that are either adopted or not adopted for improved capability for source control.

Table 8-5 Controls considered for source control strategy

All controls considered	Benefit	Feasibility	Adopted
Pre-drilling top hole locations	This option may result in a reduction of 1-2 days for drilling a relief well.	The position of a relief well varies according to the blowout well location and required intercept trajectory, according to the actual conditions at the time the loss of well control event occurs. Due to the uncertainly of the location and trajectory, it is unknown if the top hole would be utilised in the event a relief well is required. This option would result in unnecessary additional environmental impacts, including: • discharge of drill cuttings • discharge of drilling chemicals • discharge of drilling muds • underwater sound • air emissions • planned vessel discharges • benthic habitat disturbance. Limited reduction in days (potentially 1 - 2), this equates to approximately 2% of the time it would take to drill a relief well (based on a total time for relief well construction and well kill of 98 days (14 weeks).	Not adopted
Stand-by jack-up rig available during activities	A jack-up rig placed on stand-by as a relief well jack-up rig may reduce the time required to drill a relief well due to greatly reduced mobilisation time.	Significant costs are associated with having a relief well jack-up rig on stand-by. Given the high potential cost, implementing this control measure is considered grossly disproportionate, given that a loss of well control event has an extremely low likelihood of occurrence.	Not adopted

All controls considered	Benefit	Feasibility	Adopted
Purchase and have available pipeline repair equipment locally	Having pipeline repair equipment available locally may reduce the time taken to repair a pipeline and reduce the overall volume of oil released.	Pipeline repair equipment to be used is specific to the type of pipeline failure and must be determined at the time of the incident. Significant cost associated with having access to a wide variety of pipeline repair equipment.	Partially adopted. **(OPEP09-CM05)** Some pipeline repair equipment for higher likelihood scenarios (e.g. clamps for pinhole leaks) are available locally).
AMSA Joint Rescue Coordination Centre notified before operations commence to enable AMSA to distribute an AUSCOAST warning Prestart notifications. Under the *Navigation Act 2012* (Cth), the Australasian Hydrographic Society is responsible for maintaining and disseminating hydrographic and other nautical information.	Early notification can decrease response time through earlier mobilisation. Details for AUSCOAST warning will be provided to the Joint Rescue Coordination Centre (<24 - 48 hours) prior to commencing operations.	This is a regulatory requirement and therefore must be implemented.	Adopted **(OPEP09-CM01)**
Relief well drilling plan	Having a plan in place can reduce overall response timings. Drilling a relief well can limit the volume of hydrocarbons entering the environment.	Level 2/3 emergency response planning - preliminary relief well plan conducted prior to activity commencement. Having this plan in place prior to activities is achievable and viable.	Adopted **(OPEP09-CM01)**
Esso owned well kill skid	Deploying well kill skid equipment can limit the volume of hydrocarbons entering the environment.	Well kill is executed in accordance with the *Australia Wells Tier II/III Emergency Response Plan.*	Adopted **(OPEP09-CM02)**
Access to third-party well control equipment via agreement	Having pre-arranged agreements in place can reduce overall response timings. Deploying well control equipment can limit the volume of	Agreements that allow access to well control equipment are feasible and can increase resource availability.	Adopted **(OPEP09-CM03)**

All controls considered	Benefit	Feasibility	Adopted
	hydrocarbons entering the environment.		
Pipeline de-pressuring and watering out capability	Having pipeline de-pressuring capability may reduce the time taken to repair a pipeline and reduce the overall volume of oil released.	Pipelines being de-pressured and/or watered out when a spill is identified is an operational control that can be feasibly implemented to reduce the impact to the environment.	Adopted **(OPEP09-CM04)**
Pipeline repair plan	Having a pipeline repair plan in place may reduce the time taken to repair a pipeline and reduce the overall volume of oil released.	Having a plan in place prior to activities is a viable operational control that supports pipeline repair activities being undertaken in accordance with relevant repair procedures and can increase the effectiveness of a response.	Adopted **(OPEP09-CM05)**

EPOs and EPSs for source control are outlined in Table 8-6.

Table 8-6 EPOs and EPSs for source control

EPO	Control	EPS	Measurement criteria
OPEP09-EPO01: Source control measures are available when required to stop the release of hydrocarbons to the environment.	**OPEP09-CM01:** A preliminary relief well drilling plan is in place.	**OPEP09-EPS01:** Level 2/3 emergency response planning - preliminary relief well plan is in place prior to activity commencement which sets out steps to secure well within an estimated 98-day period.	• An incident specific Level 2/3 relief well plan is confirmed to be in place prior to activity commencing. • 5 yearly test/drill and is documented in test/drill report.
	OPEP09-CM02: Esso owned well kill skid is available.	**OPEP09-EPS02:** Well kill skid is mobilised to platform within 72 hours of first response. Well kill is executed in accordance with the *Australia Wells Tier II/III Emergency Response Plan*.	• Capability is demonstrated during 5 yearly test/drill and is documented in test/drill report.
	OPEP09-CM03: Access to third-party well control equipment is available via agreement.	**OPEP09-EPS03:** Equipment is mobilised to location and response executed in accordance with well control plan (estimated 14 days).	• Agreement is validated annually on the EP&R compliance tracking spreadsheets. • Capability is demonstrated during 5 yearly

EPO	Control	EPS	Measurement criteria
			test/drill and is documented in test/drill report.
	OPEP09-CM04: Pipeline de-pressuring and watering out capability.	**OPEP09-EPS04:** In the event of loss of containment from pipeline, the affected pipeline(s) is de-pressured and/or watered out in accordance with the relevant procedures as soon as practicable once a spill is identified.	• Capability is demonstrated during 5 yearly test/drill and is documented in test/drill report. • Platform incident logs will show decrease in pressure and pipeline pressure reduction.
	OPEP09-CM05: Pipeline repair capability.	**OPEP09-EPS05:** In the event of loss of containment from pipeline, pipeline repair activities are undertaken in accordance with relevant repair procedures (estimated 45 days).	• Capability is demonstrated during 5 yearly test/drill and is documented in test/drill report. • Incident specific pipeline repair plan.

8.4 Environmental impact assessment

Many environmental aspects associated with implementing source control activities (e.g. aspects associated with vessels, ROVs, cement and subsea installation) apply to multiple activities and are assessed in Section 6 of the relevant Producing and Non-Producing EPs. Environmental aspects associated with drilling a relief well are assessed below. These include:

- Physical presence – Seabed disturbance from the placement of the rig.
- Planned discharge – Drilling muds and cuttings.
- Sound emissions.

Further assessment of the acceptability of impacts in an oil spill response context and controls identified for minimising the environmental impact of mobilising a source control response are described in Table 8-7.

Table 8-7 Environmental impact assessment of source control options

Environmental aspect	Impact assessment	Consequence level
Relief well drilling		
Physical presence – Seabed disturbance from placement of rig	Benthic habitats and communities within the Bass Strait show natural small-scale variation, however the area is mostly considered homogenous. Studies conducted by Esso (Cardno, 2019) demonstrate similarities in taxa but variation in composition between different sites. Seabed disturbance is limited to the footprint of the spud cans on the seabed. No other seabed disturbance is expected. The total area of	IV

Environmental aspect	Impact assessment	Consequence level
	seabed disturbance associated with spud can interaction with the seabed is approximately 0.06ha. Benthic habitats and communities within the Operational Area show natural small-scale variation, however, are mostly homogenous, with no particular areas of value or sensitivity. It is possible that activities will produce a slight alteration of the local habitat and community structure due to the small amount of changed substrate in an area of uniform soft sediments; however the naturally homogenous nature of the habitats and communities in the Operational Area will result in quick recovery, and no long-term changes to ecosystem are expected. Any impacts will be inconsequential or have no adverse effects.	
Planned discharge – Drilling muds and cuttings	Unrecoverable drilling fluids, water-based muds and non-aqueous fluids and cuttings will be discharged to the seabed during relief well drilling. The volume will be determined on the size of relief to be drilled. The chemicals used in the composition of the non-aqueous fluids will be discharged to the marine environment resulting in a potential change in water quality. Prior to discharge the chemicals will be assessed using the *Esso Chemical Discharge Assessment Process* (described as part of the Implementation Strategy in the relevant Producing and Non-Producing EPs) which uses the OCNS ranking in conjunction with toxicity, biodegradation and bioaccumulation data to determine potential impacts to the environment and acceptability of planned discharges. Due to the high energy marine environment, discharges will quickly dissipate. Impacts to ambient water quality will be localised and temporary, and any impacts will be inconsequential or have no adverse effect.	IV
Sound emissions	Gales (1982) cited in *Review of Existing and Future Potential Treatments for Reducing Underwater Sound from Oil and Gas Industry Activities* (Noise Control Engineering, 2007), reports that underwater sound measured from fixed drilling platforms did not exhibit markedly different characteristics from those engaged in production, and that none of the measured sound could be directly related to the mechanical action of the drill bits. It is therefore believed that most sound associated with drilling is created by the dynamic positioning thrusters from the use of the vessels in the same, manner as outlined in the Producing and Non-Producing EP. See Section 6 of the relevant EP for further details.	III

8.5 Demonstration of ALARP

The rationale for the demonstration of ALARP for source control can be seen in Table 8-8.

Table 8-8 ALARP Decision Context justification

ALARP Decision Context and justification	Decision Context A

	Source control equipment and resources (ROVs, vessels and rigs for relief well drilling) are standard practices that have been accepted for use in the Australian and international offshore petroleum industry in the event of a hydrocarbon spill. Impacts associated with source control activities are well understood and source control response activities have been initiated and managed by industry previously. Source control activities are aligned with company and partner values. Good practice control(s) have been identified to ensure environmental impacts associated with implementing this response are reduced to ALARP, these controls will be implemented in a response scenario and have been included in the OPEP. Esso believes ALARP Decision Context A should apply.

Source control response strategies have been demonstrated to be ALARP.

8.6 Demonstration of acceptability

Table 8-9 outlines the demonstration of acceptability of environmental impact from source control.

Table 8-9 Acceptability of environmental impact from source control

Factor	Demonstration criteria	Criteria met	Rationale
Principles of Ecologically Sustainable Development (ESD)	a) The integration principle - decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations.	✓	Not inconsistent. Planning for Bass Strait producing and non-producing activities and decision making as to the most appropriate strategies and methods has incorporated contemplation of both short and long term economic, environmental, social and equitable considerations.
	b) The precautionary principle - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	✓	Not inconsistent. All oil spill response activities are implemented with the aim of reducing the overall environmental impact from a spill incident. Source control activities are implemented to stop the flow of oil and minimise safety risks and environmental damage. Impacts associated with source control are offset by the broader positive effects of reducing the impact of a spill incident on coastal and marine sensitivities and socio-economic receptors (e.g. fishing, tourism).
	c) The intergenerational principle - the present generation should ensure that the health, diversity and productivity of the environment is	✓	Not inconsistent. The assessment undertaken has concluded that environmental impacts will be short term in nature. Any impacts as a result of implementation of source control activities to respond to an unplanned release of fuel will not impact the health, diversity

Factor	Demonstration criteria	Criteria met	Rationale
	maintained or enhanced for the benefit of future generations.		and productivity of the environment in such a manner that future generations may be impacted.
	d) The biodiversity principle - the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making.	✓	Not inconsistent. All aspects related to source control activities have been detailed in Producing and Non-Producing EPs Sections 6 and 7 and have been evaluated as having the potential to result in a **Consequence Level III** or lower (IV). Controls, EPO's, EPS's and measurement criteria are also described in Sections 6 and 7 of the Producing and Non-Producing EPs. The potential impact associated with the implementation of this emergency response option is limited to a localised short-term impact, which is not considered as having the potential to affect biological diversity and ecological integrity.
Legislative and other requirements	Legislative and other requirements have been identified and met.	✓	The Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2023 (Cth) requirements for NOPSEMA approved facility Safety Case. • *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth). • *Navigation Act 2012* (Cth). • Marine Order 96 (Marine pollution prevention – sewage) 2018. • Marine Order 95 (Marine pollution prevention - garbage) 2018. All well specific source control activities will have an approved Well Operations Management Plan and comply with: • Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 (Cth).
Internal Context	Consistent with Esso's Environment Policy.	✓	Proposed control measures are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*".
	Meets Operations Integrity Management System (OIMS) objectives.	✓	Proposed control measures meet: • OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements

Factor	Demonstration criteria	Criteria met	Rationale
			• OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors • OIMS System 10-2 objective to ensure effective response to emergencies and business disruptions that threaten the safety, security and health of the public, contractors and employees, the environment, asset integrity, and critical business operations.
External context	Stakeholder concerns have been considered/addressed through the consultation process.	✓	No specific stakeholder concerns have been raised.

9 Surveillance, monitoring and visualisation

9.1 Overview

SMV activities are essential in an oil spill response strategy to observe spill behaviour, characterise and quantify volumes and determine the movement of the slick. This information is fundamental to mobilising a subsequent effective oil spill response strategy and critical in determining the nature and scale of the oil spill incident.

To understand the scale and fate of the oil, the spill should be observed as soon as possible and monitored continually throughout the response until the decision has been made to stand down all response strategies when termination criteria are met. The advantages and disadvantages of SMV as a response strategy are shown in Table 9-1.

Table 9-1 Advantages and disadvantages of SMV response strategy

Advantages	Disadvantages
Validates trajectory and weathering models.	Potential increase in environmental impacts from response activities (e.g. vessels).
Determines effectiveness of response techniques.	Increase in safety risks for response personnel.
Outputs will be used to guide decision making on the use of other monitoring or response options.	Some tactics e.g. observations are limited to daylight hours and certain weather conditions.
Oil spill trajectory modelling can be ground-truthed.	Can produce false positives if misidentified.
Spills can be monitored over time.	Some tactics e.g. satellite can be limited to availability.
Can be implemented rapidly.	
Can be used to identify sensitivities.	

A variety of surveillance, monitoring and visualisation techniques can be used to gather information required to support the ongoing response. These may include:

9.1.1 Aerial and/or vessel observation

Aerial and vessel observation provides the IMT with real time data of magnitude, direction of travel, and visual characteristics of surface oil. This information can be used in response planning and forming the incident specific NEBA.

Observations from in-field vessels can be used to assess the location and visible extent of the spill, and to verify oil spill modelling predictions. It can also provide an opportunity to take oil and water samples. Due to the proximity of observers to the water's surface, vessel surveillance is limited in its coverage compared to aerial surveillance and may also be compromised in rough sea state conditions or where fresh hydrocarbons at the surface pose safety risks from either direct contact with the vessel, or from high concentrations of high volatile organic compounds.

Aerial surveillance can be used to record the presence and size of a spill on the sea surface as well as other environmental observations including weather conditions, marine fauna and sensitive receptors in the area or in the path of the slick. Aerial surveillance provides superior coverage over vessel surveillance for estimating the spatial extent of a spill but is generally required only for larger Level 2/3 incidents.

9.1.2 Computer-based modelling software

Computer oil spill software can generate predictions for the path of the oil spill. It can also forecast the effects that currents, winds, and other physical processes have on the movement of oil in the ocean. This information can be displayed in a common operating picture for holistic understanding of the spill extent and can be used to inform response planning and the incident specific operational NEBA.

The various modelling software that can be used (e.g. OILMAP, SIMAP, Automated Data Inquiry for Oil Spills 2) are available through memberships with both AMOSC and OSRL. The trajectory models can predict the direction, fate, and weathering of spills, while considering the properties of the oil type and metocean conditions. An advantage of trajectory modelling is that it can be conducted at any time, regardless of weather and metocean conditions, as opposed to aerial and vessel-based surveillance which are both constrained by rough conditions. However, oil spill modelling results provide a prediction only, and should be whenever possible consolidated with in-field observations in order to ground-truth and confirm the validity of the results. Modelling matches the oil types as closely as possible however some variations may persist.

9.1.3 Utilisation of satellite tracking buoys

STB provide real time current data to use to predict forecasts of surface behaviour of the oil and direction of travel. They can be positioned at the leading edge of the slick to provide real time data regarding the movement of the slick. As the buoys are subject to the same metocean conditions as the slick, information on the direction of travel can be obtained via the satellite function.

For continuous releases over multiple days, rolling deployment/collection of tracking buoys should be conducted to provide better coverage. In this case, an STB should be retrieved and re-released every 24 hours following the spill, and STBs available through the Esso supply at Longford Heliport and Long Island Point, and through AMOSC. Deployment instructions are available and are stored with the STBs.

Vessels will be required for both deployment and collection of buoys.

9.1.4 Remote sensing from aircraft and/or satellites

Airborne remote sensing equipment can be used to provide aerial imagery in the specific area of the spill and can also supplement visual observations by using additional sensors which detect wavelengths outside of the visible spectrum. There are several sensors that can be used in oil spill detection:

- Thermal infrared sensors can detect thermal radiation. This allows them to detect oil if the thickness is over 10μm (most metallic thicknesses and above). This can give a relative thickness reading, which can be used to direct response efforts to thicker portions of the slick. Due to temperature variation between oil and water, the slicks can be detected during day or night, however good visibility is required, as clouds, fog or haze can limit the effectiveness.
- Ultra-violet sensors detect the ultraviolet component of light from the sun reflected by the slick. This enables oil to be detected below 1μm (sheen and rainbow) but cannot distinguish between differing thicknesses. This means while thin sheens can be detected, they cannot be distinguished from thicker slicks. Good visibility and direct sunlight are required.

Satellite imagery can provide real time imagery over large areas and assist with determining the movement of the slick and determining response activities. It is available through satellite imagery suppliers through existing AMOSC and OSRL contracts. Availability of satellites will depend on location of the spill in relation to current satellite position, tasking of satellites, and weather conditions (e.g. cloud cover can obscure images). When obtained, satellite images can help to ground truth trajectory modelling and identify potential slicks.

9.1.5 Water quality and oil sampling

Sampling will confirm the properties of oil. These details can be input into computer-based modelling for increased accuracy and to assist with determining response activities.

When oil enters the marine environment, a proportion of it will float and spread out on the sea surface where it will be influenced by the wind and ocean currents. In some situations, where natural dispersion and weathering processes are considered the most appropriate response, SMV may be the primary response strategy.

In this case, the response will monitor the oil as it undergoes the natural weathering processes of evaporation and dispersion, in which wind and wave action breaks the oil into small droplets in the water column increasing bioavailability and allowing the oil to be naturally degraded. Higher levels of surveillance such as vessel/aircraft surveillance, oil spill trajectory modelling and deployment of tracking buoys are options to be considered for Level 2/3 spills.

Water quality and sampling comes under the Oil Spill Monitoring Program. Refer to OSMP documents. Eight water sampling kits are kept by Esso at various locations (refer to Table 9-6 for more details).

9.1.6 Strategy summary – Surveillance, monitoring and visualisation

Using field observations and modelling, the IMT will assess the incoming data to plan and tailor spill response operations to the scenario. This process will continue for the duration of the response. Relevant EPOs and EPSs are provided in Section 9.3.2.

Table 9-2 provides the overall SMV response strategy objective, critical outputs, critical IMT tasks, and termination criteria.

Table 9-2 SMV strategy objectives, critical outputs, critical IMT tasks, and termination criteria

SMV	
Response objective	To gather information and validate planning assumptions to adjust response plans as appropriate to the scenario. To quantitatively assess the extent, severity, persistence, and recovery environmental values and sensitivities affected by the spill.
Critical outputs	Level 1 spills: • aerial surveillance • oil spill trajectory monitoring. Level 2 spills (in addition to the above): • twice daily oil spill trajectory modelling • continuous monitoring from oil spill tracking buoys • surveillance from: - production assets – 2 hourly watches - aircraft – 2 x daily overflights - vessels – opportunistically to sense check aerial observations • shoreline surveys (pre-emptive and post impact) • OSMP. Level 3 Spills (in addition to the above): • satellite photography runs as requested by the IMT Situation Unit.
Planning section instructions	The planning section – environment and situational units in particular – needs to receive and interpret field/modelling data to inform: • the NEBA • the list of resources at risk from the spill • the development of the ICS 201 and Incident Action Plan (for Level 2 and 3 spills). Critical daily tasking: • drive the planning process (refer to Esso Incident Management Handbook schedules and timings) • liaise with Operations Section Chief to ensure field activities are in place to gather field data • liaise with Planning Section Chief to activate and then receive the oil spill trajectory modelling • establish and activate the OSMP with data reporting back to the IMT Situation Unit • gather data, establish, and keep up to date status boards and common operating picture GIS • refer to Esso Incident Management Handbook Section 6.

SMV	
	The planning section will ensure that the SMV strategy is scaled up or down to provide sufficient information for the IMT to plan and execute appropriate oil spill response activities. All data gathered through remote means are to be captured and displayed in the common operating picture (Esso GIS) so that all members of the IMT have situational awareness. For Level 2 or 3 spills, the planning section includes coordination of SCAT teams on shorelines, feeding data directly into the IMT Situation Unit.
Operations section instructions	The operations section is to task assets to gather data that can be used by the planning section to inform the development of the Incident Action Plan and the operational response. This is done as a part of the execution of the Incident Action Plan developed the previous operational period. Critical daily tasking for all spills: • execute the Incident Action Plan for the current operational period • liaise with the Planning Section Chief to ensure that field tasking (ICS 204) is drafted and used for SMV proposes • direct aviation assets to complete aerial surveillance consistent with aerial observer guides and standard operating procedures. Spill Level 2 and above: • deploy STBs (Longford heliport, Long Island Point, and third-party) • direct dedicated aviation assets to undertake surveillance with trained aerial observers • direct marine assets to undertake surveillance • set watch from manned platforms (4-hour report back) • deploy vessel for OSMP activities.
Logistics section instructions	The logistics section is to activate contracts and provide ongoing services and supply (from in-house resources or from third parties) in support of the execution of this strategy. Critical daily tasking: All spills: • business-as-usual assets to be redeployed as per operational requirements • spill Levels 2 and 3 • maintain air operations base at Bairnsdale • activate contracts with third-party aircraft providers • marine operations base at BBMT or Lakes Entrance • activate contract with AMOSC, request aerial observers for daily sorties, STBs to Longford airport, and twice-daily oil spill trajectory modelling. Spill Level 3 only: • activate contract with AMOSC/internal for the provision of satellite photography services.
Termination criteria	Termination criteria are outlined in the OSMP as one of the following: • the IMT Incident Commander(or delegate) considers that continuation of monitoring under O1 will not result in a change to the scale or location of active response options

SMV	
	• two consecutive aerial or underwater observations show that oil has weathered and dissipated to <0.3g/m^2 or Bonn appearance code 1 • The IMT Incident Commander (or delegate) has advised that agreement has been reached with the Jurisdictional Authority relevant to the spill to terminate the response • The principal investigator through the Environment Unit Lead (or delegate) has advised that continuation of monitoring under O1 may increase overall environmental impact. Additionally, SMV will terminate as directed by the relevant Control Agency, or if there are unacceptable safety risks associated with high volatile organic compound hydrocarbons at the sea surface.

9.2 Emergency Response Team/Incident Management Team roles

The individual roles and responsibilities for field personnel (ERT) and/or Esso IMT personnel as applicable for SMV (in addition to those described in Section 5), according to the response banding (refer to Section 1.6) are provided in Table 9-3 , Table 9-4 and Table 9-5.

9.2.1 Level 1 spills - Commonwealth waters, localised impacts only

Table 9-3 SMV strategy - IMT roles for level 1 spills, Commonwealth waters, localised impacts

Level 1 spills - Commonwealth waters, localised impacts only SMV strategy			Completed?
Twice daily staffed overflights will be undertaken to monitor the spreading, location, and weathering of the slick			
Operations Section Chief	Day 1	• Commence twice daily aerial overflights to determine size/bearing: - divert aircraft to track spill (or use of scheduled crew change helicopter routing). • If Esso asset unavailable, contact and contract the use of third-party aircraft.	
	Day 2	• Continue twice daily aerial overflight to determine size/bearing: - divert vessel/aircraft to track spill (or use of scheduled crew change helicopter routing). • If Esso asset unavailable, contact and contract the use of third-party aircraft.	
Set a twice daily watch to confirm the extent and spreading of the spill from the assets			
OSC	Day 1; then each day	• If spill from a staffed asset, set two hourly watch to confirm bearing/size.	
OSMP as triggered			
Planning Section Chief/Environment Unit Lead	Day 1; then each day	• Activate the various operational monitoring programs contained within the OSMP.	

Level 1 spills - Commonwealth waters, localised impacts only **SMV strategy**			**Completed?**
Establish the Esso common operating picture in the Esso IMT			
Operations Section Chief/Situation Unit Lead	Day 1, then for the duration of the spill	• Establish Esso's common operating picture. • Commence data capture and graphical display. • Key data to be displayed includes: - spill location - spill extent, direction and trajectory - environmental sensitives - Bass Strait oil and gas facilities - Esso controlled contracted resources – aircraft and vessels - third-party controlled potential resources of opportunity – aircraft and vessels.	

9.2.2 Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts

Table 9-4 SMV strategy - IMT roles for Level 2 and 3, Commonwealth waters, no predicted shoreline impacts

Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts **SMV strategy**			**Completed?**
STBs will be deployed to monitor the leading edge of the slick; and deployed in 24-hour intervals to indicate swept pathways			
Operations Section Chief	Day 1	• Deploy STB from Longford heliport or Long Island Point (helicopter or vessel) – place on leading edge of spill. • Deployment instructions are included with the tracking buoys. • Request AMOSC all available STB's to be contracted to Esso: - STBs move to Longford as soon as possible - at last light, deploy STB from the spill source.	
	Day 2 +	• Monitor location of deployed STBs: - at last light, deploy STB from the spill source.	
Twice daily staffed overflights will be undertaken to monitor the spreading, location, and weathering of the slick			
Operations Section Chief	Day 1	• Commence twice daily aerial overflights to determine size/bearing: - divert aircraft to track spill (or use of scheduled crew change helicopter routing) - if Esso asset unavailable, contact and contract the use of third-party aircraft. Obtain a completed aerial observer's report and pass to the Planning Section Chief/Situation Unit Lead.	

Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts SMV strategy			Completed?
	Day 2	• Continue twice daily aerial overflight to determine size/bearing: - divert vessel/aircraft to track spill (or use of scheduled crew change helicopter routing) - if Esso asset unavailable, contact and contract the use of third-party aircraft - aircraft over slick 1 hour after first light (subject to suitable weather) - use location of deployed STBs as initial extents for aircraft bearing.	
Daily oil spill trajectory modelling will be used to predict the weathering and direction that the oil will spread			
Planning Section Chief	Day 1; then each day	• Request oil spill trajectory modelling runs through AMOSC twice daily. The request should include: - 12/24/36/48/60/72-hour outlook deterministic trajectory modelling - potential for shoreline or State water contact - data to be relayed back to the IMT Situation Unit - monitor movement of tracking buoys - dashboard instructions are included with the STBs and EP&R advisors to assist - assess need for oil spill trajectory modelling specialist to be integrated into IMT.	
Set a daily watch to confirm the extent and spreading of the spill from the assets			
Operations Section Chief	Day 1; then each day	• Watches repeated as many times daily as required. • If spill from a staffed asset, set two hourly watch to confirm bearing/size.	
OSMP as triggered			
Operations Section Chief/Environment Unit Lead	Day 1; then each day	• Activate the various operational monitoring programs contained within the OSMP: - O1 – O5 as per initiation criteria in OSMP.	
Establish the Esso common operating picture in the Esso IMT			
Operations Section Chief/Situation Unit Lead	Day 1, then for the duration of the spill	• Establish Esso's common operating picture. • Commence data capture and graphical display. • Key data to be displayed includes: - spill location - spill extent, direction and trajectory - environmental sensitives	

Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts SMV strategy			Completed?
		- Bass Strait oil and gas facilities - Esso controlled contracted resources – aircraft and vessels - third-party controlled potential resources of opportunity – aircraft and vessels.	
For Level 3 spills only			
Request satellite imagery of the spill location			
Planning Section Chief/Situation Unit Lead	Day 1, then for the duration of the spill	• Request satellite imaging of spill: - request satellite imagery via AMOSC - or request satellite imagery via OSRL – agreement in place with MDA Geospatial Services.	

9.2.3 *Level 2 and 3 spills – State waters and shoreline impacts*

Table 9-5 SMV strategy - IMT roles for Level 2 and 3, State waters and shoreline impacts

Level 2 and 3 spills – State waters and shoreline impacts SMV strategy			Completed?
STBs will be deployed to monitor the leading edge of the slick and deployed in 24-hour intervals to indicate swept pathways			
Operations Section Chief	Day 1	• Deploy STBs from Longford or Long Island Point (via helicopter or vessel). Place on the leading edge of the spill.	
		• Deployment instructions are included with the STBs.	
		• Request AMOSC for all available STBs to be contracted to Esso.	
		• STBs moved to Longford ASAP.	
	Day 2 +	• Monitor location of deployed STBs: - at last light, deploy STB close to the spill source.	
Twice daily staffed overflights will be undertaken to monitor the spreading, location, and weathering of the slick			
Operations Section Chief	Day 1	• Commence twice daily aerial overflights to determine size/bearing: - obtain a completed aerial observer's report and pass to the Planning Section Chief/Situation Unit Lead - use crew change helicopter where possible - if Esso asset unavailable, contact and contract the use of third-party aircraft.	

<table>
<tr><th colspan="3">Level 2 and 3 spills – State waters and shoreline impacts
SMV strategy</th><th>Completed?</th></tr>
<tr><td rowspan="2">Operations Section Chief/
Planning Section Chief/Logistics Section Chief</td><td rowspan="2">Day 1/2</td><td>• Activate Royal Victorian Aero club for overflight duties.</td><td></td></tr>
<tr><td>• Request aircraft to fly over the Gippsland shoreline, noting the status (closed/open) of the following intermittently open estuaries:
<table><tr><th>Name</th><th>Location</th></tr><tr><td>Davis Creek</td><td>37°34'43.46"S, 149°44'59.14"E</td></tr><tr><td>Bunga Arm</td><td>37°56'50.00"S, 147°48'18.98"E</td></tr><tr><td>Lake Tyers</td><td>37°51'33.78"S, 148° 5'18.55"E</td></tr><tr><td>Merrimen Creek</td><td>38°22'56.18"S, 147°11'4.26"E</td></tr><tr><td>Mueller River</td><td>37°46'44.51"S, 149°19'41.29"E</td></tr><tr><td>Shipwreck Creek</td><td>37°38'51.45"S, 149°41'58.05"E</td></tr><tr><td>Sydenham Inlet</td><td>37°46'49.61"S, 149° 1'11.26"E</td></tr><tr><td>Tamboon Inlet</td><td>37°46'39.31"S, 149° 9'11.11"E</td></tr><tr><td>Thurra River</td><td>37°46'56.67"S 149°18'45.94"E</td></tr><tr><td>Yeerung River</td><td>37°47'28.02"S, 148°46'26.67"E</td></tr></table>
• Report this data back to the Environment Unit Lead/Planning Section Chief.</td><td></td></tr>
<tr><td rowspan="2">Operations Section Chief</td><td rowspan="2">Day 2</td><td>• Continue twice daily aerial overflight to determine size/bearing:
- use crew change helicopter where possible
- if Esso asset unavailable, contact and contract the use of third-party aircraft
- aircraft over slick 1 hour after first light, weather dependent.</td><td></td></tr>
<tr><td>• Use the location of deployed STBs as initial extents for aircraft bearing.</td><td></td></tr>
<tr><td colspan="4">Daily oil spill trajectory modelling will be used to predict the weathering and direction that the oil will spread</td></tr>
</table>

Level 2 and 3 spills – State waters and shoreline impacts SMV strategy			Completed?
Planning Section Chief	Day 1; then each day	• Request oil spill trajectory modelling runs to verify data gained through manual means via AMOSC twice daily. The request should include: - 12/24/36/48/60/72-hour outlook deterministic trajectory modelling - Shoreline loadings (1, 10 and 100gm p/m^2) – time frames, volumes and locations - request via initial phone call and completion of Oil Spill Trajectory Modelling request form - data to be relayed back to the IMT Situation Unit - via AMOSC, request AMOSC staff to be deployed to the Esso IMT to provide direct support to the IMT Situation Unit.	
		• For facility coordinates, refer to Gippsland platform locations coordinates GDA94 document.	
Set a daily watch to confirm the extent and spreading of the spill from the assets			
Operations Section Chief	Day 1; then each day	• Watches repeated as many times daily as required.	
		• If there is a spill from a staffed asset, set a two-hourly watch to confirm the bearing/size.	
		• Have observers take photographs or video. Where possible, include vessels or other objects in photos to provide scale.	
Establish the Esso common operating picture in the Esso IMT			
Operations Section Chief/ Situation Unit Lead	Day 1, then for the duration of the spill	• Establish common operating picture.	
		• Commence data capture and graphical display.	
		• Key data to be displayed include: - spill location - spill extent, direction and trajectory - environmental sensitives - Bass Strait oil and gas facilities - staging area and forward operating base location - Esso - controlled contracted resources – aircraft and vessels - third-party-controlled potential resources of opportunity – aircraft and vessels.	
OSMP as triggered			
Operations Section Chief/	Day 1; then each day	• Activate the various operational monitoring programs contained within the OSMP: - O1 – O5 as per initiation criteria in OSMP.	

Level 2 and 3 spills – State waters and shoreline impacts SMV strategy			Completed?
Environment Unit Lead			
For Level 3 spills only			
Obtain satellite imagery of the spill location			
Planning Section Chief/Situation Unit Lead	Day 1, then for the duration of spill	• Request satellite imaging: - request satellite imagery via AMOSC - or request satellite imagery via OSRL – agreement in place with MDA Geospatial Services.	

9.3 Response resources

9.3.1 Response requirements and capability

Table 9-6 details both the required resources for implementing a first strike SMV response and the SMV capability of Esso (obtained from oil spill response organisations equipment inventories, August 2025). The resources required for a first strike team are for the first 48 hours after a spill occurs. It should be noted that this is a generic list and may be subject to change depending on the situation. Other SMV equipment, such as drones may be considered as alternative surveillance tools if the situation allows.

By comparing the minimum requirements needed for implementing a first strike SMV response to the resources available to Esso, the SMV capability exceeds the resources required to implement the first strike SMV strategy in an acceptable timeframe. This demonstrates that Esso has the necessary response capabilities to conduct SMV in a timely manner.

Table 9-6 Resources required to implement a first strike team compared to the availability for SMV

Equipment type	Required	Capability			
		Organisation	Type	Location/quantity	Estimated mobilisation timeframe
Aerial/vessel observation	1 x helicopter/aerial surveillance platform - aircraft to have 100nm range and 3-hour duration. 1 x vessel. Helicopters and vessels may be utilised for surveillance alongside other operations.	Esso	Esso chartered vessel.	BBMT	<12 hours
			Vessel of opportunity.	Multiple (sourced via contractor on an ad-hoc basis).	6 - 12 hours initialisation, available within 72 hours.
			Helicopter.	Longford Heliport: 1	<4 hours, twice daily aerial surveillance. (Note: assumes good visibility, daylight hours and suitable flying conditions).

Equipment type	Required	Capability			
		Organisation	Type	Location/quantity	Estimated mobilisation timeframe
		Royal Victorian Aero Club	Under fixed wing aerial surveillance capability contract.	Moorabbin Airport (VIC): 2	Contractors to have wheels up in 4 hours from notification. Mobilisation time to Bass Strait < 6 hours.
STBs	3 x STBs. An initial STB is required to be deployed within 12 hours on the leading edge of the spill to monitor the trajectory accurately. This can be repeated every 24 hours. These requirements cover the initial 72 hours of a spill response.	Esso	STBs.	Long Island Point: 1 Longford Heliport: 1	<12 hours
		AMOSC*	STBs.	Geelong: 4 Jandakot: 4	Geelong: <12 hours Jandakot: 3 - 7 days
Oil spill modelling	Oil spill modelling services	Esso	Internal Esso GIS mapping specialists.	N/A	<4 hours
		AMOSC*	Oil spill trajectory modelling – RPS access.	N/A	<4 hours
		OSRL***	Oil spill trajectory modelling.	N/A	<4 hours
Satellite imagery	Satellite imagery services	AMOSC*	KSAT Satellite imagery access.	N/A	Access within 60 minutes of notification. Imagery to be determined at the time of request will dictate supply timeframes

Equipment type	Required	Capability			
		Organisation	Type	Location/quantity	Estimated mobilisation timeframe
					depending on satellite availability of Level 3 spill occurring.
		OSRL***	MDA Geospatial Services access.	N/A	Initiated <24 hours of Level 3 spill occurring. Imagery to be determined at the time of request will dictate supply timeframes depending on satellite availability.
Sampling kits	1 x sampling kits	Esso	Initial sampling kits.	Long Island Point: 1 Longford Plant: 1 BBMT vessels: 3 Heliport: 2 Pipelines Group: 1	Samples to be taken <24 hours of spill occurring.
Personnel	1 x trained aerial observer	Esso	Trained aerial observers.	12	<12 hours of spill occurring.
		AMOSC*	AMOSC Staff.	Australia: 5****	AMOSC Staff are on call 24 hours a day, 365 days a year. Timeframe for AMOSC resources and personnel depends on location of the spill and transport to site.
			AMOSC Core Group.	Australia: Target to maintain at least 100 members***** (minimum 84, maximum 140) as per *AMOSC Core Group Program and Policies* (AMOSC, 2024a)	
		OSRL***	OSRL responders	Globally: 18	OSRL Staff are on call 24 hours a day, 365 days a year. Timeframe for OSRL personnel

Equipment type	Required	Capability			
		Organisation	Type	Location/quantity	Estimated mobilisation timeframe
					depends on location of the spill and transport to site.

* Up-to-date lists of AMOSC equipment can be accessed via the AMOSC Members Hub – https://amosc.com.au/members/.

** For National AMSA resources, only equipment from the nearest two stockpiles has been included (Sydney and Melbourne), however additional resources are available from other locations. Up-to-date lists of National AMSA stockpile equipment can be accessed via the AMSA website (AMSA stockpile Equipment). Additional AMSA State equipment has been included from their Gippsland stockpile and up to date equipment lists can be found at VIC Equipment or via NOGGIN.

*** Up-to-date lists of OSRL equipment can be accessed via their website, under Response Readiness Report, found at Activation Procedure | Response Readiness Report. Availability likely to change monthly, see Readiness Report for most up to date information.

**** AMOSC has a permanent staff of 16 available on a 24/7 basis (AMOSC, 2021), 12 of which are available for field response, and four for administrative/management support roles.

***** A total of 124 personnel in the core group via the AMOSC Members Hub – https://amosc.com.au/members/.

9.3.2 Surveillance, monitoring and visualisation controls, Environmental Performance Outcomes, Environmental Performance Standards and Measurement criteria

Table 9-7 provides consideration of all controls considered that are either adopted or not adopted for improved capability for SMV.

Table 9-7 Consideration all controls for SMV strategy

All controls considered	Benefit	Feasibility	Adopted
Night-time monitoring infrared capability	Enable night-time monitoring of the location of oil on the water's surface.	Infrared may be used to provide aerial monitoring at night-time. However, the benefit is minimal given trajectory monitoring (and infield monitoring during daylight hours) will give good operational awareness. Safety considerations may also restrict night-time operations.	Not adopted
Initial sampling kits available.	Eight initial sampling kits kept at various locations will enable collection of oil samples. Results can be used in the oil spill modelling for increased accuracy and to assist with determining response activities.	• Retaining testing kits is a feasible control which is achievable in the circumstances. The results from the testing will provide details of the oil properties, assist with source identification, and can be viably implemented.	Adopted **(OPEP10-CM01)**
Oil spill trajectory modelling	Predictions of oil trajectory can help to inform the response and aid decision making.	Implement OSMP module O1.2 trajectory estimation. See Table 7-12 for details on pre-arranged agreements. • No safety risks are associated with the implementation of oil spill trajectory modelling.	Adopted **(OPEP10-CM02)**

All controls considered	Benefit	Feasibility	Adopted
		• While implementation is feasible and recommended, trajectory modelling is limited in its application. Results can be unreliable in areas with strong shoreline currents and river mouths. Results rely heavily on the quality of data that is inputted and are based on changeable assumptions and conditions.	
Oil STB	In-field data on possible oil trajectory can help to inform the response and aid decision making.	Implement OSMP module O1.4 Remote observation. See Table 7-12 for details on pre-arranged agreements. • STBs can be deployed with minimal additional resource requirements as an operational control to assist with SMV. This control is feasible in the circumstances.	Adopted **(OPEP10-CM03)**
Satellite imagery	Imagery of potential slicks can help to inform the response and aid decision making.	Implement OSMP module O1.5 Satellite imagery. See Table 7-12 for details on pre-arranged agreements.	Adopted **(OPEP10-CM04)**
Aircraft surveillance	In-field observation of slicks can help to inform the response and aid decision making.	Implement OSMP module and O1.3 Aerial or underwater observation. See Table 7-12 for details on pre-arranged agreements	Adopted **(OPEP10-CM05)**
Water and Oil quality monitoring	Monitoring of water quality can help to inform the response and aid decision making.	Implement OSMP modules O2.2 Fluorometry and O2.3 Water samples. See Table 7-12 for details on pre-arranged agreements.	Adopted **(OPEP10-CM06)**

EPOs and EPSs for SMV are outlined in Table 9-8.

Table 9-8 EPOs and EPSs for SMV

EPO	Control	EPS	Measurement criteria
OPEP10-EPO01: Understand the extent, severity and persistence of the oil spill and potential environmental sensitives at	**OPEP10-CM01:** Initial sampling kits available.	**OPEP10-EPS01:** Eight initial sampling kits are kept at various locations to enable rapid collection of oil samples.	• Eight sample kits are verified to be available and are in-date/complete.
	OPEP10-CM02:	**OPEP10-EPS02:** Trajectory estimation to be undertaken within 4 hours of initiation criteria being	• IMT logs demonstrate trajectory estimation undertaken within 4

EPO	Control	EPS	Measurement criteria
risk to advise the response action plan.	Oil spill trajectory modelling	met (s3.1 of OSMP) and implemented per OSMP module: • O1.2 Trajectory estimation. Module to be implemented in accordance with requirements and timeframes in Section 3.1 of the OSMP (within 4 hours of initiation criteria being met).	hours of initiation criteria being met. • Oil spill trajectory modelling reports were conducted in accordance with OSMP requirements.
	OPEP10-CM03: Oil STBs	**OPEP10-EPS03:** Oil spill tracking buoys to be deployed within 12 hours of initiation criteria being met (s.3.1 of OSMP) and in accordance with OSMP module: • O1.4 Remote observation. Module to be implemented in accordance with requirements and timeframes in Section 3.1 of the OSMP (within 24 hours of initiation criteria being met).	• IMT logs confirm tracking buoys were deployed within 12 hours of initiation criteria being met.
	OPEP10-CM04: Satellite imagery	**OPEP10-EPS04:** Satellite imagery to be available within 24 hours of initiation criteria being met (s.3.1. OSMP) and implemented per OSMP module: • O1.5 Satellite imagery. Module to be implemented in accordance with requirements and timeframes in Section 3.1 of the OSMP (within 24 hours of initiation criteria being met).	• IMT logs confirm satellite imagery was available within 24 hours of initiation criteria being met. • Imagery reports are consistent with requirements in module O1.5 of the OSMP
	OPEP10-CM05: Aircraft surveillance	**OPEP10-EPS05:** Aircraft surveillance is deployed within 4 hours of initiation criteria being met (s.3.1. OSMP) and implemented per OSMP module: • O1.3 Aerial or underwater observation. Module to be implemented in accordance with requirements and timeframes in Section 3.1 of the OSMP (initial overflight within four hours of initiation criteria being met; trained observer within 12 hours of spill occurring).	• IMT logs confirm aircraft surveillance was deployed within 4 hours of initiation criteria being met. • Observation reports demonstrate aerial surveillance undertaken in accordance with module O1.3 of the OSMP.
	OPEP10-CM06: Water and oil quality monitoring	**OPEP10-EPS06:** Water and oil quality monitoring is implemented within 24 hour of initiation criteria being met and undertaken in accordance with OSMP modules:	• IMT logs confirm water and oil quality monitoring was implemented within

EPO	Control	EPS	Measurement criteria
		• O2.2 Fluorometry • O2.3 Water samples. Module to be implemented in accordance with requirements and timeframes in Section 3.2 of the OSMP (within 24 hours of initiation criteria being met).	24 hours of initiation criteria being met. • Incident Action Plan confirm what water and oil quality monitoring is requested. • Laboratory reports confirm water quality monitoring undertaken. • Operational monitoring reports confirm ongoing monitoring.

9.4 Environmental impact assessment

All associated environmental impacts have been described and assessed within the Producing and Non-Producing EPs Section 6 and no additional environmental impacts have been identified as a result of SMV response activities.

9.5 Demonstration of ALARP

The rationale for the ALARP demonstration can be seen in Table 9-9.

Table 9-9 ALARP decision context justification

ALARP Decision Context and justification	**Decision Context A** The potential environmental aspects associated with mobilising a SMV response have been evaluated, and no new impacts have been identified. SMV response activities are standard practices that are routinely used in the Australian and international offshore petroleum industry as well as many other industries. Impacts associated with SMV are well understood and well implemented by the industry. Good practice control(s) have been identified to ensure environmental impacts associated with mobilising this response are reduced to ALARP, these controls will be implemented in a response scenario and have been included in the OPEP.

SMV response strategies have been demonstrated to be ALARP.

9.6 Demonstration of acceptability

Table 9-10 outlines the demonstration of acceptability of environmental impact from SMV.

Table 9-10 Acceptability of environmental impacts from SMV

Factor	Demonstration criteria	Criteria met	Rationale
Principles of ESD	a) The integration principle - decision making processes should effectively integrate both long term and short term economic, environmental,	✓	Not inconsistent. Planning for Bass Strait producing and non-producing activities and decision making as to the most appropriate strategies and methods has incorporated contemplation of both short and long term economic,

Factor	Demonstration criteria	Criteria met	Rationale
	social and equitable considerations.		environmental, social and equitable considerations.
	b) The precautionary principle - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	✓	Not inconsistent. All oil spill response activities are implemented with the aim of reducing the overall environmental impact from a spill incident. Source control activities are implemented to stop the flow of oil and minimise safety risks and environmental damage. Impacts associated with source control are offset by the broader positive effects of reducing the impact of a spill incident on coastal and marine sensitivities and socio-economic receptors (e.g. fishing, tourism).
	c) The intergenerational principle - the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.	✓	Not inconsistent. The assessment undertaken has concluded that environmental impacts will be short term in nature. Any impacts as a result of implementation of source control activities to respond to an unplanned release of fuel will not impact the health, diversity and productivity of the environment in such a manner that future generations may be impacted.
	d) The biodiversity principle - the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making.	✓	Not inconsistent. All aspects related to source control activities have been detailed in Producing and Non-Producing EPs Sections 6 and 7 and have been evaluated as having the potential to result in a **Consequence Level III** or lower (IV). Controls, EPOs, EPSs and measurement criteria are also described in sections 6 and 7 of the Producing and Non-Producing EPs. The potential impact associated with the implementation of this emergency response option is limited to a localised short-term impact, which is not considered as having the potential to affect biological diversity and ecological integrity.
Legislative and other requirements	Legislative and other requirements have been identified and met.	✓	The proposed control measures align with the requirements of: • OPGGS Act • *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth)

Factor	Demonstration criteria	Criteria met	Rationale
			• *Navigation Act 2012* (Cth) – Chapter 4 (Prevention of Pollution) • Marine Order 96 (Marine pollution prevention – sewage) 2018 • Marine Order 95 (Marine pollution prevention - garbage) 2018.
Internal context	Consistent with Esso's Environment Policy.	✓	Proposed control measures are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*".
	Meets OIMS objectives.	✓	Proposed control measures meet: • OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements • OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors • OIMS System 10-2 objective to ensure effective response to emergencies and business disruptions that threaten the safety, security and health of the public, contractors and employees, the environment, asset integrity, and critical business operations.
External context	Stakeholder concerns have been considered/addressed through the consultation process.	✓	No specific stakeholder concerns have been raised.

10 Containment and recovery

10.1 Overview

Containment and recovery involves controlled collection and recovery of oil from the water's surface. The response typically involves the deployment of offshore containment booms and oil skimmers from suitable vessels, as well as the collection, transfer and disposal of oil and oily water recovered during the response. The booms are used to encounter and corral the spilled oil on the sea surface into the apex of the containment boom, to allow mechanical removal using a recovery device such as a skimmer, which skims the oil from the water surface and pumps it into a temporary storage tank (IPIECA-IOGP, 2015b).

Effective containment and recovery can reduce the potential contamination risks and impacts associated with:

- marine fauna
- sensitive shoreline environments
- shoreline response
- onshore waste generation.

Containment and recovery is often considered as a response option due to the minor impact of its operation on the environment however, containment and recovery is generally a challenging response strategy. Overall effectiveness of containment and recovery can be limited by a combination of operational constraints and the fate of the oil on the sea surface (e.g. thickness and patchiness) which may include but not limited to:

- Weather - Suitable weather and sea state conditions, which is estimated at <50% of the time in the Bass Strait. Containment and recovery is not recommended if wave height exceeds 1.8m, currents exceed 0.75kn, and wind speeds exceed 20kn.
- Logistics - Availability of suitably equipped vessels, aerial surveillance support (to guide containment and recovery units to suitable areas) and adequate facilities for the storage and disposal of oil and water.
- Personnel - Availability of competent responders.
- Location - Accessibility and transit time.
- Health and Safety - Health effects from exposure to the oil and ability to safety deploy and use equipment.
- Environment - Increased environmental risks and impacts from increased vessels/ aircraft use and treatment/disposal of oily waste.

Experience has shown that the efficiency of at-sea containment and recovery operations can vary widely depending on the above constraints, and recovery is usually limited to between 5% and 20% of the initial spilled volume (IPIECA-IOGP, 2015b).

It is important to note that as the effectiveness of recovery is restricted by weather conditions, this must be monitored closely throughout the planning and implementation stages. The advantages and disadvantages of containment and recovery as a response strategy are shown in Table 10-1.

Table 10-1 Advantages and disadvantages of containment and recovery response strategy

Advantages	Disadvantages
Containment and recovery removes hydrocarbon from the environment.	Labour intensive.
Reduces wildlife exposure to surface oil e.g. cetaceans, birds.	Presents safety risks to personnel.
Various equipment types are available for different oil types.	Generation of large volumes of contaminated water.
	Containment and recovery operations can have limited efficiency.

Advantages	Disadvantages
	Limited to certain weather conditions and daylight hours.

10.1.1 Modelling predictions

The oil spill modelling undertaken in the RPS 2025 report detected limited opportunity to conduct containment and recovery. While there were two scenarios where floating oil was observed at ≥50g/m^2 (Scenario 2, 144,054m^3 surface release of Kipper condensate over 98 days, and Scenario 7, 1123m^3 subsea release of Kipper condensate over 1 hour), these were both condensate spills. Containment and recovery is not recommended for condensate due to its propensity to evaporate and disperse naturally (RPS, 2025).

While Moonfish crude is more amenable to containment and recovery activities, neither of the Moonfish crude release scenarios (Scenario 3, 1324m^3 over 98 days, surface release and Scenario 6, 779m^3 over 98 days, surface release) predict surface oil ≥50g/m^2 (RPS, 2025). As Moonfish crude is only expected during P&A activities at the Snapper platform, both scenarios are limited to the short duration P&A activities.

Despite the above modelling predictions, it is recommended that containment and recovery is retained as a secondary response strategy for Moonfish crude, in the event that oil is observed at suitable thickness in an actual oil spill incident. Esso propose to use containment and recovery as a secondary strategy to mitigate impacts of oil contact with sensitive receptors if crude oil is observed at ≥50g/m^2 (RPS, 2025).

10.1.2 Decanting

The recovered oil and water mix from containment and recovery operations are stored temporarily in temporary tanks stowed on the deck, or in internal tanks of the vessel. Recovered sea water may need to be decanted and returned to the sea to free up storage capacity and enable greater volumes of oil to be recovered without making the potentially long voyage back to port, increasing the effectiveness of the containment and recovery operation. Decanting makes efficient use of containment and recovery waste management resources, which are often a limiting factor in containment and recovery. The reduction of overall liquid waste achieved by decanting can create an environmental benefit which outweighs the minimal impact caused by the release of water with very low concentrations of oil. Refer to *The use of decanting during offshore oil spill recovery operations* (IPIECA-IOGP, 2013b).

The decanted water will contain traces of hydrocarbons and cannot be discharged unless approval has been provided by AMSA. Refer to *Maritime discharges of oil and oily water during emergency and response situations* (AMSA, 2017).

The *Pollution of Waters by Oils and Noxious Substances Act 1986* (Cth) (Part 2, Section 8) allows for decanting for combating specific pollution incidents. Additionally, Annex 1 of MARPOL (Regulation 9) allows for decanting for combating specific pollution events to minimise the damage from pollution. Under both MARPOL and the *Pollution of Waters by Oils and Noxious Substances Act 1986* (Cth), decanting must be approved by the relevant Jurisdictional Authority. In Victorian State waters this is DTP and in Commonwealth waters this is AMSA. Approval will be sought if decanting is required.

If decanting approval is not obtained through AMSA/DTP, the complete collected oil and water will remain in the collection tanks, and all will be treated as collected waste. In this event, the duration of containment and recovery operations may be reduced due to restricted available ullage.

10.1.3 Containment and recovery units

A containment and recovery unit, or strike team, comprises the following:

- 2 x vessels in a J-formation (refer to Figure 10-1)
- 1 x 200m of appropriate boom type for the situation (commonly offshore-rated boom)
- boom ancillaries to support deployment (i.e. air blowers, powerpacks etc.)
- 1 x skimmer appropriate for the oil type
- temporary waste storage (either towable storage bladder or onboard).

One vessel will have on board the boom reel from which it will be deployed in a J-formation (refer to Figure 10-1) with the tow vessel. The main vessel will have on board a skimmer and waste storage receptacles which will be used for storage of the recovered liquids.

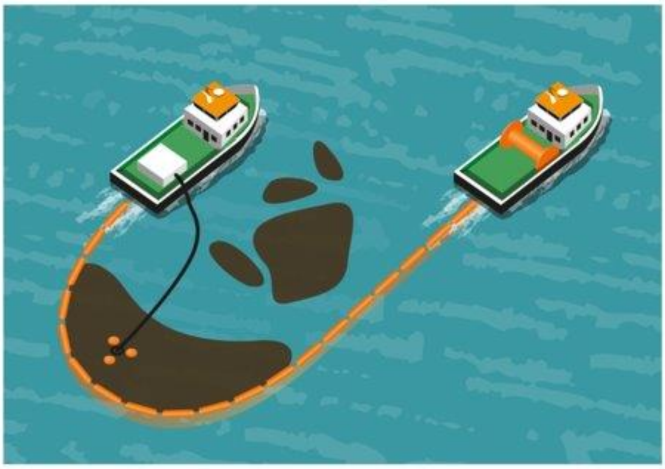

Figure 10-1 J-formation of a single containment and recovery strike team (IPIECA-IOGP, 2015b)

The deployment vessels used in containment and recovery must meet the appropriate specification in order to be considered effective and safe. These specifications include:

- a clear deck space, of at least 20m x 8m to enable safe loading and deployment
- a deck crane with a capacity of approximately 1 – 2t and 2m reach for deploying and recovering the skimmer
- a minimum bollard pull of 8t
- an open stern to allow for boom deployment
- the ability to manoeuvre and tow at low speeds (approximately 1kn)
- shelter and accommodation for crew.

10.1.4 Strategy summary - Containment and recovery

Using containment boom and skimmers, containment and recovery strike teams will attempt to corral fresh oil, with guidance towards the thickest areas of oil from SMV strategies, and then mechanically recover with skimmers it into waste storage tanks on board the vessel.

Relevant EPOs and EPSs for the containment and recovery response strategy are provided in Section 10.3.5.

Table 10-2 provides the overall containment and recovery response strategy objective, critical outputs, critical IMT tasks, and termination criteria.

Table 10-2 Containment and recovery strategy objectives, critical outputs, critical IMT tasks, and termination criteria

At-sea containment and recovery (vessel based)	
Response objective	To recover spilt oil before shoreline or other sensitivity contact. To remove bulk floating oil and improve water quality.
Critical outputs	For Level 1 spills (subject to NEBA): • Suitable oil thickness is available for C & R activities: ○ Lower – 50 g/m2 (equates to 100 g/m2 with approximately 50% coverage and/or 200 g/m2 with approximately 25% coverage) ○ BAOAC 4 – discontinuous true oil colour – lower threshold 50 g/m2

At-sea containment and recovery (vessel based)	
	• using a pair of suitable vessels, offshore booms will be towed in the optimal configuration to concentrate and collect floating oil. Alternatively, single vessel high-speed booming systems may be used • the optimal mechanical skimmer for the type and condition of oil will be used to recover as much oil as possible from the apex of the boom. Refer to the *ExxonMobil Oil Spill Response Field Manual*, Section 5.9, for more information on containment and recovery booming configurations. For Level 2 and above spills (subject to NEBA): • AMOSC equipment from Geelong can be used to form up to 10 strike teams if required. Each will use the configurations noted above • in ideal conditions, booming techniques will be used to concentrate oil using multiple containment and recovery units • vessels of opportunity from fishing and offshore service fleets will be sourced from Gippsland ports, fisheries and other sources in Victoria. Equipment and trained personnel will come from Esso, AMOSC, AMOSC Mutual Aid, OSRL, and National Plan (government) stockpiles. These will be cascaded in from stockpiles across Australia.
Planning section instructions	The planning section to determine through the NEBA, and SMV, that containment and recovery operations should be conducted. Containment and recovery operations will be used to attempt to reduce shoreline loadings, particularly on remote coastlines where these are at risk, such as the Bass Strait Islands, the wilderness areas of far-east Gippsland, Corner Inlet, and surrounding estuaries, and sensitivity-specific positive impacts as demonstrated by the daily NEBA. Weather conditions in Bass Strait are known to be volatile and challenging, so forward 24 - 48-hour forecasts (wave and swell height; wind speed) must be within operational limits for this tactic to proceed. Containment and recovery activities should only be carried out during daylight hours. Critical daily tasking: • establish through a daily NEBA assessment the ongoing benefit of containment and recovery • ensure that weather conditions are amenable to safe and effective operations • ensure that the OSMP is in place, with data being collated and sent back to the Environment Unit Lead and IMT Situation Unit • ensure daily containment and recovery operations are recorded (location, estimated amount of oil recovered, estimated amount of water recovered) • assist operations to draft daily ICS 204 operations orders used by the marine division for containment and recovery. Refer to Appendix A: Templates and forms for draft ICS 204 • seek approval from AMSA and/or DTP to decant separated water to increase waste storage of recovered oil. Refer to *The use of decanting during offshore oil spill recovery operations* (IPIECA-IOGP, 2013b) and *Maritime discharges of oil and oily water during emergency and response situations* (AMSA, 2017) for further details • working with the Safety Officer, ensure that workplace health and safety risks are appropriately identified and managed • plan temporary waste reception facilities at BBMT and Lakes Entrance • activate long-term waste treatment contracts from temporary waste storage sites.

<table>
<tr><th colspan="2">At-sea containment and recovery (vessel based)</th></tr>
<tr><td></td><td>All data gathered through the OSMP in relation to containment and recovery operations are to be captured and displayed in the common operating picture (Esso GIS) so that all members of the IMT have situational awareness.

The planning section needs to continuously monitor containment and recovery operations and scale them up or down as needed when compared to the other spill response strategies.</td></tr>
<tr><td>Operations section instructions</td><td>The operations section and marine branch directors will task assets under their command to undertake containment and recovery operations as part of the execution of the Incident Action Plan developed the previous day.

Vessels will operate in pairs (1 x main vessel and 1 x tow vessel), focusing on different sections of the thickest part of the slick within the containment and recovery zone. Utilise overhead aerial assets to provide real-time direction to the vessel strike teams.

Where approved, regular de-canting by strike teams is to be done to maximise the volume of oil recovered from the vessel's waste tanks.

Safety planning for this strategy must focus on de-confliction with aerial or vessel based dispersant operations.

Operational planning will be based on ExxonMobil Oil Spill Response Field Manual Section 5.

Critical daily tasking (all spills):
• execute the Incident Action Plan for the current operational period
• liaise with the Planning Section Chief to ensure that field tasking (ICS 204) is drafted and used for containment and recovery operations. Refer to Appendix A for draft ICS 204
• ensure daily containment and recovery operations are recorded (location, estimated amount of oil recovered, estimated amount of water recovered
• operations are to be directed to continuous parts of the slick to maximise effectiveness
• simultaneous operations planning needs to be a part of the daily tasking
• vessels assigned for the OSMP water sampling/monitoring activities.</td></tr>
<tr><td>Logistics section instructions</td><td>The logistics section is to activate contracts and provide ongoing services and supply (from Esso resources and/or third parties) in support of the execution of this strategy.

This is focused on supporting containment and recovery strike team operations from BBMT and Lakes Entrance. Vessels of opportunity are to be sourced and wet chartered through Esso's marine team. Oil spill response equipment is to be sourced from AMOSC, National Plan sources, and OSRL if required.

Logistics is to use the technical advice of AMOSC Liaison Officer/OSRL Liaison Officer as to the best equipment selection for the operation at the time. Factors to be considered include:
• known and anticipated weather conditions
• weathering of oil
• anticipated volumes of oil
• length of operation/swing.

Only large/heavy offshore booms are to be ordered from providers (i.e. 1.5m in height or greater), or advanced booming single vessel systems (i.e. NOFI current buster 2/4/6/8/ or SpeedSweep Systems) with skimmer selection focusing on high capacity, high volume oil removal (i.e. greater than 30m³ per hour pumping capacity).</td></tr>
</table>

At-sea containment and recovery (vessel based)	
	For Level 1 spills: • contract AMOSC personnel and AMOSC Core Group personnel if needed. For Levels 2/3: • request AMOSC personnel and AMOSC Core Group in numbers suitable for equipment deployment • ensure that waste contractors are in place to remove the temporary waste from BBMT and Lakes Entrance to final waste storage/disposal sites or processing. Critical daily t: • sustain the activities for the duration of the spill with contractors and third parties to ensure that operations can continue • track vessels for compliance with Esso marine requirements • track volumes of oil recovered by strike teams and anticipate temporary storage requirements at marine bases.
Termination criteria	Containment and recovery operations will cease based on any of the below triggers: • NEBA determines that containment and recovery operations no longer provide demonstrable environmental benefits. • OSMP termination criteria are met: - ambient hydrocarbon concentrations in offshore waters have returned to within the expected natural dynamics of baseline State and/or control sites - ambient hydrocarbon concentrations in offshore waters are below relevant ANZECC/ARMCANZ (2000) 99% species protection levels - oil is too thin for effective booming and containment to take place - weather/sea conditions make containment and recovery operations unsafe or ineffective.

10.2 Emergency Response Team/Incident Management Team roles

The individual roles and responsibilities for field personnel (ERT) and/or Esso IMT personnel as applicable for containment and recovery (in addition to those described in Section 5), according to the response banding (refer to Section 1.6) are provided in Table 10-3, Table 10-4 and Table 10-5.

10.2.1 Level 1 - Commonwealth waters, localised impacts only

Table 10-3 Containment and recovery strategy - IMT roles for Level 1, Commonwealth waters, localised impacts

Level 1 spills - Commonwealth waters, localised impacts Containment and recovery operations			Completed?
Establish one strike team to undertake containment and recovery			
Logistics Section Chief	Day 1	• Establish BBMT/Lakes Entrance (Bullock Island) as initial marine forward operating base.	
		• Secure two vessels for marine operations – if not engaged in other safety critical mission.	
		• Direct vessels to BBMT to load out equipment.	

Level 1 spills - Commonwealth waters, localised impacts Containment and recovery operations			Completed?
		• Direct AMOSC containment and recovery offshore boom to BBMT wharf edge and load out: - 1 x 200m offshore boom reels - 1 x offshore skimmer unit - if vessel tanks are <500m³ arrange for temporary storage units.	
		• Request available Esso Core Group recall for duty – vessel-based operations from Day 2.	
		• Load out vessel for operations.	
Operations Section Chief	Day 1	• Prepare ICS 204 for containment and recovery operations: - Refer to draft ICS 204 for operations - Appendix A.	
	Day 2	• Brief teams on the ICS 204.	
		• Direct strike team to area of operations.	

Note: This strategy is dependent on NEBA outcomes and oil trajectory.

10.2.2 Level 2 and 3 - Commonwealth waters, no predicted shoreline impacts

Table 10-4 Containment and recovery strategy - IMT roles for Level 2 and 3, Commonwealth waters, no predicted shoreline impacts

Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts Containment and recovery operations			Completed?
Establish strike teams able to undertake containment and recovery			
Logistics Section Chief	Day 1	• Establish BBMT as initial marine forward operating base.	
		• Secure 2 x vessels for marine operations – if not engaged in other safety critical mission.	
		• Direct vessels to BBMT to load out equipment.	
		• Direct AMOSC to shift containment and recovery containment and recovery equipment from Geelong to BBMT: - 1 x 200m offshore boom reel - 1 x offshore skimmer unit. If vessel tanks are <500m³, arrange temporary storage units.	
		• Request available Esso Core Group recall for duty – vessel-based operations from Day 2.	
		• Load out vessel for operations.	
	Day 1	• Prepare ICS 204 for containment and recovery:	

Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts Containment and recovery operations			Completed?
Operations Section Chief		- refer to draft ICS 204 for operations - Appendix A.	
	Day 2	• Brief teams on the ICS 204.	
		• Direct strike teams (each strike team comprises a pair of vessels) to area of operations.	
Establish marine forward operating bases for ongoing large-scale marine operations			
Logistics Section Chief	Day 2	• Based on shoreline impacts, plan for either/or BBMT and Lakes Entrance as marine forward operating base for ongoing containment and recovery operations: - offshore containment and recovery operations (large vessel operations – wharf considerations - under keel clearance, width, tug availability) - nearshore/shoreline vessel support operations.	
		• Demarcate in each location: - oil spill response equipment receipting and laydown areas - office and briefing space - temporary storage of waste management (coming off a vessel after shift).	
Request and contract Level 3 offshore response support – Escalated resourcing			
Logistics Section Chief	Day 2	• Contract additional vessels for containment and recovery: - nearshore/shoreline need – marine surveyed vessels - coastal/offshore need – marine surveyed.	
		• Request and shift AMOSC nearshore and offshore containment and recovery equipment, and all shoreline equipment to BBMT/Lakes Entrance: - offshore booms reels - offshore skimmer packages - shoreline surveillance equipment – drone, unmanned aerial vehicles.	

Note: This strategy is dependent on NEBA outcomes and oil trajectory.

10.2.3 Level 2 and 3 – State waters and shoreline impacts

Table 10-5 Containment and recovery strategy – IMT roles for Level 2 and 3, State waters and shoreline impacts

Level 2 and 3 spills –State waters and shoreline impacts Containment and recovery operations			Completed?
Establish strike teams able to undertake containment and recovery			
	Day 1	• Establish BBMT as initial marine forward operating base.	

Level 2 and 3 spills –State waters and shoreline impacts Containment and recovery operations			Completed?
Logistics Section Chief		• Secure two vessels for marine operations – if not engaged in other safety critical mission.	
		• Direct vessels to BBMT to load out equipment.	
		• Direct AMOSC to shift containment and recovery equipment from Geelong to BBMT: - 1 x 200m offshore boom reel - 1 x offshore skimmer unit.	
		• If vessel tanks are <500m^3, arrange temporary storage units.	
		• Request available Esso Core Group recall for duty – vessel-based operations from Day 2.	
		• Load out vessel for operations.	
Operations Section Chief	Day 1	• Prepare ICS 204 for vessel-based containment and recovery.	
		• Refer to Appendix A draft ICS 204 for operations.	
		• Brief teams on the ICS 204.	
	Day 2	• Direct strike teams (each strike team comprises a pair of vessels) to area of operations. •	
Establish marine forward operating base for ongoing large-scale marine operations			
Logistics Section Chief	Day 2	• Based on shoreline impacts, plan for either/or BBMT and Lakes Entrance as marine forward operating base for ongoing containment and recovery operations: - offshore containment and recovery operations (large vessel operations – wharf considerations - under keel clearance, width, vessel availability) - nearshore/shoreline vessel support operations.	
		• Demarcate in each location: - oil spill response equipment receipting and laydown areas - office and briefing space - temporary waste storage area (coming off vessel, after shift).	
Request and contract extended offshore response support – Escalated resourcing			
Logistics Section Chief	Day 2	• Contract additional vessels for containment and recovery: - nearshore/shoreline needs – marine surveyed vessels - coastal/offshore needs – marine surveyed.	

Level 2 and 3 spills –State waters and shoreline impacts Containment and recovery operations			Completed?
		• Operations and planning to advise how many strike teams are required. Refer to applicable QRG in Appendix D for guidance on resource requirements for worst-case scenarios.	
		• Request and shift AMOSC nearshore and offshore containment and recovery equipment, and all shoreline equipment to BBMT/Lakes Entrance: - offshore booms reels - offshore skimmer packages (in addition to TRP requirements) - nearshore/shoreline booming equipment - nearshore/shoreline skimming packages - shoreline surveillance equipment – drone, unmanned aerial vehicle.	

Note: Dependant on NEBA and oil trajectory.

10.3 Response resources

For the scenarios outlined in the modelling reports, containment and recovery is considered to be a secondary response strategy, as limited opportunities to implement this were observed in the oil spill modelling results (RPS, 2025) (RPS, 2019). More information on the modelling scenarios can be found in Section 2.1.4. The reasoning behind this is based on the oil types modelled and are as follows.

10.3.1 Crude oil (Moonfish)

Moonfish crude is classified as a Group 4 oil under ITOPF (2024) guidelines. It has an API gravity of 27.8; a density of 887.0kg/m^3 at 15°C; and a viscosity of 4.5cP at 40°C. In Scenarios 3 and 6, Moonfish crude was modelled for hypothetical loss of well control (RPS, 2025).

In Scenario 3, a 1324m^3 surface release of Moonfish crude was modelled over 98 days following a loss of well control incident at the Tuna platform. No floating oil exposure at either the moderate (≥10g/m^2) or high (≥50g/m^2) threshold was predicted (RPS, 2025).

In Scenario 6, a 779m^3 surface release of Moonfish crude was modelled over 98 days following a loss of well control incident at the Snapper platform. No floating oil at the moderate (≥10g/m^2) or high (≥50g/m^2) threshold was predicted (RPS, 2025).

While the recommended minimum surface thickness criterium was not predicted by the worst-case oil spill modelling for containment and recovery, it is recommended that containment and recovery is retained as a response option, in case areas of suitable thickness of crude oil are observed in the unlikely event of a spill.

10.3.2 Condensate (Kipper and Barracouta)

Kipper condensate is a light, low-viscosity oil with an API gravity of 54.5 and a density of 760.0kg/m^3 at 15°C. It is classified as a Group 1 oil under ITOPF (2024) guidelines, with a density of 760.0kg/m^3 at 15°C. Barracouta condensate is also a light Group 1 oil, with an API gravity of 51.6; a density of 772.3kg/m^3 at 15°C; and a dynamic viscosity of 0.99cP at 15°C. As both hydrocarbons are Group 1, containment and recovery application would not generally be recommended as a strategy, as both hydrocarbons are likely to naturally evaporate and disperse readily. Containment and recovery operations would be inefficient and would recover minimal oil, if any (IPIECA-IOGP, 2015b).

In the oil spill modelling conducted for the Bass Strait, the only two scenarios where floating oil was observed ≥50g/m^2 was in Scenario 2 and Scenario 7. Scenario 2 was a 144,054m^3 surface release of Kipper condensate over 98 days following a loss of well control at the Marlin platform. This was during a plug and abandonment on the well with all perforations open to flow against zero wellhead pressure. Floating oil ≥50g/m^2 was observed at a maximum distance of 8.7km from the release point, covering a maximum deterministic sea surface swept area of 18.1km^2 (RPS, 2025).

Scenario 7 was a 1123m^3 subsea release of Kipper condensate over 1 hour following a pipeline rupture incident at the MLA500 pipeline. Floating oil ≥50g/m^2 travelled a maximum distance of 9km from the source (RPS, 2025).

Despite both of these scenarios demonstrating floating oil meeting or exceeding the minimum threshold for containment and recovery operations, containment and recovery is not recommended as a response to condensate spills for the reasons stated above.

10.3.3 Light marine oil

Light marine oil was modelled in the RPS vessel activities report as MDO. MDO is a light-persistent fuel oil used in the maritime industry. It has a density of 829.1kg/m^3, an API of 37.6, and a low pour point (-14°C) (RPS, 2019) . The low viscosity (4cP) indicates that this oil will spread quickly when released and will form a thin to low thickness film on the sea surface, increasing the rate of evaporation. MDO is composed of 95% volatiles and semi- to low-volatile organic compounds and 5% persistent compounds. As a Group 2 hydrocarbon, containment and recovery application would not generally be recommended as a strategy, because operations would be inefficient and would recover minimal oil. MDO is likely to naturally evaporate and disperse readily (IPIECA-IOGP, 2015b).

10.3.4 Response requirements and capability

As highlighted above, there are very limited opportunities for the implementation of containment and recovery within the Bass Strait, and there are no modelled scenarios which outline containment and recovery as an appropriate response strategy. It is however recommended that containment and recovery be retained as a secondary response strategy for the Bass Strait region. While it is not recommended to use containment and recovery strategies for a condensate spill, it’s application may be more appropriate for Moonfish crude. Due to the 50g/m^2 threshold not being exceeded for any of the modelled crude scenarios (RPS, 2025), it is not possible to conduct a detailed needs assessment for containment and recovery operations.

However, for the purposes of the secondary response capability, it is assumed that one strike team will provide sufficient resources to complete any required initial containment and recovery activities in a timely manner, with opportunity to scale up the response with additional units if required for the duration of the worst-case scenarios. The decision to implement this as a strategy must be guided and informed by a detailed NEBA assessment. If required, containment and recovery equipment will be sourced from AMOSC, National Plan and OSRL equipment stockpiles.

Table 10-6 details both the required resources for implementing a first strike containment and recovery response team able to deploy a single offshore skimmer and boom system, and the containment and recovery capability of Esso. The resources required for a first strike team are for the first 48 hours after a spill occurs. It must be noted that this is a generic list, and appropriate boom and skimmer type would be selected based on oil type and volume. As per the oil spill modelling, there were limited opportunities identified to apply containment and recovery for the worst-case scenarios, therefore the resources tabulated in Table 10-6 are what would be required to respond to a WCDS spill.

By comparing the minimum requirements needed for implementing a first strike containment and recovery response to the resources available to Esso, it is clear that the containment and recovery capability exceeds the resources required to implement the first strike containment and recovery strategy in an acceptable timeframe. This demonstrates that Esso has the necessary response capabilities to conduct containment and recovery in a timely manner.

Table 10-6 Resources required to implement a WCDS strike team compared to the availability for containment and recovery (obtained from oil spill response organisations equipment inventories, August 2025)

Required	Capability			
	Organisation	Type	Location/quantity	Estimated mobilisation timeframe
Offshore booms				

Required	Capability			
	Organisation	**Type**	**Location/quantity**	**Estimated mobilisation timeframe**
1 x 200m boom reel	AMOSC*	Lamor heavy duty boom 1300 (200m) on reel	Broome: 2	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
		Lamor heavy duty boom 1500 (200m) on reel	Geelong: 1	
		Lamor heavy duty boom 1500 (100m) on reel	Jandakot: 1 Geelong: 1	
		Desmi ro-boom 1500 (200m)	Exmouth: 2 Jandakot: 6 Geelong: 10	
		Beach guardian shore seal (25m)	Broome: 4 Exmouth: 20 Jandakot: 19 Geelong: 45	
		Zoom boom (25m)	Broome: 6 Exmouth: 19 Jandakot: 30 Geelong: 129	
		Lamor SFB-18 GP solid floatation (30m)	Jandakot: 18 Geelong: 40	
		NOFI current buster 2	Geelong: 1	
		Desmi speed sweep	Geelong: 1	
		Sorbent boom	Broome: 6 Jandakot: 0 Geelong: 66	
	AMSA**	Inflatable - STRUCTURFLEX	Melbourne: 6 Sydney: 8	Access to National Plan equipment through AMOSC. Equipment mobilisation times will vary according to stockpile
		Curtain - inflatable	Gippsland: 1	
		Inflatable - CANADYNE	Sydney: 4	

Required	Capability			
	Organisation	**Type**	**Location/quantity**	**Estimated mobilisation timeframe**
		Self-inflating - VERSATECH zoom	Melbourne: 6 Sydney: 10 Gippsland: 2	location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
		200m boom - offshore - ROULANDS ro-bay 1500	Melbourne: 1 Sydney: 3	
		Solid buoyancy - STRUCTURFLEX	Sydney: 3 Gippsland: 1	
		Fence – GP500 - STRUCTUREFLEX	Gippsland: 2	
		Offshore - VIKOMA hi sprint	Melbourne: 1 Sydney: 2	
		Sweep system - NOFI current buster 4	Melbourne: 1 Sydney: 1	
		Boom vane	Melbourne: 1	
	OSRL***	Roboom 200m	Globally: 27	Mobilisation of OSRL equipment from Singapore to Victoria is estimated at 12 hours, while mobilisation from the United Kingdom to Victoria is estimated at 30 hours. Other bases will have longer mobilisation times and can be given upon request. Guaranteed access to 50% of SLA stockpile by equipment type. Access to more than 50% on a case-by-case basis.
		Ro-skim system	Globally: 3	
		Weir boom	Globally: 1	
		Norlense oil trawl	Globally: 4	
		Nofi current buster 2	Globally: 3	
		Nofi current buster 6	Globally: 4	
		Elastec hydro fire boom	Globally: 4	
		Elastec American fireboom	Globally: 30	
		Boom vane (0.5 - 1.5m)	Globally: 18	
Skimmers				
1 x skimmer appropriate to the oil type	AMOSC*	Minimax 12-Brush	Broome: 1 Exmouth: 1 Geelong: 1 Jandakot: 2	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days

Required	Capability			
	Organisation	Type	Location/quantity	Estimated mobilisation timeframe
		Komara 12K-disc	Exmouth: 1 Jandakot: 1 Geelong: 2	
		Komara 20K-disc	Jandakot: 1	
		Komara 30K-disc	Geelong: 2	
		Passive-weir	Exmouth: 1 Jandakot: 1 Geelong: 1	
		Desmi GT 185-brush/weir	Exmouth: 1 Geelong: 1	
		Lamor LWS500-brush/weir	Jandakot: 3 Geelong: 3	
		Canadyne multi head-brush/disc/drum	Geelong: 1	
		Versatech multi head-brush/disc/drum	Geelong: 1	
	AMSA**	Multi head - LAMOR 15 ton	Melbourne: 2 Sydney: 4 Gippsland: 4	Access to National Plan equipment through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
		Rope mop - OMI 140	Melbourne: 3	
		Rope mop - OMI 260	Melbourne: 1	
		Rope mop - Petro CSC62	Sydney: 1	
		Suction - VIKOMA shorevac	Melbourne: 2	
		Belt - SHARK 2000 SERIES	Melbourne: 1	
		Weir - DESMI termite	Melbourne: 1 Sydney: 1	
		Weir - LAMOR 50 ton	Melbourne: 1 Sydney: 2	

Required	Capability			
	Organisation	Type	Location/quantity	Estimated mobilisation timeframe
		Suction - VIKOMA miniVac	Sydney: 1 Gippsland: 1	
	OSRL***	Komara 40k	Globally: 6	Mobilisation of OSRL equipment from Singapore to Victoria is estimated at 12 hours, while mobilisation from the United Kingdom to Victoria is estimated at 30 hours. Other bases will have longer mobilisation times and can be given upon request. Guaranteed access to 50% of stockpile by equipment type. Access to more than 50% on a case-by-case basis.
		GT185 weir skimmer	Globally: 3	
		Termite weir	Globally: 14	
		Termite weir with thrusters	Globally: 1	
		Termite combi	Globally: 5	
		giant octopus	Globally: 2	
		Komara star	Globally: 6	
		Rotodrum	Globally: 2	
		Sea devil	Globally: 6	
Waste storage				
Waste storage appropriate to the level of waste (towable storage bladder, on deck, or built-in vessel containers)	AMOSC*	Waste (Land)-Vikotank (13,000L)	Broome: 1 Geelong: 1	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
		Waste (land)-Fastank temporary storage (9000L)	Exmouth: 2 Jandakot: 1 Geelong: 3	
		Waste (land)-Fastank temporary storage (3000L)	Jandakot: 1 Geelong: 1	
		Waste (land) - Lamor temporary storage (11,400L)	Jandakot: 4	
		Waste (on-water) - Lancer storage barge (25,000L)	Jandakot: 2 Geelong: 2	
		Waste (on-water) - Deck bladder storage (25,000L)	Jandakot: 3 Geelong: 3	
	AMSA**	Stationary - FASTANK 10t	Melbourne: 1	Access to National Plan equipment through

Required	Capability			
	Organisation	Type	Location/quantity	Estimated mobilisation timeframe
			Sydney: 4	AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
		Stationary - VIKOMA Flexidam 10t	Melbourne: 2 Sydney: 4	
		Stationary – STRUCTUREFLEX Flexidam 10t	Gippsland: 4	
		Stationary – STRUCTUREFLEX Flexidam 5t	Gippsland: 5	
		Towable – CANFLEX 5t	Gippsland: 4	
		Towable - CANFLEX sea slug 10t	Melbourne: 1 Sydney: 1	
		Towable - CANFLEX sea slug 16t	Sydney: 1	
		Towable - CANFLEX sea slug 25t	Sydney: 1	
		Towable - COVERTEX tow tank 20t	Melbourne: 1 Sydney: 1	
		Towable - VIKOMA FROST barge 25t	Melbourne: 1 Sydney: 2	
	OSRL***	Storage barge $50m^3$	Globally: 6	Mobilisation of OSRL equipment from Singapore to Victoria is estimated at 12 hours, while mobilisation from the United Kingdom to Victoria is estimated at 30 hours. Other bases will have longer mobilisation times and can be given upon request. Guaranteed access to 50% of stockpile by equipment type. Access to more than 50% on a case-by-case basis.
		Storage barge $25m^3$	Globally: 13	
		Floating storage tank $50m^3$	Globally: 3	
		Floating storage tank $25m^3$	Globally: 4	
Containment and recovery vessels				

Required	Capability			
	Organisation	**Type**	**Location/quantity**	**Estimated mobilisation timeframe**
2 x suitable containment and recovery vessels (1 x deployment vessel, 1 x towing vessel) with crew	Various	Vessel of opportunity.	Multiple (sourced via contractor on an ad-hoc basis).	6 - 12 hours initialisation, available within 72 hours.
	AMSA**	Oil recovery vessel - MARCO Harbour Class 1 - CHARLIE	Melbourne: 1	Access to National Plan equipment through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
		Oil recovery vessel - MARCO harbour 28,ANADARA	Sydney: 1	
Personnel				
Approximately eight trained responders	AMOSC*	AMOSC Staff	Australia: 16****	AMOSC Staff are on call 24 hours a day, 365 days a year. Timeframe for AMOSC personnel depends on location of the spill and transport to site.
		AMOSC Core Group	Australia: Target to maintain at least 100 members***** (minimum 84, maximum 140) as per *AMOSC Core Group Program and Policies* (AMOSC, 2024a)	
	OSRL***	OSRL responders	Global: 18	OSRL Staff are on call 24 hours a day, 365 days a year. Timeframe for OSRL personnel depends on location of the spill and transport to site.
Waste management				
	Cleanaway	Onshore waste management arrangements - contractor	N/A	<24 hours of service request.

* Up-to-date lists of AMOSC equipment can be accessed via the AMOSC Members Hub – https://amosc.com.au/members/.

** For National AMSA resources, only equipment from the nearest two stockpiles has been included (Sydney and Melbourne), however additional resources are available from other locations. Up-to-date lists of National AMSA stockpile equipment can be accessed via the AMSA website (AMSA stockpile Equipment). Additional AMSA State equipment has been included from their Gippsland stockpile and up to date equipment lists can be found at VIC Equipment or via NOGGIN.

*** Up-to-date lists of OSRL equipment can be accessed via their website, under Response Readiness Report, found at Activation Procedure | Response Readiness Report. Availability likely to change monthly, see Readiness Report for most up to date information.

**** AMOSC has a permanent staff of 16 available on a 24/7 basis (AMOSC, 2021), 12 of which are available for field response, and four for administrative/management support roles.

***** A total of 124 personnel in the Core Group via the AMOSC Members Hub – https://amosc.com.au/members/.

10.3.5 Containment and recovery controls, Environmental Performance Outcomes, Environmental Performance Standards and Measurement criteria

Table 10-7 provides consideration of all controls considered that are either adopted or not adopted for improved capability for containment and recovery.

Table 10-7 Controls considered for containment and recovery strategy

All controls considered	Benefit	Feasibility	Adopted
Incident specific NEBA.	NEBA completed prior to conducting containment and recovery activities can help to inform response and aid decision making.	The NEBA assessment can be implemented with minimal additional resources required, and with no additional safety risks. It is feasible to conduct this as a control to assist with response strategy selection.	Adopted **(OPEP11-CM01)**
Containment and recovery operations undertaken at night.	Containment and recovery operations undertaken at night could shorten response duration.	Containment and recovery activities undertaken at night may mean it is difficult to monitor the boom to monitor for trapped fauna, and to ensure trapped fauna are released as soon as practicable. Response during the night also introduces significant safety risks (e.g. injury) to personnel.	Not adopted
Daily records of oil recovered.	Ensure daily containment and recovery operations are recorded (location, estimated amount of oil recovered, estimated amount of water recovered) to monitor effectiveness of operations.	Daily logs and records of containment and recovery operations demonstrate that containment and recovery equipment is deployed safely, effectively and following consideration of environmental conditions.	Adopted **(OPEP11-CM02)**
Exclusion zones	Establishing exclusion zones can prevent further decontamination and reduce safety risks to personnel.	The OPEP requires that exclusion zones are put in place which consider health and safety and environment risks. These exclusion zones are determined in consultation with the State Control Agency. Disruption to other maritime activities may be caused by exclusion zones, however the reduction to potential safety risks makes this a necessary action.	Adopted **(OPEP11-CM03)**
Decanting performed in Commonwealth waters in	Discharge of de-oiled water (decanting) can	MARPOL sets out requirements for discharge of de-oiled water (decanting) to avoid undue environmental impact. Decanting performed in Commonwealth waters in accordance	Adopted **(OPEP11-CM04)**

All controls considered	Benefit	Feasibility	Adopted
accordance with MARPOL requirements.	reduce the volume of waste produced.	*Prevention of Pollution from Ships) Act 1983* (Cth), Section 9, subsection (2) (e). Decanting must be approved by a prescribed officer (the AMSA Local Manager; the Manager Response Planning; the Executive Director, Response; and the Executive Director, Operations). This is a regulatory requirement and therefore must be implemented.	
Incident specific waste management plan.	*Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011) can be used to develop incident specific waste management plans.	An incident specific waste management plan is a viable operational control which can be implemented in the event of a spill. Minimal resources are required to implement this and no additional safety risks are associated with the development of the plan.	Adopted **(OPEP11-CM05)**
Standby dedicated emergency response vessel.	A dedicated standby emergency response vessel may reduce time required to implement containment and recovery activities and increase recovery capacity.	Significant costs are associated with leasing a suitable vessel. Given the high potential costs to the program, implementing this control measure is considered grossly disproportionate, given that the event has an extremely low likelihood of occurrence, and that oil spill modelling has predicted limited opportunity to apply containment and recovery effectively.	Not adopted

EPOs and EPSs for containment and recovery are outlined in Table 10-8.

Table 10-8 EPOs and EPSs for containment and recovery

EPO	Control	EPS	Measurement criteria
OPEP11-EPO01: To recover spilt oil before shoreline or other sensitivity contact.	**OPEP11-CM01:** Incident specific NEBA informs containment and recovery response planning.	**OPEP11-EPS01:** An incident specific NEBA is completed and informs containment and recovery response planning.	• IMT logs confirm NEBA was conducted to assist with response strategy selection. • Incident specific NEBA completed and is kept on file.
	OPEP11-CM02: Containment and recovery effectiveness is assessed via daily records of oil recovered.	**OPEP11-EPS02:** Daily containment and recovery operations are recorded (location, estimated amount of oil recovered, estimated amount of water recovered). See Termination criteria in Table 10-2.	• IMT logs and daily records stating locations, types and volumes of oil recovered.

EPO	Control	EPS	Measurement criteria
	OPEP11-CM03: Exclusion zones	**OPEP11-EPS03:** Exclusion zones are put in place which consider health and safety and environment risks. These exclusion zones are determined in consultation with the relevant statutory agency.	• IMT logs demonstrating decisions regarding exclusion zones. • Records stating exclusion zones.
	OPEP11-CM04: Decanting performed in Commonwealth waters is undertaken in accordance with MARPOL requirements under MARPOL Annex I – Regulation 4.3 and Section 9.	**OPEP11-EPS04:** AMSA permit for discharge of decanted water is in place before commencing this activity. See *NP-GUI-016 Maritime Discharges of Oil and Oily Water during Emergency and Response Situations.*	• Valid approval from a prescribed officer in place from AMSA.
	OPEP11-CM05: Incident specific waste management plan	**OPEP11-EPS05:** An incident specific waste management plan is developed to ensure management of waste.	• IMT logs demonstrate waste management plan being implemented. • Incident action plan demonstrates waste management plan being implemented. • Incident specific waste management plan is developed and kept on file.

10.4 Environmental impact assessment

Resources for offshore containment and recovery activities will include offshore vessels that will be mobilised from established ports. Nearshore containment and recovery activities are likely to be undertaken from smaller vessels that may be launched from a number of different locations along the coastline. Access to vessels, equipment and transit to the affected areas may disturb local port operations, recreational activities, fauna and sensitive habitats.

The collection, handling and disposal of hydrocarbons introduces potential environmental impacts from the oily waste generated. The oily waste must be handled and disposed of correctly to prevent secondary contamination from contaminated equipment and decanting activities.

Environmental aspects associated with implementing containment and recovery were identified and evaluated in Table 10-9. Implementing this response option introduces new environmental aspects which are not assessed within the Producing and Non-Producing EPs:

- Physical presence - Nearshore and shoreline users (socioeconomic).
- Physical presence - Interaction with fauna and flora
- Waste generation and secondary contamination.

An impact assessment for each environmental aspect has been undertaken, and additional controls have been identified to minimise the environmental impacts associated with containment and recovery which are detailed within the ALARP assessment. Further assessment of the acceptability of these impacts in an oil spill response context and controls identified for minimising the environmental impact of containment and recovery activities are described below.

Table 10-9 Environmental aspects associated with implementing containment and recovery

Affected receptor	Impact assessment	Consequence Level
Socioeconomic (fisheries, tourism, culture)	Recreational fishing is generally concentrated inside the Gippsland Lakes or along the Ninety Mile Beach coastline. Additional vessels and personnel in the area may cause disruption to fishing activities. The movement of personnel vessels and equipment has the potential to disturb or damage cultural heritage artefacts or sites. The mobilisation of equipment and personnel for containment and recovery operations will be localised. The oil spill TRPs (TRPs) detail socioeconomic sensitives for each location. The response activities will be in accordance with State response agency directions and Esso will provide the incident specific NEBA, TRPs and shoreline protections plan and support where requested. The additional presence of vessels and personnel will only be short-term and in localised areas for the response period. Once the response has been stood down, nearshore socioeconomic activities can resume without further disruption, therefore the consequence of the impacts of the response activity is considered to be **Consequence Level III**.	III
Water quality	Containment and recovery operations will generate large volumes of oily water. The recovered water may be decanted and returned to the sea with approval from AMSA and/or DTP. This frees up valuable storage capacity in the temporary storage device which would otherwise have to be emptied before response operations can continue. The discharge of the oil and water mix may lead to localised, short-term impacts through the release of water with very small quantities of oil residue. The consequence to the marine environment is considered inconsequential as the decanted water will have removed much larger volumes of the oil in the marine environment than was present from the spill incident and therefore has a net environmental benefit.	III
Physical presence - Interaction with fauna and flora	The sandy beaches, mangroves and salt marshes in the Bass Strait provide potential foraging and breeding habitat for numerous bird species and benthic communities. The flora and fauna within these habitats have the potential to be trampled due to increased numbers of personnel accessing sites. However, containment and recovery response activities primarily occur in the ocean with exception of laydown areas and waste and equipment storage. Response activities should avoid sensitive areas unless they have been selected specifically for clean-up or OWR activities. Exclusion zones can be set up to protect these areas and	IV

Affected receptor	Impact assessment	Consequence Level
	minimise environmental impacts. Laydown areas will use existing road and paths for access to reduce environmental impacts associated with increased foot and vehicle traffic. Shoreline impacts are expected to be inconsequential and have no adverse effects.	
	Containment and recovery operations utilise offshore booms which sit on the water's surface, therefore fauna capable of diving, such as cetaceans and pinnipeds can avoid contact. Impacts to species that inhabit the water column such as sharks and fish are not expected. The additional presence of vessels, equipment and personnel will only be short-term and in localised area for the response period, therefore, the consequence of the impacts of the response activity is considered to be **Consequence Level III**.	III
Physical presence - Sensitive and protected areas and parks	Presence of containment and recovery activities in sensitive areas may adversely affect important natural behaviours of biota, e.g. nesting of shorebirds and seabirds, or pinnipeds. Lay down areas for containment and recovery activities will use existing roads and paths for access, therefore, the impacts to sensitive and protected areas and parks are expected to be inconsequential and have no adverse effects.	IV
Waste management and secondary contamination	The Esso *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011), details requirement for selecting waste management options, and equipment and storage to be utilised to prevent secondary contamination. The TRP - shoreline protection and clean-up and site specific TRP include information on staging areas and access points. The location of waste storage will be within the specified exclusion zone. The generation of waste will be short-term and is localised to the response area, for the duration of the response. Therefore, the consequence of the potential impacts from the response activity is considered to be **Consequence Level III**.	III

10.5 Demonstration of ALARP

The rationale for the ALARP demonstration for containment and recovery can be seen in Table 10-10.

Table 10-10 ALARP Decision Context justification

ALARP Decision Context and justification	Decision Context A Containment and recovery activities are a standard response strategy for hydrocarbon spills to reduce hydrocarbons in the marine environment and minimise impacts to shorelines and marine sensitivities. There is a good understanding of potential impacts from containment and recovery. This response option would be supported by an incident specific NEBA assessment. All activities undertaken in State waters will be led by the State Control Agency.

	Good practice controls have been identified to ensure environmental impacts associated with mobilising this response are reduced to ALARP, these controls will be implemented in a response scenario and have been included in the OPEP.

Containment and recovery response strategies have been demonstrated to be ALARP.

10.6 Demonstration of acceptability

Table 10-11 outlines the demonstration of acceptability of environmental impact from containment and recovery.

Table 10-11 Acceptability of environmental impacts from containment and recovery

Factor	Demonstration criteria	Criteria met	Rationale
Principles of ESD	a) The integration principle - decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations.	✓	Not inconsistent. Planning for Bass Strait producing and non-producing activities and decision making as to the most appropriate strategies and methods has incorporated contemplation of both short and long term economic, environmental, social and equitable considerations.
	b) The precautionary principle - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	✓	Not inconsistent. All oil spill response activities are implemented with the aim of reducing the overall environmental impact from a spill incident. Source control activities are implemented to stop the flow of oil and minimise safety risks and environmental damage. Impacts associated with source control are offset by the broader positive effects of reducing the impact of a spill incident on coastal and marine sensitivities and socio-economic receptors (e.g. fishing, tourism).
	c) The intergenerational principle - the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.	✓	Not inconsistent. The assessment undertaken has concluded that environmental impacts will be short term in nature. Any impacts as a result of implementation of source control activities to respond to an unplanned release of fuel will not impact the health, diversity and productivity of the environment in such a manner that future generations may be impacted.
	d) The biodiversity principle - the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making.	✓	Not inconsistent. All aspects related to source control activities have been detailed in Producing and Non-Producing EPs sections 6 and 7 and have been evaluated as having the potential to result in a **Consequence Level III** or lower (IV). Controls, EPOs, EPSs and measurement criteria are also

Factor	Demonstration criteria	Criteria met	Rationale
			described in Sections 6 and 7 of the Producing and Non-Producing EPs. The potential impact associated with the implementation of this emergency response option is limited to a localised short-term impact, which is not considered as having the potential to affect biological diversity and ecological integrity.
Legislative and other requirements	Legislative and other requirements have been identified and met.	✓	Activities will comply with: • OPGGS Act • *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) • Marine Order 96 (Marine pollution prevention – sewage) 2018 • Marine Order 95 (Marine pollution prevention - garbage) 2018 • *Pollution of Waters by Oils and Noxious Substances Act 1986* (Cth) (Part 2, Section 8).
Internal context	Consistent with Esso's Environment Policy.	✓	Proposed control measures are consistent with Esso's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist"*.
	Meets OIMS objectives.	✓	Proposed control measures meet: • OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements • OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors • OIMS System 10-2 objective to ensure effective response to emergencies and business disruptions that threaten the safety, security and health of the public, contractors and employees, the environment, asset integrity, and critical business operations.
External context	Stakeholder concerns have been considered/addressed through the consultation process.	✓	No specific stakeholder concerns have been raised.

11 Dispersant application

11.1 Overview

Surface application of chemical dispersants is considered to be a secondary response strategy for the Bass Strait region, as limited opportunities to implement this strategy are anticipated. It is recommended to be retained as a response option in case larger volumes of crude oil are observed, however field testing must be carried out prior to implementation. Refer to Section 11.1.1 for reasoning.

Dispersants enhance the rate and extent of natural dispersion in an oil spill event. The surfactants in dispersants allow wave energy to rapidly break oil slicks into small oil droplets. These droplets are pushed into the upper water column by wave action and maintained there by turbulence. The dispersed oil droplets are much more available to naturally occurring, hydrocarbon-degrading microorganisms.

The principal ecological benefit of dispersant use is to keep oil from entering near-shore bays and estuaries, or stranding on shorelines, thereby protecting sensitive coastal habitats and the species that inhabit them. In previous oil spill incidents elsewhere in the world, it is the species in the areas near or onshore that have been most affected by an oil spill event (National Academies of Sciences, 2019).

The mixture of solvents and surfactants that comprise typical commercial dispersants (Place, 2010) (Popovech, 2017) contain compounds with different physicochemical properties and therefore potential fates in the environment. Once introduced to open ocean waters, dispersant mixtures will be quickly diluted and subjected to degradation processes including biodegradation and photodegradation (National Academies of Sciences, 2019).

For maximum effectiveness, dispersants should be applied as close to the source and as soon as possible to avoid losing the window of opportunity. Outside of this, the oil may weather and potentially become too viscous, although this can vary depending on specific oil properties and environmental conditions. Dispersant can be applied either subsea at the source of an ongoing subsurface spill (e.g. loss of well control) or directly to any surface slicks from aircraft or vessels (IPIECA-IOGP, 2015c)

Dispersants may be applied in a broad range of weather conditions including high winds and rough seas that may not be suitable for other strategies, e.g. mechanical containment and recovery. Dispersants are mainly amenable to certain oil types and are generally not considered to be suitable for Group 1 and lighter Group 2 oils, including diesel (IPIECA-IOGP, 2015c). The oil type and the metocean conditions (e.g. temperature, wave height, swell) will dictate the effectiveness of dispersant application. Dispersant efficiency testing and test sprays should be conducted to ensure suitability with the oil type.

The main objectives of dispersant application are to:

- reduce environmental impacts
- rapidly reduce oil toxicity through dilution
- enhance the natural dispersion processes
- enhance natural microbial biodegradation
- minimise impacts to shoreline habitats
- reduce the requirement for shoreline clean-up
- reduce concentrations of volatile organic compounds at the sea surface.

The decision whether or not to use dispersants will be made after considering the potential effects of dispersed oil versus undispersed oil, i.e. after employing a NEBA process which provides a methodology for comparing the base case of no spill response to those where individual response tools (mechanical containment and recovery, subsea and surface dispersants) are considered (IPIECA-IOGP, 2015c). Dispersants will only be considered for use at specific locations/times where testing shows oil to be amenable and decision is supported by the spill specific conditions.

There are several actionable thresholds that must be met in order to use dispersant. Due to the dispersion within the water column, it is best practise not to spray dispersant in water depths less than 10 - 20m, and generally a distance of at least 1nm from shore (IPIECA-IOGP, 2015c). It is recommended that for use of dispersant to be efficient, it should only be applied to surface thicknesses of $50g/m^2$ or greater. Dispersant should not be applied to slicks classified as silver sheen and metallic in the BAOAC and should instead be applied to areas classified as discontinuous and continuous true only (EMSA, 2009). For effective surface dispersant application, IPIECA-IOGP (IPIECA-IOGP, 2015c) recommends that the thickest areas of oil should be targeted.

In Australia, dispersant application is only accepted for:

- Commonwealth waters
- >10m water depth
- outside Australian marine parks.

Dispersants are not to be used in State waters without approval of the Control Agency IMT. Test sprays must be conducted and monitoring undertaken in line with the SMART protocol (National Oceanic and Atmospheric Administration, 2006) to determine effectiveness of dispersant on the spill. This is in line with the *Joint Industry Operational and Scientific Monitoring Plan Framework* (AEP, 2021). If negative results are observed on any of the test sprays, dispersant operations are not to take place or are to cease immediately, and all results reported to the IMT.

11.1.1 Modelling predictions

Surface application of chemical dispersants is considered to be a secondary response strategy for the Bass Strait region, as the oil spill modelling predicted limited opportunities to implement this strategy. It is recommended to be retained as a response option in case suitable thicknesses of crude oil are observed on the sea surface, however field testing must be carried out prior to implementation. This is due to the following reasons:

- Spill modelling predicted volumes of crude oil to be ≤50g/m^2, which is below the threshold considered minimum for efficient surface dispersant application (RPS, 2025). In addition, for a crude Group 4 hydrocarbon (refer to Section 2.1.5), dispersant application is generally not recommended due to it being a heavier oil which tend not to respond to dispersant application. However, some heavier oils can be amenable to dispersant, and further field testing should be carried out to test for effectiveness prior to use of dispersant.
- For condensate, the only two scenarios where floating oil was predicted at ≥50g/m^2 was in Scenario 2 (144,054m^3 surface release of Kipper condensate over 98 days) and Scenario 7 (1123 m^3 subsea release of Kipper condensate over 1 hour) (RPS, 2025). Despite meeting the criteria, both oil types are Group 1 hydrocarbons (refer to Section 2.1.5), and surface dispersant application would not generally be recommended as a strategy, as both Kipper and Barracouta condensate are likely to naturally evaporate and disperse readily. Application of dispersant to condensate is also likely to increase toxicity in the water column and could also affect or interrupt the natural dispersion processes.
- Light marine oil was modelled in the RPS vessel activities report as MDO, as a Group 2 hydrocarbon (RPS, 2019). Due to its composition, MDO is likely to naturally evaporate and disperse readily (IPIECA-IOGP, 2013a), and therefore dispersant application would not generally be recommended as a strategy. Application of dispersant to light marine oil is also likely to increase toxicity in the water column and could also affect or interrupt the natural dispersion processes.

11.1.2 Aerial surface application

Aerial application allows wide coverage for treatment of large volumes of oil, requiring aircraft to be fitted with dispersant spraying equipment. For best effectiveness, aerial dispersant should be administered at steady airspeeds (150kn) and low altitudes, generally 100 – 150ft above the sea level. Aerial platforms include those available through the fixed wing aerial contract via AMOSC, with an additional dispersant aircraft platform available through OSRL. The advantages and disadvantages of aerial application of chemical dispersant as a response strategy are shown in Table 11-1.

Table 11-1 Advantages and disadvantages of aerial chemical dispersant application response strategy

Advantages	Disadvantages
Minimal human resourcing compared to other response strategies.	Limited timeframe for dispersant application.
Enables enhanced biodegradation.	Operations limited to appropriate weather conditions (e.g. visibility and winds), daylight hours, and sufficient turbulence (from waves) to mix the dispersant into the oil.

Advantages	Disadvantages
Ability to spray large areas in a timely manner through the use of aircraft.	Potentially constrained by distance i.e. aircraft will have a maximum distance that can be travelled before refuelling required.
Reduces hydrocarbon exposure to shoreline environments.	Efficiency may vary depending on oil and dispersant type. Dispersant efficiency testing should be carried out prior to spraying.
	Cannot be sprayed in areas of <10m depth, or within National Parks or State waters without prior approval.

11.1.3 *Vessel surface application*

Vessels can be fitted with dispersant spraying equipment for surface application. For best effectiveness the dispersant should be applied to the thickest concentrations of oil, via spray-arm systems or specialised dispersant spraying equipment. The advantages and disadvantages of vessel application of chemical dispersant as a response strategy are shown in Table 11-2.

Table 11-2 Advantages and disadvantages of vessel-applied chemical dispersant as a response strategy

Advantages	Disadvantages
Can accurately target the thickest parts of the slick.	Difficultly in locating the slicks without aerial support.
Rapid deployment of equipment.	Potential constraints in volume of dispersant that can be stored on board.
Enables enhanced biodegradation.	Efficiency may vary depending on oil and dispersant type. Dispersant efficiency testing should be carried out prior to spraying.
Wash created by vessel can assist with mixing process.	Cannot be sprayed in areas of <10m depth, or within national parks or State waters without prior approval.
Reduces hydrocarbon exposure to shoreline environments.	-

11.1.4 *Subsea dispersant injection*

Subsea dispersant injection is the process of injecting dispersants directly into the stream of oil that is leaving the well, ideally before the oil leaves the wellhead. The process allows the dispersant to come into contact with a much greater proportion of the oil and uses the turbulent jet effect of the force of the exiting oil to mix the dispersant effectively. Subsea dispersant injection operations can take place continuously and are effective in ongoing spill scenarios e.g. well blow outs. Subsea dispersant injection can be operated continuously by offshore vessels, which can locate themselves offset from the position of the well release or by using the Subsea first response toolkit located in Perth. However, following the abandonment of Seahorse, Tarwhine, and Blackback subsea facilities, there are no subsea oil wells producing in the Gippsland region. Therefore, any spills from a loss of well control are assumed to occur at surface, and therefore Subsea dispersant injection is not a relevant strategy within the Bass Strait.

11.1.5 *Dispersant types available to Esso in an oil spill incident*

Since the 2010 Deepwater Horizon (Macondo) spill response, the petroleum industry has invested significantly in the purchase of the most studied, modern products (Dasic Slickgone NS, Finasol® OSR 52, Corexit® EC9500A) and their placement in strategic global locations to facilitate rapid response in an event where dispersants represent a viable response option (National Academies of Sciences, 2019). As a result of this, industry continues to work toward maintaining/reinstating their status as products approved for possible use.

Several types of dispersants are available to Esso and are proposed for use during an oil spill incident. A summary of each is given in Table 11-3.

11.1.6 Dispersant testing

Esso undertook dispersant efficacy testing on five Bass Strait crudes against two of the available dispersants (Dasic Slickgone NS and COREXIT 9500). Testing was also conducted on a third dispersant COREXIT 9527, although this is no longer available for use as it is not accepted by AMSA on the National Plan. Refer to Appendix E for more details.

The testing was carried out on fresh crude, 12-hour weathered, 24-hour weathered, and 48-hour weathered under Bass Strait summer and winter conditions. Each dispersant was tested at an application rate of 20:1 (oil: dispersant). A summary of the results is provided in Appendix E, and the crudes tested that are available to Esso can be seen in Table 11-3. Key findings from the dispersant efficacy testing include:

- testing shows that dispersant is highly effective on most types of fresh oil, but not all crudes tested are amenable to dispersant
- non-spreading oils are considered to be non-dispersible
- effectiveness of dispersant decreases significantly on weathered oils
- once pour point of the oil is above temperature of the seawater, the dispersibility rapidly drops off
- dispersibility of the oil generally increases at higher temperatures.

A summary of the dispersant stock available to Esso in the event of a spill and it's testing status is highlighted in Table 11-3.

Table 11-3 Summary of dispersant stock available to Esso

Dispersant	Details	Stockpiled	AMSA oil spill control agent accepted	Dispersant tested on crude
Dasic Slickgone NS	Slickgone is widely used in the offshore industry worldwide and meets the requirements of the United Kingdom, French, Norwegian and Australian dispersant protocols. Extensive field trials in the United Kingdom indicate that an effective treatment rate for dispersants is approximately 1 part dispersant to 20 - 30 parts of oil and can be effective when applied from aircraft, vessels and directly on shorelines.	AMOSC, AMSA, OSRL	✓	✓** ✓***
Dasic Slickgone EW	Slickgone EW is the latest addition to the Dasic international product range and is exceptionally efficient on a broad spectrum of oils. It is also effective on water-in-oil emulsions (mousses) and will even delay the formation of such emulsions if applied early enough. It is highly effective at emulsifying crude oils, fuel oils and water-in-oil emulsions even at low temperatures, producing oil droplets minute enough to be retained beneath the sea surface where they are rapidly diluted by subsurface mixing and are eventually biodegraded by micro-organisms.	AMSA	✓	
Total Finasol OSR52	Finasol OSR52 provides a rapid and effective breakdown of hydrocarbons. It was the first product on the market to comply with all three major international regulations; Environmental Protection Agency, Marine Mammal Observers,	OSRL	✓	

Dispersant	Details	Stockpiled	AMSA oil spill control agent accepted	Dispersant tested on crude
	MMO and the Centre of Documentation, Research and Experimentation. It can be applied either neatly or at 10% by aircraft, boats or by handheld sprayers with backpack spray units.			
Nalco Corexit 9500A	COREXIT EC9500A contains an improved oleophilic solvent delivery system than that used in earlier formulations of Corexit. Aircraft provide the most rapid method of applying dispersants to an oil spill for aerial spraying. Corexit is a solvent-based concentrate dispersants, which may either be applied undiluted (neat) or sprayed in a stream of seawater. COREXIT 9500 can be used during early stages of a response and may be ~~is~~ more effective on viscous, emulsified, and weathered spills than alternative options.	Esso, AMOSC OSRL	✓	✓ **

**2019 Crudes tested: Snapper, Moonfish, Flounder, West Kingfish and Halibut

*** 2012 Crudes tested: Tuna, Halibut and West Kingfish

11.1.7 Acceptance of dispersant application

11.1.7.1 Australian Maritime Safety Authority

An oil spill control agent is defined as a chemical, or any other substance, used for removing, dispersing, or otherwise cleaning up oil or any residual products. The AMSA have products on the oil spill control agent register which are considered to have met the requirements of acceptable practice for the National Plan.

All existing stocks of previously accepted oil spill control agents held within the National Plan (AMSA and AMOSC) inventories, as of 1 January 2012, remain acceptable for National Plan use until used or disposed of. They are listed in the oil spill control agent register as transitional oil spill control agents and almost exclusively comprise the AMSA, AMOSC and Esso's pre-2012 stockpiles of dispersants. For more information, see the Register of Oil Spill Control Agents for Maritime Response Use.

11.1.7.2 National Offshore Petroleum Safety and Environmental Management Authority

The EP submission process provides the mechanism for Esso to gain acceptance for the use of location, activity or OPEP specific oil spill dispersant products and deployment strategies (e.g. surface and/or subsea application) prior to any incidents in Commonwealth waters. NOPSEMA's assessment of the OPEP prior to a petroleum activity commencing provides preapproval of dispersant use, where appropriate, and where it avoids any delay which might otherwise limit the window of opportunity available for an effective dispersant strategy (NOPSEMA, 2024).

Any dispersant use in response to a pollution incident from an offshore petroleum activity must be carried out in accordance with an accepted EP and no additional Commonwealth approvals are required to implement response arrangements.

11.1.7.3 State waters

Any dispersant application within State waters (<3nm) must be approved by the State Control Agency prior to use. The process will require consultation with and written consent from the relevant State Control Agency prior to any dispersant being applied to State waters.

11.1.8 Dispersant toxicity

Modern dispersant products (e.g., Dasic Slickgone NS, Finasol® OSR 52, Corexit® EC9500A) are a mixture of solvents and surface-active agents (surfactants) with different physicochemical properties and therefore potential fates in the environment. Once released into the aquatic environment, dispersants are subject to rapid dilution, dissolution, biodegradation, and photodegradation processes (National Academies of Sciences, 2019). Consequently, there is a brief time window in which marine organisms will be subject to the full toxicity of the dispersant and dispersed oil.

When a dispersant is introduced at depth by subsea injection, dispersant components will differentially dilute and dissolve, with some being retained at depth. In this situation, biota could be exposed to dilute concentrations of the more persistent and water-soluble dispersant components, such as the anionic surfactant di (2-ethylhexyl) sodium sulfosuccinate (DOSS). The US Environmental Protection Agency benchmark for the protection of aquatic life is 40μg/L. A study conducted by the Operational Science Advisory Team following the Macondo spill investigated the footprint of Corexit at sea by measuring the concentrations of DOSS. It was found that DOSS was more persistent at depth however no dispersant water quality exceedances were measured in the Operational Science Advisory Team program (OSAT, 2011) and only one sample was found that exceeded the US Environmental Protection Agency guideline for aquatic organisms (Gray, 2014). Both DOSS and the solvent used in Corexit (dipropylene glycol butyl ether) are expected to rapidly degrade following application at the cool, shallow Gippsland waters, as they are known to rapidly degrade on exposure to sunlight (Gray, 2014) (Glover, 2014), and Corexit has been shown to be microbially degraded at 5°C and 20°C (Campo, 2013).

The current protocols for registering an oil spill control agent for use in Australia (described in detail by AMSA (AMSA, 2012b)) use NATA-accredited standardised toxicity tests on a variety of taxa. These tests include lethal and sub-lethal endpoints and to be registered in Australia, the LC50 values must be greater than 10mg/L for the tested fish larvae and crustaceans. This is considered is considered slightly toxic by the US Environmental Protection Agency (Hemmer, 2011).

Dispersants currently used in the industry are less toxic than oil (EMSA, 2009) and recent studies have found that Corexit 9500 is not more acutely toxic in standardised tests than common household cleaning products (Word, 2014). All dispersants proposed to be used by Esso in the event of an incident are accepted on to the National Plan Oil Spill Control Agent register, meaning they meet toxicology requirements for use.

CSIRO also noted that modern dispersants are much less toxic than spilled oil (Hook & Lee, 2015) (AMSA, 2015a). However, their use can increase localised oil toxicity, but this is very short-lived due to the dilution effects and will result in much lower exposure and dosage than without dispersant use.

In laboratory experiments, dispersant components (including the solvents and surfactants) degrade rapidly, within hours to days. In field conditions, the few studies on the effects of dilution on dispersant fate and transport have shown that concentrations of dispersants reach a maximum of 5 - 13ppm after surface applications and generally decrease to less than 1ppm within minutes to hours (National Academies of Sciences, 2019).

Products available today are low in toxicity and do not increase the toxicity of the dispersed oil because they are present in the water column at very low concentrations ((Lessard, 2000); (IPIECA-IOGP, 2015c)). The toxicities of dispersants are usually lower than those of the soluble fractions of oils and this, together with the lower concentrations of dispersant in the dispersed oil, indicates that the toxicity of dispersed oil is predominantly due to the toxic components of the oil, and not the dispersant (NRC, 2005).

11.1.9 Increase in dispersed oil in the water column

The application of surface dispersants will increase the amount of oil that is entrained and dissolved in the water column, reducing exposure of coastal ecosystems to floating weathered oil, as well as reducing the risk of exposure of seabird and marine mammal populations to the floating oil (Bock, 2018) (French-McCay D. C., 2019) (NRC, 2005)). It also has the potential to reduce contamination of sensitive intertidal habitats such as mangroves, coral reefs, salt marshes and sandy shores (recreational and tourist areas) through the acceleration of dispersion offshore and subsequent reduction in potential shoreline impacts. However, in open ocean environments, the processes involved in dispersion will rapidly dilute the oil droplets and the soluble components of the oil (NRC, 2005). In fact, in deep waters, dispersants are thought to have minimal ecotoxicological effects because of dilution (NRC, 2005).

The application of surface dispersants may result in a greater risk, in that water column and subtidal habitats could be exposed to elevated concentrations of dispersed hydrocarbons. Surface dispersant application is usually restricted to greater than 3nm from shorelines and in water depths greater than 10m. Maximum dispersed oil concentrations could reach 100 - 200ppm in the top 10m initially, but it is expected to decrease to 1ppm or less within 5 - 10 hours (Lessard, 2000).

A negative effect of subsurface dispersant injection is that the surfactants increase the bioavailability of oil components in the water column and more oil may remain at depth, potentially increasing the toxicity risk to deep-water fauna although dilution will reduce concentrations below toxicity thresholds rapidly (French-McCay D. C., 2019).

Similarly, there is a potential for exposure of planktonic, pelagic, demersal and benthic organisms to increased levels of dispersed or dissolved oil components, although dilution is expected to be a significant factor (Hook & Lee, 2015).

11.1.10 Strategy summary - Chemical dispersant

Dispersant can potentially be applied to crude oil spills using, aircraft and/or vessel platforms.

Relevant EPOs and EPSs for surface dispersant application are provided in Section 11.3.5.

Table 11-4 provides the overall chemical dispersant response strategy objective, critical outputs, critical IMT tasks, and termination criteria.

Table 11-4 Dispersant application strategy objectives, critical outputs, critical IMT tasks, and termination criteria

Dispersant operations	
Response objective	To reduce consequences to surface and shoreline values and sensitivities. To increase the bioavailability of oil for microbial breakdown.
Critical outputs	Level 1 spills: • based from BBMT; 1 vessel-based dispersant strike team • daily dispersant spray capacity will be based on amount spilled. Levels 2 and 3 spills (surface): • based from the BBMT; 1 vessel-based dispersant strike team • based from the Bairnsdale airfield; up to three air tractor aircraft (AT502 & AT802) flying multiple daily sorties to spray oil located in Commonwealth waters • additional resources – dependent on observations of dispersant effectiveness and additional need determined by the IMT at the time • global dispersant stockpiles from Singapore may be air freighted to Australia and shifted to the operating airfields.
Planning section instructions	The planning section – environment unit in particular – needs to assess on a daily basis that dispersant use will demonstrably achieve net positive outcomes. Chemical dispersants are not recommended for diesel or Group 1 oil spills, and dispersant application is retained only as a secondary strategy. Demonstrable positive outcomes include reduction in large-scale shoreline loadings, particularly on remote coastlines such as the Bass Strait Islands, the wilderness areas of far-east Gippsland, Corner Inlet, and surrounding estuaries, and sensitivity specific positive impacts as demonstrated by the daily NEBA. Dispersants are only to be used in Commonwealth waters, where water depths (>10m) and currents will encourage mixing and dispersion. Dispersants are not to be used in State waters without approval of the Control Agency IMT. The State must be notified if dispersants used offshore have the potential to enter State waters. Critical daily tasking: • establish through a daily NEBA the ongoing benefit of dispersant spraying

Dispersant operations	
	• ensure that OSMP is in place, with data being collated and sent back to the Environment Unit Lead and IMT Situation Unit • ensure daily dispersant operations are recorded (types, volumes, and locations) • predict future dispersant consumption/burn rates across all delivery means • the planning section needs to continuously monitor dispersant operations and scale them up or down to the number of daily sorties required to provide 100% spray coverage of slightly weathered (24 hours) crude oil. Critical daily tasking **only** in the event of an incident requiring fixed wing aerial dispersant application: • develop incident specific dispersant operations plans based on the *Fixed Wing Aerial Dispersant Operational Plan FWADOps Plan* (AMOSC, 2024b) *for Oil Spills in Bass Strait plan* • assist operations to draft daily ICS 204 operations orders used by the aviation branch and follow the *Fixed Wing Aerial Dispersant Operational Plan FWADOps Plan* (AMOSC, 2024b) for the deployment of the fixed wing aerial dispersant capability. Dispersant selection will preference: • dispersants listed on the AMSA oil spill control agents register • those with highest efficacy testing against Moonfish crude. Refer to 2019 Dispersant Testing Report for details of laboratory analysis of a range of dispersants on Gippsland crude oils. A summary of the results is provided in Table E-1. All data gathered through the OSMP in relation to dispersant operations are to be captured and displayed in the common operating picture (Esso GIS) so that all members of the IMT have situational awareness.
Operations section instructions	The operations section, marine, aviation, and Source Control Branch Directors will task assets under their command to undertake daily dispersant operations as a part of the execution of the Incident Action Plan developed the previous day. Aviation operations will be split between: • Bairnsdale (AMSA/National Plan - provided small air tractor aircraft and attack aircraft) • Longford heliport. Operational planning needs to assert control around the two distinct aircraft types. Safety planning to include separate, dedicated search and rescue capability. Vessel spraying operations will come out of BBMT/Lakes Entrance on 3 to 4 day swings, dependent on deck space for dispersant and waste. Resupply will occur at these locations. Only in the event of a scenario requiring aerial dispersant application, operational planning for aerial surface application will be based on the *Fixed Wing Aerial Dispersant Operational Plan* (AMOSC, 2024b). Critical daily tasking: All spills: • execute the Incident Action Plan for the current operational period • liaise with the Planning Section Chief to ensure that field tasking (ICS 204) is drafted and used for dispersant operations. Maintain records of dispersant application including quantities, types, and locations of spraying. Refer to Appendix A: Templates and forms for draft ICS 204

Dispersant operations	
	• direct-vessel-based dispersant operations. Spill Levels 2 and above (in addition to the above): • operations are to be directed to the thickest part of the slick, to fresh oil • de-confliction of vessel-based dispersant spraying – simultaneous operations planning needs to be part of the daily tasking • vessel assigned for the OSMP water sampling/monitoring activities. Critical daily tasking **only** in the event of an incident requiring fixed wing aerial dispersant application: • de-confliction of aerial-based dispersant spraying – simultaneous operations planning needs to be part of the daily tasking.
Logistics section instructions	The logistics section is to activate contracts and provide ongoing services and supply (Esso resources and/or from third parties) in support of the execution of this strategy. This is focused on aerial operations from Essendon and Bairnsdale and vessels from BBMT and Lakes Entrance. For Level 2 and 3 spills, the key tasks are to: • ensure internal (Esso-owned stockpiles) dispersants are moved to the marine operational points • ensure AMOSC and National Plan stockpiles of dispersant are moved to marine operational points • if needed, ensure activation of OSRL for transfer by air of additional dispersant to Australia. Critical daily tasking: • monitoring dispersant rate of use • sustaining marine operations with contractors and third parties to ensure that operations can continue: - operational bases - services and supply for operations - anticipate future needs of the operations. Critical daily tasking **only** in the event of an incident requiring fixed wing aerial dispersant application: • if needed, ensure correct activation with AMOSC of the AMSA fixed wing aerial dispersant spraying contract – aircraft is to move to Bairnsdale airfield for ongoing operations • ensure internal (Esso-owned stockpiles) dispersants are moved to the aerial operational points • if needed, ensure activation of OSRL for large dispersant aircraft to Australia.
Termination criteria	Dispersant operations will cease based on any of the below triggers: • NEBA determines that dispersant operations no longer provide demonstrable environmental benefits • oil is too weathered for effective operations • agreement with relevant Jurisdictional Authorities to terminate is reached.

11.2 Emergency Response Team/Incident Management Team roles

The individual roles and responsibilities for field personnel (ERT) and/or Esso IMT personnel as applicable for chemical dispersant application (in addition to those described in Section 5), according to the response banding (refer to Section 1.6) are provided in Sections 11.2.1 to 11.2.3. Table 11-5, Note: This strategy is dependent on NEBA outcomes and oil trajectory. This is ONLY to be used in the event of a scenario requiring aerial dispersant application, as modelling conducted by RPS suggests that vessel dispersant strike teams will be sufficient to undertake any required dispersant application.

Table 11-7 and Note: dependant on NEBA, oil type and oil trajectory. This is ONLY to be used in the event of a scenario requiring aerial dispersant application, as modelling conducted by RPS suggests that vessel dispersant strike teams will be sufficient to undertake any required dispersant application.

Table 11-9 detail roles for vessel application, while Table 11-6 and Table 11-8 outline the roles for aerial application.

11.2.1 Level 1 spills - Commonwealth waters, localised impacts only

Table 11-5 Vessel dispersant application strategy - IMT roles for Level 1, Commonwealth waters, localised impacts only

Level 1 spills - Commonwealth waters, localised impacts only **Vessel dispersant operations**			**Completed?**
Establish 1 strike team to undertake dispersant operations			
Logistics Section Chief	Day 1	• Establish BBMT/Lakes Entrance (Bullock Island) as initial marine forward operating base.	
		• Secure vessel for marine operations – if not engaged in other safety critical mission.	
		• Direct vessels to BBMT to load equipment.	
		• Move BBMT offshore vessel based dispersant systems to wharf edge: - 1 x AFEDO spray system - $10m^3$ dispersant.	
		• Request available Esso Core Group recall for duty – vessel-based operations from Day 2.	
		• Load vessel for operations.	
Operations Section Chief	Day 1	• Prepare ICS 204 for dispersant operations: - Refer to draft ICS 204 for operations - Appendix A.	
	Day 2	• Brief teams on the ICS 204.	
		Direct strike team to area of operations: - for dispersant operations, field test must be conducted prior to operational spraying, with positive results reported to the IMT - Planning Section Chief to confirm based on the field dispersant testing move to large scale operational spraying.	

Note: This strategy is dependent on NEBA outcomes and oil trajectory.

11.2.2 *Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts*

Table 11-6 Aviation dispersant application strategy - IMT roles for Level 2 and 3, Commonwealth waters, no predicted shoreline impacts

Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts **Aviation dispersant operations**			**Completed?**
Mobilise Level 2 aviation dispersant operations and dispersant resupply			
Logistics Section Chief	Day 1	• Source domestic dispersant spraying aircraft via AMOSC (AMSA fixed-wing aerial dispersant capability) National Plan - Victorian based aircraft move to Bairnsdale as nominated airfield.	
		• Request re-location of dispersant stockpiles to Bairnsdale from Esso BBMT (10m^3).	
		• Request AMOSC Geelong to move additional dispersant to Bairnsdale airfield.	
Operations Section Chief/Aviation Branch Director	Day 1	• Complete actions per lists in the aerial dispersant operations plan for oil spills in Bass Strait: - first spraying operation – aircraft to fly to Bairnsdale as the nominated airfield - secondary overhead coverage aircraft to be provided by third-party contractor - second and subsequent operations to be undertaken from Bairnsdale airport - second and third aircraft arriving during Day 2 of operation - volume of dispersant used reported to Situation Unit Lead.	
Operations Section Chief/Aviation Branch Director	Day 1	• Prepare and brief on ICS 204 for aerial dispersant operations: - refer to draft ICS 204 for operations - Appendix A - field test spray to be conducted prior to operational spraying, with results reported to the IMT - if any negative results are observed, dispersant operations are to stop immediately, and results reported to the IMT. Observers should be trained in visual observation techniques and familiar with SMART protocols - field test spray to be reported via visual efficacy results from overhead aircraft and on-scene vessels.	
Planning Section Chief/Environment Unit Lead		• Ensure ongoing OSMP deployment of O2.2.	

Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts **Aviation dispersant operations**			**Completed?**
Operations Section Chief/Aviation Branch Director	Day 2	• Prepare and brief on ICS 204 for aerial dispersant operations with additional aircraft.	
		• Update aerial dispersant operations plan for oil spills in Bass Strait with additional aircraft: - refer to attached draft ICS 204 for operations - field test spray to be conducted prior to operational spraying, with results reported to the IMT. Refer to *National Plan Oil Spill Dispersant Effectiveness Field Test Kit (Nat-DET) Operational Guide* (AMSA, 2012a) for more details - if any negative results are observed, dispersant operations are to stop immediately, and results reported to the IMT.	
		• Field test spray to be reported via visual efficacy results from overhead aircraft or on-scene vessels.	
		• Mount ongoing operations.	
Consider the mobilisation of Level 3 dispersant resupply			
Logistics Section Chief	Day 2	• Calculate dispersant burn rate and if it exceeds Australian National stockpiles, request OSRL activation of global dispersant stockpiles. Refer to Appendix D for WCDS resource requirements.	
		• Develop mobilisation plan with OSRL and Chapman Freeborn if needed, to shift dispersant to Australia – freight aircraft operating from Singapore.	

Note: This strategy is dependent on NEBA outcomes and oil trajectory. This is ONLY to be used in the event of a scenario requiring aerial dispersant application, as modelling conducted by RPS (RPS, 2025) suggests that vessel dispersant strike teams will be sufficient to undertake any required dispersant application.

Table 11-7 Vessel dispersant application strategy – IMT roles for Level 2 and 3, Commonwealth waters, no predicted shoreline impacts

Level 2 and 3 spills – Commonwealth waters, no predicted shoreline impacts **Vessel based marine dispersant**			**Completed?**
Establish strike teams able to undertake dispersant operations			
Logistics Section Chief	Day 1	• Establish BBMT as initial marine forward operating base.	
		• Secure vessel for marine operations – if not engaged in other safety critical mission.	

Level 2 and 3 spills – Commonwealth waters, no predicted shoreline impacts **Vessel based marine dispersant**			**Completed?**
		• Direct vessel to BBMT to load equipment.	
		• Move BBMT offshore vessel based dispersant systems to wharf edge: - 1 x AFEDO dispersant spray system - 10m^3 dispersant.	
		• Request available Esso Core Group recall for duty – vessel-based operations from Day 2.	
		• Load vessel for operations.	
Operations Section Chief	Day 1	• Prepare ICS 204 for dispersant operations: - refer to draft ICS 204 for operations - Appendix A.	
	Day 2	• Brief teams on the ICS 204.	
		• Direct strike team to area of operations: - for dispersant operations, field test must be conducted prior to operational spraying, with results reported to the IMT. If any negative results are observed, dispersant operations are to stop immediately, and results reported to the IMT. Observers should be trained in visual observation techniques and should be familiar with SMART protocols - Planning Section Chief to confirm based on the field dispersant testing move to large scale operational spraying.	
Establish marine forward operating base for ongoing large-scale marine operations			
Logistics Section Chief	Day 2	• Nearshore/shoreline vessel support operations.	
		• Demarcate in each location: - oil spill response equipment receipting and laydown areas - office and briefing space.	
Request and contract Level 3 offshore response support – Escalated resourcing			
Logistics Section Chief	Day 2	Shift all Esso oil spill response equipment to BBMT/Lakes Entrance - dispersant spray sets.	
		If escalation required, source more vessels for marine operations.	

Note: This strategy is dependent on NEBA outcomes and oil trajectory.

11.2.3 Level 2 and 3 spills – State waters and shoreline impacts

Table 11-8 Aviation dispersant application strategy - IMT roles for Level 2 and 3, State waters and shoreline impacts

Level 2 and 3 spills –State waters and shoreline impacts Aviation dispersant operations			Completed?
Mobilise Level 2 aviation dispersant operations and dispersant resupply			
Logistics Section Chief	Day 1	• Request re-location of dispersant stockpiles to Bairnsdale from Esso BBMT (10m^3).	
		• Request AMOSC Geelong to move additional dispersant to Bairnsdale airfield.	
		• Source domestic dispersant spraying aircraft via AMOSC (AMSA fixed wing aerial dispersant).	
		• Aircraft to move to Bairnsdale as nominated airfield.	
Operations Section Chief/Aviation Branch Director	Day 1	• Complete actions per lists in the aerial dispersant operations plan for oil spills in Bass Strait: - first spraying operation – aircraft to fly to Bairnsdale as the nominated airfield - secondary overhead coverage aircraft to be provided by third-party contractor - second and subsequent operations to be undertaken from Bairnsdale airport - second and third aircraft arriving during Day 2 of operation.	
		• Establish communications links with AMSA air base manager and dispersant loading operator.	
		• Volume of dispersant used to be reported to Situation Unit Lead.	
Operations Section Chief/Aviation Branch Director	Day 1	• Prepare and brief on ICS 204 for aerial dispersant operations: - refer to attached draft ICS 204 for operations - field test spray to be conducted prior to operational spraying, with results reported to the IMT - if any negative results are observed, dispersant operations are to cease immediately, and results reported to the IMT. Refer to *National Plan Oil Spill Dispersant Effectiveness Field Test Kit (Nat-DET) Operational Guide*https://www.amsa.gov.au/marine-environment/national-plan-maritime-environmental-emergencies/np-gui-013-national-plan-oil (AMSA, 2012a) for more details - field test spray to be reported via visual efficacy results from overhead aircraft and on-scene	

Level 2 and 3 spills –State waters and shoreline impacts Aviation dispersant operations			Completed?
		vessels. Observers should be trained in visual observation techniques and should be familiar with SMART protocols.	
Planning Section Chief/Environment Unit Lead	Day 1/2	• Ensure ongoing OSMP deployment of O2.2.	
Operations Section Chief/Aviation Branch Director	Day 2	• Prepare and brief on ICS 204 for aerial dispersant operations with additional aircraft.	
		• Update aerial dispersant operations plan for oil spills in Bass Strait with additional aircraft: - refer to attached drafted ICS 204 for operations - field test spray to be conducted prior to operational spraying, with results reported to the IMT - if any negative results are observed, dispersant operations are to stop immediately, and results reported to the IMT.	
		• Field test spray to be reported via visual efficacy results from overhead aircraft or on-scene vessels.	
		• Mount on-going operations of dispersant based.	
		• Volume of dispersant used to be reported to Situation Unit Lead.	
For Level 3 crude oil spills only			
Consider Level 3 aviation dispersant resupply			
Logistics Section Chief	Day 2	• Based on dispersant dosage rates per day, predict future 10-day dispersant needs. If AMOSC and Esso forward stockpile reserves are <50m^3, request dispersant via OSRL: - request OSRL activation of global dispersant stockpiles - develop mobilisation plan with OSRL to shift dispersant to Australia utilising freight aircraft operating from Singapore.	

Note: dependant on NEBA, oil type and oil trajectory. This is ONLY to be used in the event of a scenario requiring aerial dispersant application, as modelling conducted by RPS (RPS, 2025) suggests that vessel dispersant strike teams will be sufficient to undertake any required dispersant application.

Table 11-9 Vessel dispersant application strategy – IMT roles for Level 2 and 3, State waters and shoreline impacts

Level 2 and 3 spills –State waters and shoreline impacts **Vessel based marine dispersant**			**Completed?**
Establish strike teams able to undertake dispersant operations			
Logistics Section Chief	Day 1	• Establish BBMT as initial marine forward operating base.	
		• Secure vessel for marine operations – if not engaged in other safety critical mission.	
		• Direct vessel to BBMT to load out equipment.	
		• Move BBMT offshore vessel based dispersant systems to wharf edge: - 1 x AFEDO dispersant spray system - 10m^3 dispersant.	
		• Request available Esso Core Group recall for duty – vessel-based operations from Day 2.	
		• Load out vessel for operations.	
Operations Section Chief	Day 1	Prepare ICS 204 for vessel-based dispersant operations: - refer to Appendix A: Templates and forms draft ICS 204 for operations.	
	Day 2	• Brief teams on the ICS 204.	
		• Direct strike team to area of operations:	
		- for dispersant operations, field tests must be conducted prior to operational spraying, with results reported to the IMT. If negative results are observed, dispersant operations are to stop immediately, and results reported to the IMT. See *National Plan Oil Spill Dispersant Effectiveness Field Test Kit (Nat-DET) Operational Guide* (AMSA, 2012a) for more details. Observers should be trained in visual observation techniques and familiar with SMART protocols.	
		- Report back of OSMP O2.2 to validate dispersant effectiveness.	
		- Planning Section Chief to confirm based on the field dispersant testing move to large scale operational spraying.	
		- Volume of dispersant used to be reported to Situation Unit Lead.	
Establish marine forward operating base for ongoing large-scale marine operations			

Level 2 and 3 spills –State waters and shoreline impacts Vessel based marine dispersant			Completed?
Logistics Section Chief	Day 2	• Establish office and briefing space.	
Request and contract extended offshore response support – Escalated resourcing			
Logistics Section Chief	Day 2	• Shift all Esso oil spill response equipment to BBMT/Lakes Entrance - dispersant spray sets.	
		• Operations and planning to advise how many strike teams are required. Refer to Appendix D for guidance on resource requirements for worst-case scenarios.	
		• If escalation required, source more vessels for marine operations.	

Note: Dependant on NEBA and oil trajectory.

11.3 Response resources

In the Bass Strait region, surface application of chemical dispersants is considered to be a secondary response strategy, as limited opportunities to implement this strategy were observed in the oil spill modelling results. The reasoning behind this is as follows.

11.3.1 Crude oil (Moonfish)

Moonfish crude was selected as a suitable analogue for heavy crude oil that could potentially be encountered during P&A activities. Moonfish crude is classified as a Group 4 oil under ITOPF (2024) guidelines. It has an API gravity of 27.8; a density of 887.0kg/m^3 at 15°C; and a viscosity of 4.5cP at 40°C. Dispersant testing of three dispersant types was carried out in 2019 on Moonfish crude with limited results, as the tests were only conducted on fresh crude. Some heavy crude oils (Group 4 oils) can be amenable to dispersant, and therefore it is noted that field testing <u>must</u> be carried out prior to implementation to test effectiveness.

In Scenarios 3 and 6 of the modelling report, Moonfish crude was modelled for conservative worst-case discharge (RPS, 2025). In Scenario 3, a 1324m^3 surface release of Moonfish crude was modelled over 98 days following a loss of well control incident at the Tuna platform. No floating exposure at either the moderate (≥10g/m^2) or high (≥50g/m^2) threshold was predicted.

In Scenario 6, a 779m^3 surface release of Moonfish crude was modelled over 98 days following a loss of well control incident at the Snapper platform (RPS, 2025). No floating oil at the moderate (≥10g/m^2) or high (≥50g/m^2) threshold was predicted.

As no floating oil was recorded at or above 50g/m^2 for either scenario, no detailed planning can be carried out based on the oil spill modelling results. While the recommended thresholds were not exceeded for efficient dispersant application, it is recommended that dispersant be retained as a response option in case suitable thicknesses of crude oil are observed on the sea surface in the unlikely event of a spill.

11.3.2 Condensate (Kipper condensate and Barracouta condensate)

Kipper condensate is a light, low-viscosity oil with an API gravity of 54.5 and a density of 760.0kg/m^3 at 15°C. It is classified as a Group 1 oil under ITOPF (2024) guidelines, with a density of 760.0kg/m^3 at 15°C. Barracouta condensate is also a light Group 1 oil, with an API gravity of 51.6; a density of 772.3kg/m^3 at 15°C; and a dynamic viscosity of 0.99cP at 15°C.

As both hydrocarbons are Group 1, dispersant application would not generally be recommended as a strategy, as both are likely to naturally evaporate and disperse readily. Application of dispersant to condensate is also likely to increase toxicity in the water column and could also affect or interrupt the natural dispersion processes.

In the oil spill modelling undertaken for the Bass Strait, the only two scenarios where floating oil was observed ≥50g/m^2 was in Scenario 2 and Scenario 7 (RPS, 2025). Scenario 2 was a 144,054m^3 surface release of Kipper condensate over 98 days following a loss of well control incident (RPS, 2025). This was during a plug and abandonment on the well with all perforations open to flow against zero wellhead pressure incident at the Marlin platform. Floating oil of ≥50g/m^2 was observed at a maximum distance of 8.7km from the release point, covering a maximum deterministic sea surface swept area of 18.1km^2 (RPS, 2025).

Scenario 7 was a 1123 m^3 subsea release of Kipper condensate over 1 hour following a pipeline rupture incident at the MLA500 pipeline. Floating oil ≥50g/m^2 threshold travelled a maximum distance of 9km from the source. Despite both scenarios demonstrating floating oil exceeding the minimum threshold for dispersant application, for the reasons listed above, dispersant is not recommended as a response to condensate spills.

11.3.3 Light marine oil

Light marine oil was modelled in the RPS vessel activities report as MDO. MDO is a light-persistent fuel oil used in the maritime industry. It has a density of 829.1kg/m^3, an API of 37.6, and a low pour point (-14°C) (RPS, 2019). The low viscosity (4cP) indicates that this oil will spread quickly when released and will form a thin to low thickness film on the sea surface, increasing the rate of evaporation. MDO is composed of 95% volatiles and semi- to low-volatile organic compounds and 5% persistent compounds. As a Group 2 hydrocarbon, MDO is likely to naturally evaporate and disperse readily (IPIECA-IOGP, 2015b). Dispersant application would not generally be recommended as a strategy, because operations would be inefficient. No floating exposure at the high (≥50g/m^2) threshold was predicted for any of the scenarios.

11.3.4 Response requirements and capability

As highlighted above, there are limited opportunities for the application of dispersant within the Bass Strait, and there are no modelled scenarios which outline dispersant as an appropriate response strategy. It is however recommended that dispersant be retained as a secondary response strategy for the Bass Strait region. While it is not recommended to use dispersant on a condensate spill, it's application may be more amenable when applied to heavy crude. Due to the ≥50g/m^2 threshold not being met for any crude scenarios (RPS, 2025), it is not possible to conduct a detailed resourcing needs assessment based on oil spill modelling results for dispersant application. However, for the purposes of the secondary response capability, it is reasonably assumed that one strike team will provide sufficient resources to complete any required dispersant application activities, with opportunity to scale up the response with additional units if required for the duration of the worst-case scenarios. For resourcing purposes, we have used a vessel application platform to fulfil the single strike team requirements.

The decision to implement surface dispersant as a strategy must be guided and informed by both a detailed NEBA assessment, and field dispersant efficiency tests. See *National Plan Oil Spill Dispersant Effectiveness Field Test Kit (Nat-DET) Operational Guide* (AMSA, 2012a) for more information. If required, dispersant will be sourced from Esso's own stock in addition those available from AMOSC, National Plan stock and OSRL. There is potential to obtain additional stock from mutual aid.

Table 11-10 details both the required resources for implementing a first strike vessel dispersant response team, and the dispersant application capability of Esso. The resources required for a first strike team are for the first 48 hours after a spill occurs. As in the modelling report, there were limited opportunities identified for the application of chemical dispersant for the WCDS, therefore the resources tabulated below apply to both minimum resource requirements and WCDS resource requirement. It should be noted that this is a generic list and may be subject to change depending on the situation. As per the oil spill modelling, there were limited opportunities identified to apply dispersant for the worst-case scenarios, therefore the resources tabulated in Table 11-10 are what would be required to respond to a WCDS spill. If required, aerial dispersant application platforms are an available option.

By comparing the minimum requirements needed for implementing a dispersant application response, to the resources available to Esso, it is clear that the dispersant capability exceeds the resources required to implement a dispersant strategy in an acceptable timeframe. This demonstrates that Esso has the necessary response capabilities to conduct dispersant application in a timely manner.

Table 11-10 Resources required to implement a WCDS strike team compared to the availability for dispersant application (obtained from oil spill response organisations equipment inventories, August 2025)

Equipment type	Required	Capability			
		Organisation	**Type**	**Location/ quantity**	**Estimated mobilisation timeframe**
Dispersant	66.2m^3 dispersant (volume of dispersant required is generally dictated by a ratio of 1:20, dispersant to oil. In Scenario 3, the worst-case volume of crude oil spilt is 1324m^3. Therefore, calculating a ratio of 1:20 results in a 66.2m^3 required volume of dispersant)	Esso	Corexit 9500	BBMT: 30m^3	<6 hrs
		AMOSC*	Slickgone NS	Altona North: 75m^3 Exmouth: 75m^3 Welshpool: 8m^3	Altona North: <12 hours Exmouth: 3 - 7 days Welshpool: 3 - 7 days
			Corexit 9500	Altona North: 62m^3 Welshpool: 27m^3	
		AMSA**	Slickgone NS	Melbourne: 10m^3 Sydney: 45m^3	Access to National Plan equipment through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
		OSRL***	Slickgone NS	Singapore SLA: 95m^3 Malaysia SLA: 24m^3 Bahrain SLA: 82m^3 Singapore Global Dispersant Stockpile: 350m^3 France Global Dispersant Stockpile: 500m^3	Mobilisation times of OSRL dispersant from Singapore to Victoria is estimated at 12 hours. Other bases would be estimated at ≥2 days.
			Corexit 9500	Singapore SLA: 34m^3	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
				USA SLA: 115m^3 Bahrain SLA: 56m^3 USA Global Dispersant Stockpile: 500m^3 Brazil Global Dispersant Stockpile: 500m^3	
		Mutual aid	Various	Various	21 days
Vessels	1 x vessel and crew	Various	Vessel of opportunity.	Multiple (sourced via contractor on an ad-hoc basis).	6 - 12 hours initialisation, available within 72 hours.
Vessel dispersant systems	1 x vessel dispersant spray system 1 x In-situ dispersant effectiveness field test	Esso	AFEDO system	BBMT: 1	<6 hours
			Dispersant transfer Honda GD320 pump and hoses	BBMT: 3	
		AMOSC*	AFEDO system	Broome: 2 Jandakot: 5 Geelong: 4 Exmouth: 1	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
			Viko spray	Exmouth: 1 Geelong: 2 Jandakot: 1	
			Dispersant-agitator	Exmouth: 1 Jandakot: 1 Geelong: 1	
			Dispersant spray-boom vane	Jandakot: 1 Geelong: 1	
			Dispersant-effectiveness field test kit	Jandakot: 2 Geelong: 2	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
		AMSA**	AYLES FERNIE - boatspray 100-TS	Sydney: 2 Melbourne: 2	Access to National Plan equipment through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
			Dispersant test kit	Sydney: 1 Melbourne: 1	
		OSRL***	AFEDO system	UK: 5 Singapore: 10	Mobilisation of OSRL equipment from Singapore to Victoria is estimated at 12 hours, while mobilisation from UK to Victoria is estimated at 30 hours. Other bases would be estimated at ≥2 days. Guaranteed access to 50% of stockpile by equipment type. Access to more than 50% on a case-by-case basis.
			NeatSweep dispersant boom system	Singapore: 2	
			Fluorometer	UK: 1 Singapore: 1	
			Dispersant efficiency test kit	UK: 7 USA: 2	
Personnel	2 x trained responders	AMOSC*	AMOSC Staff	Australia: 16****	AMOSC Staff are on call 24 hours a day, 365 days a year. Timeframe for AMOSC personnel depends on location of the
			AMOSC Core Group	Australia: Target to maintain at least 100 members***** (minimum 84, maximum 140) as per *AMOSC Core*	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
				Group Program and Policies (AMOSC, 2024a)	spill and transport to site.
		OSRL***	OSRL responders	Global: 18	OSRL Staff are on call 24 hours a day, 365 days a year. Timeframe for OSRL personnel depends on location of the spill and transport to site.

* Up-to-date lists of AMOSC equipment can be accessed via the AMOSC Members Hub – https://amosc.com.au/members/.

** For National AMSA resources, only equipment from the nearest two stockpiles has been included (Sydney and Melbourne), however additional resources are available from other locations. Up-to-date lists of National AMSA stockpile equipment can be accessed via the AMSA website (AMSA stockpile Equipment).Additional AMSA State equipment has been included from their Gippsland stockpile and up to date equipment lists can be found at VIC Equipment or via NOGGIN.

*** Up-to-date lists of OSRL equipment can be accessed via their website, under Response Readiness Report, found at Activation Procedure | Response Readiness Report. Availability likely to change monthly, see Readiness Report for most up to date information.

11.3.5 Dispersant controls, Environmental Performance Outcomes, Environmental Performance Standards and Measurement criteria

Table 11-11 provides consideration of all controls considered that are either adopted or not adopted for improved capability for dispersant application.

Table 11-11 Controls considered for dispersant application strategy

All controls considered	Benefit	Feasibility	Adopted
Quarterly AMOSC equipment availability review.	Provides status update on available equipment.	Maintaining quarterly reviews is achievable in the circumstance and allows resource availability to be maintained in the event of a spill.	Adopted **(OPEP12-CM01)**
Dispersant and application equipment stored at BBMT.	Reduce time to apply dispersant.	Storing dispersant at BBMT allows for a reduced time from mobilisation to application due to the close vicinity. This is a feasible action to implement.	Adopted **(OPEP12-CM02)**
Dispersant stored on a vessel.	Reduce time to apply dispersant.	Storing dispersants and equipment on the vessel is possible but reduces space available for cargo. Storing dispersants onboard in an uncontrolled environment is likely to	Not adopted

All controls considered	Benefit	Feasibility	Adopted
		result in increased degradation of the product.	
Laboratory based efficacy testing for surface application on all Esso crudes against all of the dispersants detailed in Table 11-3.	Provide a better understanding of the amenability of each Esso crude in relation to each dispersant stock. The rationale for the selected five crudes for laboratory testing was that they represent a cross-section of the types of crudes produced in the Bass Strait. Results of testing can be found in Table 11-3.	Laboratory experiments and modelling are often limited by their inability to capture the complexity or scale found in the field. In the event of a spill, verification of incident specific dispersant effectiveness will be done before ongoing dispersant use occurs.	Not adopted
Dispersants are pre-selected from the Oil Spill Control Agent register.	Dispersants which have been pre-approved for use in Australia by AMSA are placed on the Oil Spill Control Agent register. The AMSA efficacy test protocol for the register (AMSA, 2012a)lists the toxicity testing requirements that ensure products meet the requirements of acceptable practice for the National Plan, and products with a high acute toxicity (LC50 <10ppm, 96 hours.) or containing prohibited substances are not permitted. Pre-selected dispersants will not have to undergo an approval process so can be deployed faster than dispersants not on the Oil Spill Control Agent register.	All dispersants proposed for use meet the oil spill control agent requirements and are listed on the National Plan register. Capability assessments have been completed based on the use of approved dispersants and have confirmed enough dispersant is available for the proposed response. This is a feasible action to implement.	Adopted **(OPEP12-CM03)**
Incident specific NEBA.	NEBA completed prior to conducting dispersant activities can help to inform response and aid decision making.	The NEBA assessment can be implemented with minimal additional resources required, and with no additional safety risks. It is feasible to conduct this as a control to assist with response strategy selection.	Adopted **(OPEP12-CM04)**
Halt dispersant application if wildlife is identified in the area.	Ceasing dispersant operations in the presence of wildlife will minimise negative effects on fauna.	If EPBC Act listed migratory species (e.g. whales) are observed in the immediate vicinity of dispersant operations, aerial and vessel dispersant operations will cease until the animal has not been sighted for 30 minutes or unless otherwise advised by the relevant State authority. This may delay response	Adopted **(OPEP12-CM05)**

All controls considered	Benefit	Feasibility	Adopted
		activities and prolong the overall response, however, reduces the risk to wildlife so is a required action.	
Pre-incident dispersant effectiveness testing.	Laboratory testing of five Gippsland crude oils against three types of dispersants has been completed under summer and winter conditions. Testing oils prior to an incident can help inform the response and select the most appropriate dispersant for the oil type.	Effectiveness of dispersant decreases significantly on weathered oils. Through ensuring effectiveness testing has been conducted prior to an incident, this will increase the effectiveness of the response through streamlining the selection process.	Adopted **(OPEP12-CM06)**
Basic field dispersant effectiveness test.	Effectiveness of dispersant confirmed prior to application. Testing effectiveness of the dispersant on the oil spill will inform the response option strategy and assist IMT determining response activities.	In-field testing can inform the effectiveness of the dispersant which overall will increase the effectiveness of the response. Considering safety risks and weather conditions, this is an achievable action to implement.	Adopted **(OPEP12-CM07)**
Exclusion zones.	Establishing exclusion zones can prevent further decontamination and reduce safety risks to personnel. Also, will determine which areas are appropriate for dispersant application for effective application and to minimise environmental effects.	The OPEP requires that exclusion zones are put in place which consider health and safety and environment risks. These exclusion zones are determined in consultation with the State Control Agency. Disruption to other maritime activities may be caused by exclusion zones, however the reduction to potential safety risks makes this a necessary action. Defined area of where the application of dispersant is acceptable to reduce potential environmental impacts to marine fauna and flora. Dispersant application is only accepted for: • Commonwealth waters • >10m water depth • outside Australian marine parks.	Adopted **(OPEP12-CM08)**
Monitoring of dispersant in water.	Continuous monitoring of dispersed oil plume and visual monitoring of effectiveness will help to target dispersant and support effective application by preventing over-application of dispersant.	The OSMP implementation modules detail the requirement to monitor an oil slick for the effectiveness of the dispersants. This is a practical operational action as this will increase the effectiveness of the response.	Adopted **(OPEP12-CM09)**

All controls considered	Benefit	Feasibility	Adopted
		Operational module O2 provides for monitoring of dispersant concentrations in water. Visual monitoring can be conducted at any time further tests require sampling kits.	
Records of dispersant volumes.	A record of the volumes of dispersant used in both subsea and surface application will be kept throughout the response to assist with monitoring dispersant usage and effectiveness.	The OPEP instructs IMT to record daily dispersant operations (types, volume and locations). This is a feasible action that requires minimal additional resourcing.	Adopted **(OPEP12-CM10)**
Targeted dispersant application.	Dispersants will be targeted at areas of thickest oil and considerations of oil type, amenability and volume will be assessed prior to any dispersant application.	The *ExxonMobil Oil Spill Response Field Manual* details techniques for aerial and vessel subsea dispersant application. May require additional surveillance or monitoring platforms to help target the thickest part of the slick e.g. aerial surveillance. This is achievable with the resources available for dispersant application.	Adopted **(OPEP12-CM11)**
Surface dispersants applied during the night.	Surface dispersant applied 24 hours and not only confined to daylight hours would shorten response duration.	Spraying surface oil slicks in outside of daylight hours will mean dispersants cannot be targeted in areas where the oil is the thickest. This can lead to overdosing and application of dispersants in areas that will not be effective. Response during the night also has significant safety risks (e.g. night-time flying) to personnel.	Not adopted

EPOs and EPSs for chemical dispersant application are outlined in Table 11-12.

Table 11-12 EPOs and EPSs for chemical dispersant

EPO	Control	EPS	Measurement criteria
OPEP12-EPO01: Increase the bioavailability of oil for microbial breakdown to reduce consequences to surface and	**OPEP12-CM01:** Quarterly AMOSC equipment availability review.	**OPEP12-EPS01:** Provides status update on available equipment.	• Verified in the quarterly status review documents.
	OPEP12-CM02: Dispersant and application equipment stored at BBMT.	**OPEP12-EPS02:** Vessel-applied dispersant strike teams can be mobilised on site <48 hours of request of service.	• IMT logs and/or annual test/drill records mobilisation times. • Incident Action Plan documents the process for mobilising the

EPO	Control	EPS	Measurement criteria
shoreline values and sensitivities.			dispersant from BBMT to spill location.
	OPEP12-CM03: Dispersants are selected from the Oil Spill Control Agent register, including grandfathered stocks, unless otherwise endorsed by the Statutory Authority.	**OPEP12-EPS03:** Only dispersants listed in Section 11.1.5 will be utilised, unless otherwise endorsed by the Statutory Authority.	• Incident Action Plan will document dispersant being requested from existing stocks as per Section 11.1.5 and tasking for dispersant strike team. • IMT records stating dispersant types, locations, types and volumes.
	OPEP12-CM04: Incident specific NEBA.	**OPEP12-EPS04:** NEBA assessment is completed prior to dispersant use.	• IMT logs confirm NEBA was conducted to assist with response strategy selection. • Incident specific NEBA documented and kept on file.
	OPEP12-CM05: Halt dispersant application if wildlife is identified in the area.	**OPEP12-EPS05:** If EPBC Act listed migratory species (e.g. whales) are observed in the immediate vicinity of dispersant operations, aerial and vessel dispersant operations will cease until the animal has not been sighted for 30 minutes or unless otherwise advised by the relevant State authority.	• IMT logs demonstrating decision to halt operations in the presence of wildlife.
	OPEP12-CM06: Pre-incident dispersant effectiveness testing.	**OPEP12-EPS06:** Laboratory dispersant effectiveness test results will be used to inform if use of dispersant is likely to reduce environmental impacts giving consideration to elapsed time, weathering and selection of dispersant with highest efficacy.	• Laboratory test results confirm suitability of dispersant prior to it being applied.
	OPEP12-CM07: Basic field dispersant effectiveness test.	**OPEP12-EPS07:** Dispersants will be test sprayed on all crude oil spills for efficacy prior to operational.	• IMT logs confirming in-field testing of dispersant effectiveness was conducted.

EPO	Control	EPS	Measurement criteria
			• Report records of test results.
	OPEP12-CM08: Exclusion zones.	**OPEP12-EPS08:** Dispersant application is only accepted for: • Commonwealth waters • >10m water depth • Outside Australian marine parks. Dispersants are not to be used in State waters without approval of the Control Agency IMT.	• Approvals from Control Agency IMT are kept and filed prior to dispersant use. • IMT logs demonstrating decisions regarding exclusion zones. • Records stating exclusion zones.
	OPEP12-CM09: Monitoring of dispersant in water and effectiveness.	**OPEP12-EPS09:** Additional monitoring will be implemented to verify dispersant use is effective and implemented as expected e.g. water monitoring. Implement OSMP module: • O2: Water and oil sampling. In accordance with requirements and timeframes in Section 3.2 of the OSMP.	• IMT logs confirm in-field testing of dispersant effectiveness was conducted. • Common operating picture displaying results from in-field testing. • Operational monitoring reports. • Records stating observations and testing results.
	OPEP12-CM10: Records of dispersant volumes.	**OPEP12-EPS10:** A record of the volumes of dispersant used in surface application will be kept throughout the response.	• IMT logs recording volume of dispersant applied. • Records stating dispersant types, locations, types and volumes.
	OPEP12-CM11: Targeted dispersant application.	**OPEP12-EPS11:** Dispersants will be targeted at areas of thickest oil and considerations of oil type, amenability and volume will be assessed prior to any dispersant application.	• IMT logs recording decision to target and records of dispersant application location. • Records stating dispersant types, locations, types and volumes.

11.4 Environmental impact assessment

The application of dispersant in the event of a loss of well control and major spill will result in an increase in the proportion of spilled hydrocarbons in the water column as either dissolved or entrained oil. This has the effect of decreasing surface and shoreline loading but increasing exposure to pelagic biota in offshore waters and possibly localised sedimentation of hydrocarbons to the seabed in the shallower offshore waters.

An impact assessment has been completed to assess the impacts of the use of surface dispersant application to mitigate a spill. The impact assessment considers the effects of increased exposure to hydrocarbons in the water column due to dispersant use and addresses any additional or reduced potential impacts from the use of dispersants, as compared to an unmitigated scenario.

Note that application via Subsea dispersant injection is not applicable; following the abandonment of Seahorse subsea facility, Tarwhine subsea facility and Blackback subsea facility, there are no subsea oil wells producing in the Gippsland region. All producing oil wells are located on platforms and therefore, any spills from a loss of well control are assumed to occur at surface. Remaining subsea facilities (Kipper subsea facility and West Barracouta Subsea Facility) produce gas and condensate. Discharge of gas with condensate is highly volatile and natural weathering processes will disperse condensate, and dispersant application is not considered a recommended response option. Therefore, Subsea dispersant injection is not considered to be a response option.

Through the use of surface dispersants, in-water hydrocarbon levels are likely to increase above high levels in areas predicted to be impacted by in water oil however, shoreline impacts are expected to be reduced. Surface application of dispersant will be directed to the thickest part of the slick and to fresh oil which will be found close to the release location in water with sufficient depth to allow dilution of hydrocarbons and dispersant throughout the water column. Dispersants will only be used in Commonwealth waters, in waters of >10m depth and outside of Australian Marine Parks. Use of dispersants in State waters would only be with the approval of the relevant State Control Agency.

Assessment of the acceptability of these impacts in an oil spill response context are described in Table 11-13 and Table 11-14.

Table 11-13 Environmental aspects of applying dispersant

Affected receptor	Impact assessment	Consequence Level
Plankton	Plankton, specifically zooplankton, are vulnerable to hydrocarbons (Hook, 2016). Water column organisms that come into contact with oil and chemicals risk exposure through ingestion, inhalation and dermal contact (NRDA, 2012), which can cause immediate mortality or declines in egg production and hatching rates along with a decline in swimming speeds (Hook, 2016). Plankton are at their highest concentrations below surface waters (e.g. 60m water depth for phytoplankton during the day) and undertake a vertical migration which would likely reduce their potential for (and duration of) exposure to dissolved hydrocarbons in the surface layer of the water column. Plankton are typically abundant in the upper layers of the water column and decline with depth. Once background water quality is re-established, plankton takes weeks to months to recover (ITOPF, 2024). Following use of dispersant, plankton are likely to be exposed to in-water hydrocarbons above the high exposure threshold along the Gippsland coastline. However, once background water quality is re-established, plankton takes only weeks to months to recover (ITOPF, 2024). Further, plankton found in open waters of the exposure zone is expected to be widely represented within waters of the wider Bass	III

Affected receptor	Impact assessment	Consequence Level
	Strait region and generally across all waters in the southeastern offshore region, which aids in the re-establishment of communities. Exposure to greater concentrations of dissolved and entrained hydrocarbons due to the use of dispersants is predicted to result in short-term impacts to local plankton populations. Therefore, the consequence of the impacts of the response activity compared to an unmitigated scenario is considered to be Consequence Level III.	
Benthic habitats and communities (bare substrate, coral, seagrass, macroalgae, subtidal rocky reef)	Species residing in offshore locations are more likely to be exposed to increased levels of in-water hydrocarbons with the application of surface dispersant, depending on their water depth and location with respect to the spill. Impacts to deep water benthic sediments are not expected as a result of surface dispersant application. Known areas of seagrass which may be exposed to increased concentrations of dispersed oil include Corner Inlet, Lakes Entrance, Bemm River Estuary and Tamboon Inlet. There is the potential that exposure could result in sub-lethal impacts. Suitable hard substrate for macroalgal around Gabo Island and within the Bemm River Estuary may be impacted by increased concentrations of dispersed oil however are suggested to be some of the least sensitive marine species to oil exposure. Benthic invertebrate species closer to shore may be affected by increased in-water oil concentrations. Invertebrates of value (i.e. target species for fisheries) have been identified to include squid, crustaceans (rock lobster, crabs) and molluscs (scallops, abalone). While exposure can lead to impacts including mortality, recovery of benthic invertebrates exposed to in-water hydrocarbons would be expected to return to background water quality conditions within weeks to months of contact. Several studies have indicated that rapid recovery rates may occur even in cases of heavy oiling ((Burns, 1993); (Dean, 1998)). Acute or chronic exposure, through both surface contact, and/or ingestion can result in toxicological risks. However, the presence of an exoskeleton (e.g. crustaceans) will reduce the impact of hydrocarbon absorption through the surface membrane. Other invertebrates with no exoskeleton and larval forms may be more prone to impacts from pelagic hydrocarbons. Complex assemblages (e.g. sponge habitat) or deep-water slow-growing sessile invertebrates are likely to recover much more slowly. Exposure to in-water hydrocarbons poses the greatest threat to sensitive macroalgal assemblages, specifically the Giant Kelp Forests Threatened Ecological Communities. These grow on rocky reefs from the sea floor 8m below sea level and deeper growing towards the sea surface. Benthic invertebrates are potentially at risk of toxic impacts of exposure to in-water hydrocarbons. While exposure can lead to impacts including mortality, recovery of benthic invertebrates exposed to entrained hydrocarbons would be expected to return to background water quality conditions within weeks to months of contact. Several studies have indicated that rapid recovery rates may occur even in cases of heavy oiling ((Burns, 1993); (Dean, 1998)).	II

Affected receptor	Impact assessment	Consequence Level
	It is possible that injury or mortality associated with acute or chronic exposure could result in a slight alteration of the local habitat and community structure, however no long-term changes to ecosystem are expected. Offshore benthic habitats are more likely to be exposed to increased levels of in-water hydrocarbons although this is expected to be limited to very shallow waters (e.g. 10 to 50m) due to the nature of surface application. These areas of highly mobile sediment, where diversity and abundance are relatively low, will likely recover quickly. Therefore, the consequence of the impacts of the response activity compared to an unmitigated scenario is considered to be Consequence Level II.	
Fish	Exposure to dissolved/entrained hydrocarbons and chemicals in the water column can be toxic to fishes. Studies have shown a range of impacts including changes in abundance, decreased size, inhibited swimming ability, changes to oxygen consumption and respiration, changes to reproduction, immune system responses, DNA damage, visible skin and organ lesions, and increased parasitism. However, many fish species can metabolise hydrocarbons, which reduces the risk of bioaccumulation (NRDA, 2012). Shallow inshore fish species including various syngnathids (seahorses, pipefish, pipehorses and seadragons) are less likely to be able to move away from in-water oils and therefore may be exposed to elevated levels or for longer periods. Their habitats are typically widespread however any impacts are expected to be local on individual organism levels. Fish are most vulnerable to hydrocarbon discharges during their embryonic, larval and juvenile life stages. Oil and chemical exposure may result in decreased spawning success and abnormal larval development. Impacts on eggs and larvae entrained in the upper water column are expected to be short term given the temporary period of water quality impairment, and the limited areal extent of the spill. As egg/larvae is widely distributed in the upper layers of the water column it is expected that current induced drift will rapidly replace any affected populations. Pelagic free-swimming fish and sharks are unlikely to suffer long-term damage from exposure because dissolved/entrained hydrocarbons in water are not expected to be sufficient to cause harm (ITOPF, 2024). Pelagic free-swimming fish and sharks are also generally highly mobile and as such are not likely to suffer extended exposure (e.g. >96 hours) at concentrations that would lead to chronic effects due to their patterns of movement. Demersal fish are more likely to be exposed to significant levels of in-water hydrocarbons associated with the application of dispersant application. Predicted zones of moderate exposure to dissolved hydrocarbons contacting the white shark distribution and breeding Biologically Important Areas and grey nurse shark foraging and migration Biologically Important Areas may increase to high exposure levels following use of dispersant. These species are widely distributed and areas of increased impact due to dispersed oil are not considered significant compared to overall species distribution. Therefore, the	II (taking into consideration the potential impacts to threatened species such as the white shark *(Carcharodon carcharias)* and grey nurse sharks (*Carcharias taurus*).

Affected receptor	Impact assessment	Consequence Level
	consequence of the impacts of the response activity compared to an unmitigated scenario is considered to be Consequence Level II.	
Marine reptiles - turtles	Effects to marine turtles are likely to be most significant for surface oil and shoreline oil. Marine turtles are vulnerable to the effects of oil at all life stages; eggs, hatchlings, juveniles, and adults. Marine turtles can be exposed to oil externally (e.g. swimming through oil slicks) or internally (e.g. swallowing the oil, consuming oil affected prey, or inhaling of volatile oil related compounds). Effects of oil on turtles include increased egg mortality and developmental defects; direct mortality due to oiling in hatchlings, juveniles, and adults; and negative impacts to the skin, blood, digestive and immune systems, and salt glands. French-McCay (2018) performed a comparative risk assessment for a large blowout in the Gulf of Mexico and found that turtles are the marine species that undergo the most benefit from dispersing oil because of their vulnerability to surface slicks and their long lives and slower reproduction. While marine turtles, including threatened species, are known to occur in the area potentially exposed to in-water dispersed oils they are not noted to reside or aggregate in significant numbers, and there are no recognised turtle Biologically Important Areas in the region. It should be noted that the threat and relative impacts of an oil/pollution on some marine reptile species are considered less damaging than other stressors. Report cards produced on protected marine reptiles in Australia generally ranked oil pollution as either 'not of concern' or 'of less concern' depending on the marine region (DSEWPAC, 2012). Impacts from increased concentrations of in-water dispersed oil are expected to be largely consistent with that of an unmitigated scenario and are therefore assessed as a Consequence Level II.	II (recognition that the effects of hydrocarbons on turtles can be severe, however low densities are predicted within the region and therefore a spill would affect individuals rather than population level)
Birds	Birds foraging at sea have the potential to directly interact with oil on the sea surface some considerable distance from breeding sites in the course of normal foraging activities. Seabird species most at risk include those that readily rest on the sea surface (e.g. shearwaters) and surface plunging species (e.g. terns, boobies). As seabirds are a top order predator, any impact on other marine life (e.g. pelagic fish) may impact food supply both for the maintenance of adults and the provisioning of young. However, it is likely that the use of dispersant will be offset by the decrease in surface oil and reduction in the consequences for smothering of birds feeding at the surface. The shorelines of Gabo Island support the world's largest little penguin (*Eudyptula minor*) colony. Impacts to these colonies are expected to be reduced following use of dispersant due to reduced shoreline loading. There are many listed threatened and migratory shorebird species within the Bass Strait however many are not likely to be significantly affected by in-water concentrations of hydrocarbons due to their limited exposure time in the water column. Reduction in shoreline oil as a result of dispersant application is expected to reduce impacts to shorebird species.	III (acknowledging the potential impacts to birds from oil spills are largely driven by shoreline and surface impacts, the impact assessment after use of dispersant is assessed to be Level II)

Affected receptor	Impact assessment	Consequence Level
Marine mammals (pinnipeds)	There may be physical impacts from ingestion of in-water and surface oil. However, as mammals are highly mobile species, it is very unlikely that these animals will be continuously exposed to elevated concentrations of dispersed hydrocarbons for extended durations (e.g. >96 hours) that could lead to chronic effects. Both the New Zealand fur seal (*Arctocephalus forsteri*) and the Australian fur seal (*Arctocephalus pusillus doriferus*) are listed marine species with habitat and breeding sites known to occur in areas potentially exposed to surface, in-water and shoreline oil above the moderate threshold. Both the Australian and New Zealand fur seals are at risk to surface oil while at sea and shoreline accumulated oil at haul out sites or rookeries. While some individuals may be affected, population level effects on these other transient species are considered unlikely. It is likely that the use of dispersant will be offset by the decrease in surface oil and reduction in the consequences for whales feeding at the surface. Therefore, the consequence of the impacts of the response activity compared to an unmitigated scenario is considered to be Consequence Level III. French-McCay (2018) found that marine mammals in the Gulf of Mexico also were protected by use of dispersants for the same reason as turtles.	III (given the potential impacts to pinnipeds from oil spills are largely driven by shoreline and surface impacts)
Marine mammals (cetaceans)	There may be physical impacts from ingestion of in-water and surface oil. However, as mammals are highly mobile species, it is very unlikely that these animals will be continuously exposed to elevated concentrations of dispersed hydrocarbons for extended durations (e.g. >96 hours) that could lead to chronic effects. While some individuals may be affected, population level effects on these other transient species are considered unlikely. It is likely that the use of dispersant will be offset by the decrease in surface oil and reduction in the consequences for whales feeding at the surface. Impacts from increased concentrations of in-water dispersed oil are expected to be largely consistent with that of an unmitigated scenario and are therefore assessed as Consequence Level II.	II
Coastal habitats and communities – sandy shoreline, rocky shoreline, mangroves and saltmarsh	There are different types of shorelines found along the Gippsland and southern NSW coast and offshore islands (including Tasmanian islands) however this coastline is dominated by wide sandy beaches with intermittent rocky shores, and salt marshes and isolated mangroves within tidal estuaries, coastal lakes and bays. The impacts to these coastal habitats are influenced by the volume of hydrocarbon that could be stranded ashore and its thickness before the shoreline saturation point occurs (ITOPF, 2024). Use of dispersant is expected to reduce the volume of oil that reaches the shoreline and therefore reduce impacts to coastal habitats and communities. Therefore, the consequence of the impacts of the response activity compared to unmitigated scenario is considered to be Consequence Level III.	III

Affected receptor	Impact assessment	Consequence Level
Wetlands	Wetlands of international importance within the Bass Strait region (e.g. Corner Inlet Ramsar site) have minimal risk of receiving oil because they have no, or very narrow and/or seasonal, connections to the sea. Under certain conditions shoreline oil is predicted to accumulate at low thresholds along the shoreline of Corner Inlet, however, following use of dispersant, it would be expected that surface oil will be significantly reduced, and therefore is considered to be of Consequence Level III.	III
National parks and reserves	Impacts to national parks and reserves along the area of shoreline exposure are expected to be reduced following the use of dispersant due to decreased shoreline loading. This decrease in impact to marine parks is consistent with the conservation management aims of the Southeast Marine Reserves Network Management Plan. The East Gippsland and Beagle Marine Parks are ranked as Category VI protected areas (IUCN category) meaning they should be managed mainly for ecosystem protection and passive recreation. The Flinders and Freycinet Marine Parks are ranked as Category II protected areas (IUCN category) meaning they should be managed mainly for the ecologically sustainable use of natural ecosystems. The application of surface dispersant aims to protect and minimise the impacts to ecosystems from hydrocarbon spill releases thereby allowing future sustainable use of the ecosystems in the region.	III
Australian marine parks	It may be expected that in water exposure to hydrocarbons is increased to high levels following the use of dispersant. Surface and in-water (dissolved) oil entering Australian Marine Parks will degrade water quality until the oil is broken down and/or currents shift the weathering oil outside the boundaries of the Australian Marine Parks. Thus, water quality effects are predicted to persist only over the short to medium term in the Australian Marine Parks.	III
Key Ecological Features	While a spill would not affect the key ecological feature Upwelling East of Eden itself, if the spill occurs at the time of an upwelling event, it may result in krill being exposed to in-water phase hydrocarbons. Pygmy blue whale (*Balaenoptera musculus brevicauda*) feeding at this time may suffer from reduced availability of prey however, even with increased in-water hydrocarbon concentrations due to dispersant use, these impacts are expected to be localised and temporary.	III

Table 11-14 Environmental aspect - Physical presence - Nearshore and shoreline users

Affected receptor	Impact assessment	Consequence Level
Cultural – indigenous and historic	Use of dispersant is expected to reduce shoreline impacts to the visual or cultural (including activities such as camping, rituals and ceremonies) amenity of cultural heritage sites such as historic (e.g. shipwreck) or indigenous protected areas. It is expected that use of dispersant will reduce the duration of impacts from degraded aesthetics of sites as a result of	III

Affected receptor	Impact assessment	Consequence Level
	reduced shoreline loadings. Parts of the Gippsland coast over which the Gunai-Kurnai people hold native title would be exposed to lesser impacts than compared to an unmitigated spill scenario. Therefore, the consequence of the impacts of the response activity compared to an unmitigated scenario is considered to be Consequence Level III.	
Commercial fisheries	Several commercial fisheries which operate within the area could be potentially exposed in the event of a spill. For an unmitigated scenario, floating oil may extend outside the facilities (from which fishing vessels are already excluded) making it likely that in these situations an exclusion zone (or fisheries closure) would be established. Fishing areas may be closed for fishing for shorter or longer periods because of the risks of the catch being tainted by oil. Increased oil in water concentrations could result in increased fish taint and prolonged fishing restrictions. A temporary fisheries closure and the flow on losses from the lack of income derived from these fisheries based on reduced market confidence and the potential for extended media coverage (potentially greater than 3 months) has the possibility of exceeding medium community disruption (>100 – 1000 people) such as reduced employment (in fisheries service industries and the seafood supply chain).	I (acknowledging public impact consequence considerations e.g. media coverage, the scope of the disruption (personal, commerce, transportation or socio-economic) and the size of the population affected) as per Section 5.4 of the *Risk Matrix Application Guide* (ExxonMobil, 2024).
Tourism and recreation	Impacts to tourism and recreation are driven by visual oil leading to reduced amenity of areas used by coastal tourists and recreational visitors, temporary health implications and possible closures. Use of dispersant is expected to reduce volume of shoreline oil meaning impacts to tourism and recreation are expected to be reduced. It is expected that use of dispersant will reduce the duration of impacts from degraded aesthetics of sites as a result of reduced shoreline loadings. Therefore, the consequence of the impacts of the response activity compared to unmitigated loss of well control is considered to be Consequence Level I. The extent of potential impacts to tourism and recreation depends on when the spill occurs, size and where it comes ashore.	I (acknowledging public impact consequence considerations e.g. media coverage, the scope of the disruption (personal, commerce, transportation or socio-economic) and the size of the population affected) as per Section 5.4 of the *Risk Matrix Application Guide* (ExxonMobil, 2024).

11.5 Demonstration of ALARP

The rationale for the ALARP demonstration for dispersant application can be seen in Table 11-15.

Table 11-15 ALARP Decision Context justification

ALARP Decision Context and justification	**Decision Context B** Dispersant application is a standard response strategy that has been accepted for use in the Australian and international offshore petroleum industry. Impacts associated with dispersant application are well understood and have been implemented by industry. The application of dispersants must be supported by an

	incident NEBA in Commonwealth waters or have approval from State Control Agency within State waters. Dispersant application activities are aligned with company and partner values. Good practice control(s) have been identified to ensure environmental impacts associated with mobilising this response are reduced to ALARP, these controls will be implemented in a response scenario and have been included in the OPEP.

Dispersant application response strategy has been demonstrated to be ALARP.

11.6 Demonstration of acceptability

Table 11-16 outlines the demonstration of acceptability of environmental impact from dispersant application.

Table 11-16 Acceptability of environmental impacts from dispersant application

Factor	Demonstration criteria	Criteria met	Rationale
Principles of ESD	a) The integration principle - decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations.	✓	Not inconsistent. Planning for Bass Strait producing and non-producing activities and decision making as to the most appropriate strategies and methods has incorporated contemplation of both short and long term economic, environmental, social and equitable considerations.
	b) The precautionary principle - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	✓	Not inconsistent. All oil spill response activities are implemented with the aim of reducing the overall environmental impact from a spill incident. Source control activities are implemented to stop the flow of oil and minimise safety risks and environmental damage. Impacts associated with source control are offset by the broader positive effects of reducing the impact of a spill incident on coastal and marine sensitivities and socio-economic receptors (e.g. fishing, tourism).
	c) The intergenerational principle - the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.	✓	Not inconsistent. The assessment undertaken has concluded that environmental impacts will be short term in nature. Any impacts as a result of implementation of source control activities to respond to an unplanned release of fuel will not impact the health, diversity and productivity of the environment in such a manner that future generations may be impacted.

Factor	Demonstration criteria	Criteria met	Rationale
	d) The biodiversity principle - the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making.	✓	Not inconsistent. All aspects related to source control activities have been detailed in Producing and Non-Producing EPs Sections 6 and 7 and have been evaluated as having the potential to result in a Consequence Level III or lower (IV). Controls, EPOs, EPSs and measurement criteria are also described in Sections 6 and 7 of the Producing and Non-Producing EPs. The potential impact associated with the implementation of this emergency response option is limited to a localised short-term impact, which is not considered as having the potential to affect biological diversity and ecological integrity. The application of dispersants will decrease the volume of oil on the surface which may reduce exposure to coastal sensitives and seabird and marine mammal populations to floating oil. Dispersant application will only be a selected following an incident NEBA, which must demonstrate potential environment impacts from dispersant outweigh the potential for shoreline, fauna and marine sensitivity impacts.
Legislative and other requirements	Legislative and other requirements have been identified and met.	✓	The proposed control measures align with the requirements of the: • OPGGS Act • *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) • *Navigation Act 2012* (Cth) – Chapter 4 (Prevention of Pollution). • Marine Order 96 (Marine pollution prevention – sewage) 2018 • Marine Order 95 (Marine pollution prevention – garbage) 2018.
Internal context	Consistent with Esso's Environment Policy	✓	Proposed control measures are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*".
	Meets OIMS objectives.	✓	Proposed control measures meet: • OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements • OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors • OIMS System 10-2 objective to ensure effective response to emergencies and business

Factor	Demonstration criteria	Criteria met	Rationale
			disruptions that threaten the safety, security and health of the public, contractors and employees, the environment, asset integrity, and critical business operations.
External context	Stakeholder concerns have been considered/addressed through the consultation process.	✓	No specific stakeholder concerns have been raised.

12 Mechanical dispersion

12.1 Overview

Mechanical dispersion is the act of physically agitating the water's surface through the use of vessel propellors and wake. This process encourages an oil slick to break down into smaller particle sizes, therefore speeding the natural process of dispersion. By breaking down into smaller droplets, the surface area is increased, and therefore the rate of biodegradation. To do this effectively, vessels may drive through a slick, using it's propellor and wash to create the mixing effect. Alternatively, water can be sprayed from a vessels fire hose to create the same effect.

Safety is of highest priority during a response, and considerations must be made due to the high volatility of both Kipper and Barracouta condensate. As both condensates are dominated by volatile and semi volatile organic compounds, this must be planned for when deploying personnel in close proximity to potential volatile organic compounds. Thorough gas monitoring should take place before entering the area, and throughout all operations. As Mechanical Dispersion is likely to occur in conjunction with SMV, containment and recovery and dispersant response activities, all environmental impact assessments, demonstration of ALARP, demonstration of acceptability, EPOs and EPSs are assumed to be covered within the respective response strategy sections.

The advantages and disadvantages of mechanical dispersion as a response strategy are shown in Table 12-1.

Table 12-1 Advantages and disadvantages of mechanical dispersion as a response strategy

Advantages	Disadvantages
Can accurately target slicks.	Difficultly in locating the slicks without aerial support.
Rapid deployment of equipment.	Could temporarily increase exposure of entrained hydrocarbons to shallow water environments.
Enables enhanced biodegradation.	Close proximity to the spill, and potential volatile organic compound safety risk.
Wash created by vessel can assist with mixing process.	
Reduces hydrocarbon exposure to shoreline environments.	
Can be opportunistically implemented alongside other response operations e.g. containment and recovery.	

12.1.1 Strategy summary - Mechanical dispersion

Table 12-2 provides the overall mechanical dispersion response strategy objective, critical outputs, critical IMT tasks, and termination criteria.

Table 12-2 Mechanical dispersion strategy objectives, critical outputs, critical IMT tasks, and termination criteria

Mechanical dispersion operations	
Response objective	To reduce consequences to surface and shoreline values and sensitivities. To increase the bioavailability of oil for microbial breakdown.
Critical outputs	All Level spills:

Mechanical dispersion operations	
	• based from the BBMT; vessels utilised for other activities such as containment and recovery and vessel-based dispersant application can be briefed to carry out mechanical dispersion if able to do so • if additional vessels are available (e.g. offshore supply vessels), they can be utilised for mechanical dispersion.
Planning section instructions	The planning section – environment unit in particular – needs to assess on a daily basis that dispersant use will demonstrably achieve net positive outcomes. Demonstrable positive outcomes include reduction in large-scale shoreline loadings, particularly on remote coastlines such as the Bass Strait Islands, the wilderness areas of far-east Gippsland, Corner Inlet, and surrounding estuaries, and sensitivity specific positive impacts as demonstrated by the daily NEBA. Critical daily tasking: • establish through a daily NEBA the ongoing benefit of mechanical dispersion • Ensure that OSMP is in place, with data being collated and sent to the Environment Unit Lead and IMT Situation Unit.
Operations section instructions	The operations section will task assets under their command to undertake daily mechanical dispersion operations as a part of the execution of the Incident Action Plan developed the previous day. Vessel operations will come out of BBMT/Lakes Entrance. Critical daily tasking: All spills: • execute the Incident Action Plan for the current operational period • liaise with the Planning Section Chief to ensure that field tasking (ICS 204) is drafted and used for dispersant operations • direct-vessel-based operations • vessel assigned for the OSMP water sampling/monitoring activities.
Logistics section instructions	The logistics section is to activate contracts and provide ongoing services and supply (Esso resources and/or from third parties) in support of the execution of this strategy. Critical daily tasking: • services and supply for operations • anticipate future needs of the operations.
Termination criteria	Mechanical dispersion operations will cease based on any of the below triggers: • NEBA determines that operations no longer provide demonstrable environmental benefits • oil is too weathered for effective operations • agreement with relevant Jurisdictional Authorities to terminate is reached.

12.2 Emergency Response Team/Incident Management Team roles

The individual roles and responsibilities for field personnel (ERT) and/or Esso IMT personnel as applicable for mechanical dispersion (in addition to those described in Section 5), are provided in Table 12-3.

Table 12-3 Mechanical dispersion strategy - IMT roles for all spills

All spills - Mechanical dispersion operations			Completed?
Establish vessels to undertake mechanical dispersion			
Logistics Section Chief	Day 1	• Establish BBMT/Lakes Entrance (Bullock Island) as initial marine forward operating base.	
		• Secure vessels for marine operations – if not engaged in other safety critical mission. Mechanical dispersion can be conducted by containment and recovery and dispersant vessels if necessary. Refer to Section 10 and 11 for more details.	
		• Request available Esso Core Group recall for duty – vessel-based operations from Day 2.	
Operations Section Chief	Day 1	• Prepare ICS 204 for operations: - refer to draft ICS 204 for operations - Appendix A: Templates and forms.	
	Day 2	• Brief teams on the ICS 204.	
		• Direct strike team to area of operations.	

Note: This strategy is dependent on NEBA outcomes and oil trajectory

12.3 Response resources

12.3.1 Response requirements and capability

Table 12-4 details both the required resources for implementing a first strike mechanical dispersion response team, and the mechanical dispersant application capability of Esso. The resources required for a first strike team are for the first 48 hours after a spill occurs. It must be noted that in the event of an incident, mechanical dispersion can be conducted by vessels tasked with other response tactics such as SMV, containment and recovery, and/or chemical dispersant application, if available between their core taskings. Therefore, these resources may be combined with other relevant response sections of the OPEP if required.

By comparing the minimum requirements needed for implementing a mechanical dispersion response, to the resources available to Esso, it is clear that the dispersant capability exceeds the resources required to implement mechanical dispersion in an acceptable timeframe.

Table 12-4 Resources required to implement a strike team compared to the availability for mechanical dispersion (obtained from oil spill response organisations equipment inventories, August 2025)

Equipment type	Required	Capability			
		Organisation	Type	Location/quantity	Estimated mobilisation timeframe
Vessels	1 x vessel with propellors and/or hose capability The vessel can be utilised alongside other response activities if needed. Vessels can be sourced from Esso chartered vessels or hired as vessels of opportunity.	Various	Vessel of opportunity.	Multiple (sourced via contractor on an ad-hoc basis).	6 - 12 hours initialisation, available within 72 hours.

13 Shoreline response

13.1 Protection and deflection

Shoreline protection and deflection consists of different techniques to prevent or reduce exposure of shoreline sensitives.

- Protection – Booms may be used to exclude slicks from targeted sensitive shorelines and/or amenities where it is safe, and conditions permit access and effective deployment.
- Deflection – Booms may be deployed at an angle to a drifting slick to divert oil away from targeted sensitive areas or to a collection point where it is safe to contain and recover.
- Containment and recovery – Near shore containment and recovery (refer to Section 10) may be deployed when there is little or no current and the sea-state permits. This may include deployment of skimmers and vacuum trucks to remove hydrocarbons from the area of collection. It should be noted that use of skimmers on condensate may have reduced efficiency but may be attempted.

There are several formations of protective and deflective booming that can be used in a response. All boom formations work by preventing oil from contaminating an area that has been pre-identified as a sensitivity. Booms can be deployed through the use of shoreline vessels and anchoring systems. Refer to Figure 13-1 for more information on boom configurations.

To choose the most effective configuration, several elements should be considered, such as tide or direction of flow, speed of any currents, wind direction, accessibility of anchoring points, and distance that must be boomed.

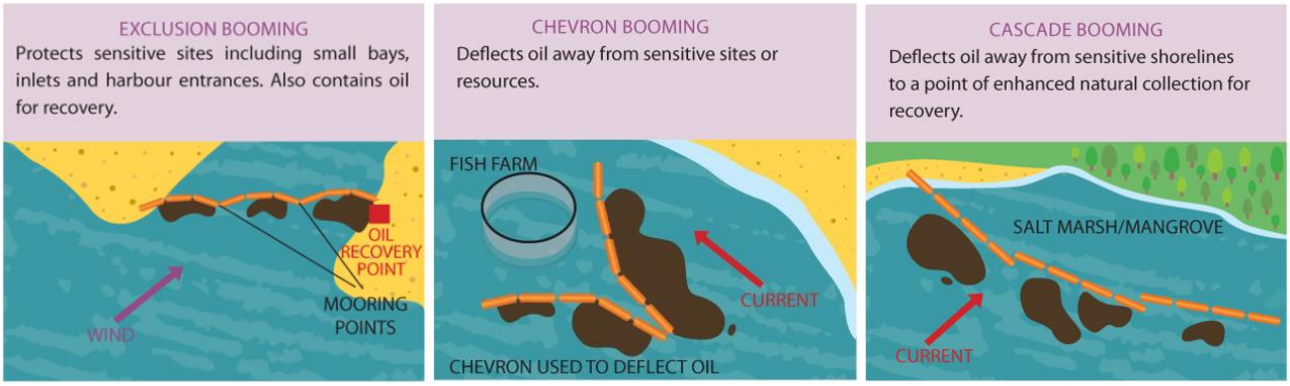

Figure 13-1 Possible formations of protective booming around sensitivities (OSRL, 2025)

Advantages and disadvantages of protection and deflection are outlined in Table 13-1.

Table 13-1 Advantages and disadvantages of protection and deflection response strategy

Advantages	Disadvantages
Protection and deflection can prevent oiling of sensitivities areas.	Presents safety risks to personnel.
Reduces hydrocarbon exposure to wildlife e.g. cetaceans and birds.	Labour intensive response.
Can be easily targeted to areas of priority.	Potential increase in environmental impacts from response activities e.g. vessels, beach access.
	Has to be completed before area is contaminated so time sensitive.
	Must consider access, and tidal range. May be unsuitable for high energy environments

This response is restricted by specific weather and metocean conditions and site accessibility. In strong winds, currents and/or waves this option may not be effective. In the event of an incident, the preparedness NEBA shall be updated with incident specific information to identify the priority sites for protection/deflection. Shoreline protection and clean-up will only be used as directed by State agencies, with Esso sharing their resources and acting as a support agency in liaison with the Control Agency.

13.1.1 Strategy summary - Protection and deflection

Booms will be used to protect shoreline resources and to corral oil for skimming.

Relevant EPOs and EPSs for protection and deflection are provided in Section 13.5.5.

Table 13-2 provides the overall protection and deflection response strategy objective, critical outputs, critical IMT tasks, and termination criteria.

Table 13-2 Protection and deflection strategy objectives, critical outputs, critical IMT tasks, and termination criteria

Protection of sensitive shoreline resources	
Response objective	To recover spilt oil before shoreline or other sensitivity contact. To remove bulk floating oil from collection points and improve water quality.
Critical outputs	For all spills: • modelling predicts shoreline impacts over time • where shoreline impact is predicted a TRP will be implemented • TRPs consist of detailed response information and resources required including the equipment and personnel to carry out identified taskings related to the protection of specific sensitivities. Taskings within the TRPs include: • SCAT • pre-cleaning of shoreline • protection and deflection booming • nearshore containment and recovery. Primary TRP sites identify sensitivities permanently exposed which will require a definitive response. The TRP identifies specific tasks aimed at minimising environmental impact. Secondary TRP sites identify sites at which exposure is seasonal or irregular and require confirmation of a requirement prior to response. The TRP identifies sensitivities, site information, likely response strategies, and resources required that would require validation based on conditions at time of event. Secondary TRP sites that do not require a response would allow additional resources to be directed towards other response activities.
Planning section instructions	The planning section Environment Unit Lead is to provide advice about whether there are any specific sections of coastline with high-value sensitivities – in these areas, specific tactical planning should be put in place. All planning for protection of coastlines is to be done in conjunction with the Control Agency IMT. The locations listed in Table 13-6 have pre-drafted TRPs which should be used to guide response planning. TRPs may need to be drafted in conjunction with the operations section for locations without existing TRPs. Shoreline TRPs and shoreline clean-up more generally should be executed consistent with guidance in the *ExxonMobil Oil Spill Response Field Manual* Section 12.

Protection of sensitive shoreline resources	
	Critical daily tasking: • establish through SMV activities and a daily NEBA the ongoing benefit of shoreline booming • ensure that weather conditions are amenable to safe and effective operations • ensure that an OSMP is in place, with data being collated and sent back to the Environment Unit Lead and IMT Situation Unit • ensure daily operations are recorded (location, estimated amount of oil recovered, estimated amount of water recovered) • assist operations to draft daily ICS 204 operations orders used by the shoreline and nearshore division for booming • work with the DTP Liaison Officer to ensure agreement on the location of specific tactical operations • work with the Safety Officer to ensure that workplace health and safety risks are appropriately identified and managed • plan local temporary waste reception facilities co-located with shoreline recovery. Activate long-term waste treatment contracts from temporary waste storage sites (Refer to Section 15 and *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011).
Operations section instructions	The operations section and Shoreline Protection Branch Director will need to coordinate with the Control Agency (DTP) to ensure that resources under Esso command undertake shoreline protection tactics consistent with the requirements of the DTP. The shoreline protection branch must work closely with the planning section to draft and 'truth' TRPs. Plan drafting will be prioritised based on time frame of impacts – with soonest and most critical sensitivities being done first. All operations are to be consistent with the Incident Action Plan developed the previous day. The shoreline protection branch is to divide the tasking between geographically focused teams – each with a number of plans to execute. For protection/deflection booming, teams will need to continuously monitor boom for effectiveness and adjust for changes in tide, current, and weather. When booming is used for containment with recovery operations, effective temporary waste storage must also be put in place. Safety planning for this strategy must focus on remote operations, the use of manual handling risks, and potential for exposure to hydrocarbons. Operational planning will be based on the *ExxonMobil Oil Spill Response Field Manual* Section 12. Critical daily tasking: All spills: • execute the Incident Action Plan for the current operational period • liaise with the planning section to ensure that field tasking (ICS 204 in Appendix A) is drafted and used for shoreline protection operations • booming operations are to be continuously monitored to ensure ongoing effectiveness • simultaneous operations planning needs to be part of the daily tasking. Operations must also adhere to good practice decontamination practices, establishing and keeping to hot, warm, and cold zones as well as personnel and equipment washdown

<table>
<tr><th colspan="2">Protection of sensitive shoreline resources</th></tr>
<tr><td></td><td>facilities. Site setup must follow the practices outlined in the ExxonMobil Oil Spill Response Handbook.</td></tr>
<tr><td>Logistics section instructions</td><td>The logistics section is to activate contracts and provide ongoing services and supply (from in-house resources or from third parties) in support of the execution of this strategy.

Shoreline protection strike teams may be directed to put in place tactics along any part of the mainland, Bass Strait, or Tasmanian Islands, as per real-time oil spill modelling predictions and/or SMV data. Logistical support will be required at each of these locations to support spill response – moving operators in and out of these locations and supporting them while they are there. In extreme non-assessable locations, this could require rotary wing aircraft moving personnel and freight and equipment lifts/movement.

The logistics section must ensure the correct type and volume of spill response equipment is divided into caches for each of the TRPs.

This includes:
• appropriate lengths of shoreline and shore seal booms, including land and sea anchoring systems and ancillaries
• smaller portable skimming systems
• temporary waste storage (on-site) of a volume equivalent to anticipated recovery
• support and services for on ground operators must also be provisioned, including
- shelter
- sustenance
- sanitation facilities
- transport.

The logistics section is to liaise with DTP on the shoreline requirements and then utilise Esso standing support contractors for the provision of these services where there are gaps between what is needed, and what the DTP is able to provide.

Logistics is to also use the technical advice of AMOSC Liaison Officer/OSRL Liaison Officer as to the best equipment selection for the operation at the time. Factors to be considered include:
• known and anticipated weather conditions
• oil type
• weathering of oil
• anticipated volumes of oil
• duration of operation
• location/accessibility of slick.

The logistics section is to prioritize Esso and AMOSC equipment for deployment for the execution of shoreline protection booming, with National Plan (AMSA)/OSRL equipment to be deployed if there is a shortfall.

For all spills:
• tally up the total amount of booms, skimmers, and ancillaries required based on the recommended TRPs and those that are drafted at the time
• these totals are to be tallied, and requests made to Esso, AMOSC, AMSA and OSRL for equipment as required
• tally up the amount of personnel required to implement and monitor the TRPs
• source these personnel from the same sources as above – Esso and AMOSC, AMSA, and OSRL – and divide these personnel into appropriate teams
• source the required transport and accommodation appropriate to the number of responders.</td></tr>
</table>

Protection of sensitive shoreline resources	
	Critical daily tasking: • validate the quantities of oil spill equipment and personnel – adjust as needed • continuously monitor to ensure that transfers, accommodation and provisioning arrangements are fit for purpose • validate that temporary waste management storage capacity at each site is sufficient.
Termination criteria	Daily NEBA has determined that the strategy is no longer resulting in an overall net benefit to the environment and the identified affected shoreline. An agreement is reached with the Jurisdictional Authority to terminate the response strategy.

13.2 Shoreline clean-up

Shoreline clean-up consists of different techniques to reduce exposure of shoreline sensitives and remove contamination from the area. This response strategy consists of different manual and mechanical recovery techniques to remove oil and contaminated debris from the shoreline to reduce ongoing environmental contamination and impact. It involves physically removing contaminated substrate and debris using various clean-up methods such as:

- Physical removal of oil – Removal of oil and contaminated debris using hand tools i.e. shovels.
- Mechanical removal – Removal of oil and contaminated debris using mechanical means i.e. diggers.
- Surface and subsurface flushing – Low pressure water used to remobilise surface and subsurface oil through use of lances or hoses.
- High pressure washing – High pressure water directed at oiled surfaces to remobilise through use of high-pressure washers. This should not be used in areas of high sensitivity.
- Surf washing – Accelerating the natural degradation of oil by manipulating the sediment, often utilising wave action.

Shoreline booming configurations can also be used to assist with this. For example, horseshoe booming can be used to collect oil that has been remobilised from flushing operations, before being collected via a skimmer or other mechanical means. Advantages and disadvantages of shoreline clean-up are outlined in Table 13-3.

Table 13-3 Advantages and disadvantages of shoreline clean-up response strategy

Advantages	Disadvantages
Removes hydrocarbon from the environment.	Presents safety risks to personnel.
Reduces hydrocarbon exposure to wildlife e.g. cetaceans, birds.	Labour intensive response.
Can be targeted to priority areas.	Potential increase in environmental impacts from response activities e.g. vessels and beach access.
Some equipment e.g. shovels and diggers are often widely available.	Generates large volumes of waste which require disposal.
Natural dispersion will occur simultaneously if oil is remobilised due to wave action.	Can result in erosion of shoreline environments.
	Potential distress caused to wildlife.

Additionally, if a spill has reached or is predicted to reach the shoreline, an assessment of the area will be undertaken using the SCAT. This consists of a series of consistent and repeatable shoreline assessments that prioritise clean-up response based upon shoreline type. The assigned team will identify the appropriate shoreline clean-up technique, report the potential for, or any incidents of, oiled wildlife and undertake routine assessments throughout the response in terms of rehabilitation progress.

Shoreline response can result in the production of large volumes of waste which can present challenges when organising their specialist disposal. The deterministic scenarios run in the modelling for shoreline impacts predict some shoreline impact, for both crude and condensate (RPS, 2025). While crude may be more suited to manual clean-up tactics, condensate is more likely to be readily washed away from sediments during wave and tidal flushing. The oil type should be considered during the NEBA process, and when deciding which tactics to implement for shoreline clean-up. Table 13-4 highlights the suggested clean-up tactics that can be applied to shoreline types.

Table 13-4 Suggested clean-up tactics for various shoreline types

Shoreline type	Suggested clean-up tactic
Man-made structures	• Flooding. • High pressure ambient-water flushing. • Hot water flushing. • Natural recovery.
Rocky shores (sheltered)	• Natural recovery.
Rocky platform/cliff face (exposed)	• Natural recovery.
Sandy beach (mixed sand/shell)	• Manual removal - light oil. • Manual removal - heavy oil. • Flooding. • Mechanical removal. • Natural recovery.
Tidal flats (mud/sand) and vegetative salt/brackish marsh	• Low pressure ambient-water flushing. • Natural recovery.
Shallow seagrass	• Natural recovery.
Reef	• Natural recovery.
Mangroves	• Low pressure ambient-water flushing. • Natural recovery.

13.2.1 Strategy summary - Shoreline clean-up

Shorelines will be (1) assessed using SCAT and (2) shoreline treatment recommendations put in place. Hydrocarbons will then be removed from impacted shorelines via a variety of methods dependent on the substrate and accessibility.

Table 13-5 provides the overall shoreline clean-up response strategy objective, critical outputs, critical IMT tasks, and termination criteria.

Relevant EPOs and EPSs are provided in 13.6.

Table 13-5 Shoreline clean-up strategy objectives, critical outputs, critical IMT tasks, and termination criteria

Shoreline clean-up	
Response objective	To remove bulk stranded oil from accessible shorelines and speed up natural recovery of habitats.
Critical outputs	• Esso to coordinate with contractors (AMOSC/OSRL) and jurisdiction (DTP) to mobilise SCAT teams to conduct shoreline assessment. • SCAT feedback initiates development of initial shoreline treatment recommendations. • Esso/AMOSC/DTP and OSRL if required support initial shoreline clean-up operations. • Esso support jurisdiction in maintaining ongoing SCAT program and development of shoreline treatment recommendations. • Esso support jurisdiction in development of shoreline response plan (SRP). • Esso support jurisdiction in implementation of SRP and support operations. • Esso resources continue to support SCAT operations.
Planning section instructions	All planning for protection of coastlines is to be done in conjunction with the Control Agency IMT. The planning section will oversee two distinct elements of the shoreline response: • gathering data through the SCAT operations • using this data to plan for an extended shoreline clean-up. Shoreline surveys will ideally be done in conjunction with jurisdictional Control Agencies. Shoreline clean-up operations must be performed under the control and coordination of jurisdictions, unless this has been formally devolved to Esso or another group. <u>Data Collection</u> SCAT teams undertaking field surveys need to consistently gather data on shoreline type, oiling description, pollution extent, and clean-up recommendations. As this data gathering is under the planning function and not operations, it becomes a prominent field component of the planning section. Ideally, teams will be multi-disciplinary/multi-agency and include an oil spill operator (for practical clean-up recommendations) combined with an environmental advisor/scientist. Subject matter experts should be consulted for specialist shoreline types or where specific sensitivities exist (e.g. protected/sensitive shoreline habitats, and/or indigenous heritage areas). Data will be fed back from these teams to the Esso GIS COP, allowing (close to) real-time data sharing with the IMT and forward planning for future operations. Critical daily tasking: • SCAT teams form up in the morning, head out to the field, and report back on data collected • shoreline treatment recommendations to be issued for the section of the shoreline where oiling has occurred. These form the basis of the ICS 204 for shoreline clean-up operations • where oil is likely to affect the shoreline, SCAT teams should be recommending the pre-cleaning of beaches to reduce future organic waste • based on the data collected from the SCAT surveys, work assignments (ICS 204 or similar) to be drafted that guide clean-up teams to execute the shoreline treatment recommendations

Shoreline clean-up	
	• shoreline divisions based on a span of control adequate to manage clean-up teams will need to be agreed on and established with the jurisdictional Control Agency. Pre-defined shoreline sectors have been developed in the QRGs (refer to Appendix D: Quick Reference Information) and should form the basis of planning • the Environment Unit Lead to provide advice on whether there are any specific sections of coastline with high-value sensitivities – in these areas, specific separate shoreline cleaning will be required • refer the *ExxonMobil Oil Spill Response Field Manual* for further guidance • establish through SMV activities and a daily NEBA the ongoing benefits of shoreline clean-up • ensure that weather conditions are amenable to safe and effective operations • ensure that the OSMP is in place, with data being collated and sent back to the Environment Unit Lead and IMT Situation Unit • ensure daily operations are recorded (location, estimated amount of oil recovered, estimated amount of water recovered) • assist operations to draft daily ICS 204 operations orders used by the shoreline clean-up operations • work with the DTP Liaison Officer to ensure agreement on the location of specific tactical operations • work with the Safety Officer to ensure that workplace health and safety risks are appropriately identified and managed • plan local temporary waste reception facilities co-located with the shoreline clean-up • activate long-term waste treatment contracts from temporary waste storage sites (refer to Section 15 and *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011).
Operations section instructions	Based on the advice received from Esso by DTP, the operations section, shoreline clean-up branch, will work along with DTP to ensure that resources under Esso command undertake shoreline clean-up consistently and under the control of the DTP. With no marine, aviation, or other spill response/source control interventions, the predicted shoreline loadings for all discharge scenarios are provided in Appendix D: Quick Reference Information. These volumes will be reduced with spill response measures. Shoreline divisions based on a span of control adequate to manage these clean-up teams will need to be agreed on and established with the jurisdictional Control Agency. Esso's resources are likely to work in blended teams with State resources. Teams to execute the shoreline treatment recommendations developed by the SCAT teams in the planning section. Shorelines within the potentially exposed area are predominantly fine, medium, and coarse-grained beaches, interspersed with rocky headlands. There also exists a number of estuarine systems which shelter much higher sensitivity shorelines. The principal issue for response will be accessing the more isolated portions of coastline (far-east Victoria) and how to manage and stage large work forces working in these areas. Safety planning for this strategy must focus on remote operations, manual handling risks, and potential for exposure to hydrocarbons. Operational planning should be based on the *ExxonMobil Oil Spill Response Field Manual* Section 12, and the instructions given by the Control Agency. Critical daily tasking: All spills: • execute the Incident Action Plan for the current operational period

Shoreline clean-up	
	• liaise with the planning section to ensure that field tasking (ICS 204) and shoreline treatment recommendations are drafted and used for shoreline protection operations • work closely with the DTP operations officer as required to ensure ongoing unity of command • shoreline clean-up is continuously monitored to ensure ongoing effectiveness • simultaneous operations planning requirements to be a part of the daily tasking • operations must also adhere to good practice decontamination practices, establishing and keeping to hot, warm, and cold zones, as well as personnel and equipment washdown facilities.
Logistics section instructions	Based on the advice received from Esso by DTP, the logistics section will work alongside DTP to ensure that resources are deployed to assist in the shoreline clean-up consistent with the request of the jurisdictional Control Agency (DTP). With no marine, aviation, or other spill response/source control interventions, the predicted shoreline loadings for all discharge scenarios are provided in Appendix D. These volumes will be reduced with spill response measures, but oil is still very likely to be stranded along the coastline in the majority of modelled scenarios. Shoreline divisions based on a span of control adequate to manage these clean-up teams will need to be agreed on and established with the jurisdictional Control Agency. Key support from Esso in this task includes: • activation of labour hire contracts can provide personnel available for medium-term (2 – 4 months) shoreline clean-up tasking • AMOSC Core Group personnel to supervise and oversee clean-up teams • safety and security personnel to support response activities • working with the EPA and Esso's waste management contractor (Cleanaway) to come up with acceptable bunded temporary storage areas for recovered waste • deployment of all AMOSC, mutual aid, and National Plan temporary storage equipment to points along the coastline as directed by the DTP • activation of accommodation, transport, hygiene facilities, and sustenance. Critical daily tasking: All spills: • execute the Incident Action Plan for the current operational period • liaise with the planning/operations section to ensure that support and services for the relevant ICS 204 forms and shoreline treatment recommendations are delivered • work closely with the DTP logistics section to deliver services and supply under a unity of command • ensure that recovered waste is efficiently managed • develop a forward plan of rotations for shoreline staff engaged in physical labouring activity.
Termination criteria	As directed by the appropriate Control Agency (DTP or Port Authority)

13.3 Tactical Response Plans

Esso and Cooper Energy have jointly developed a shoreline protection and clean-up plan and site-specific TRP for the Gippsland Basin activities.

The plans outline the strategies that may be adopted and actions required to undertake safe and effective shoreline protection and clean-up response. The area assessed ranges from Port of Eden to Wilsons Promontory to Flinders Island in the Bass Strait (Figure 13-2).

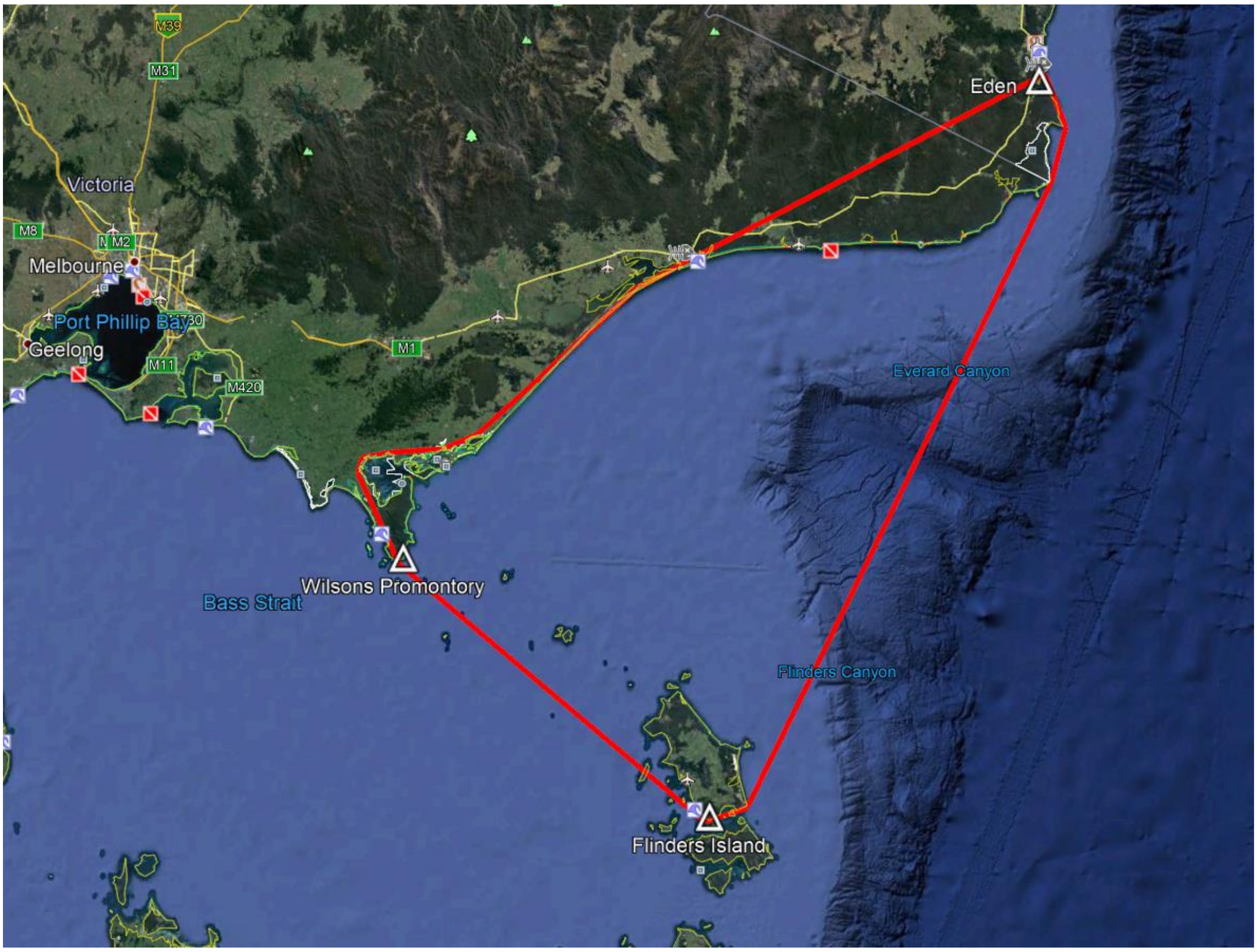

Figure 13-2 Esso and Cooper Energy shoreline protection and clean-up plan assessment area

TRPs are available for primary, secondary and tertiary sites that have been assessed and chosen based on appropriate access for shoreline response, shoreline type and key sensitive receptors. The application of GIS, cross referenced with the Oil Spill Response Atlas sensitivity mapping was carried out prior to site visits to validate both the identification of specific sites as 'high priority', and the strategies proposed for shoreline response.

The following criteria were used to identify sites of high priority and to guide the development of TRPs.

Primary TRP Selection				
		A	B	C
1	*Identified sensitivities to protect*	Marine or coastal area of high sensitivity and/or long recovery time; or	Area of high cultural, local or national significance; and	Where the use of this area will be significantly affected by the presence of oil.
2	*Response is logistically feasible*	Accessible by existing roads, tracks or vessels (Min. 4wd drive and pedestrian access)		
3	*Response is achievable with good chance of success*	No more than 5 boom sets of 250m each required (<1.25KM booming); and	Wind, wave, weather conditions amenable to response options available; and	Probability of current flow not exceeding boom limitations.
Secondary TRP Selection				
Secondary Response Priority sites are based on the site meeting the selection criteria above, however impact on sensitivities is likely to change based on seasonal or environmental conditions (e.g. The inlet or river mouth is closed for the majority of the year and only opens intermittently during periods of heavy rainfall or significant weather events)				

Figure 13-3 Criteria used to identify sites of high priority when developing TRPs

Primary TRP are sites which meet the criteria outlined in Figure 13-3 and therefore have a more detailed response plan including site specifics, response tasks, site setup recommendations, concept of operations and a resource inventory.

Secondary TRP are sites where changes in local conditions govern the potential for impact due to a major marine pollution event. Assessment is required to establish that the site will or will not require immediate shoreline response planning. TRP documentation for secondary sites focuses on site details and response initiation.

Tertiary TRPs are for sites where shorelines are inaccessible or where shoreline characteristics (e.g. step cliffs) limit available response options.

The TRPs are designed to be used by both the IMT and field responders. The TRPs include the following information:

- site description
- site access
- site constraints
- main sensitivities
- facilities/services i.e. food/accommodation/medical facilities/vessel and equipment hire
- key local contacts i.e. land manager, local emergency services, port authority
- images/diagrams marked with staging areas, access points and tactics to be implemented.

TRPs set out a series of site-specific tasks to be executed by responders and a breakdown of resources (personnel and equipment) required to implement each task.

The locations shown in Table 13-6 have pre-drafted TRPs which should be used to guide response planning. Development of additional incident specific response plans may be required for locations at risk of contact in an actual incident without a pre-determined TRP.

The collection, handling and disposal of hydrocarbons introduces potential environmental impacts from the oily waste generated. The oily waste must be handled and disposed of correctly to prevent secondary contamination from contaminated equipment and decanting activities (IPIECA-IOGP, 2013b).

Table 13-6 Predetermined TRP sites

Site name	Site type	Latitude	Longitude
Primary sites			
Victoria			
East Scrubby Island Inlet	Inlet	38°39'37.33" S	146°49'0.39" E
Corner Inlet	Inlet	38°47′49.23″ S	146°30′3.86″ E
Lakes Entrance	Inlet	37°53′26.16″ S	147°58′23.12″ E
Snowy River (Marlo)	River mouth	37°48′12.25″ S	148°32′56.62″ E
Wingan Inlet	Inlet	37°44′56.97″ S	149°30′48.22″ E
Betka River	River mouth	37°35′6.32″ S	149°44′21.58″ E
Mallacoota	Inlet	37°33′47.59″ S	149°45′53.47″ E
NSW			
Wonboyn River	River/lake	37°14′57.55″ S	149°57′59.54″ E
Bittangabee Bay	Inlet	37°12′54.16″ S	150° 0′57.51″ E
Towamba River	River mouth	37° 6′44.56″ S	149°54′45.62″ E
Nullica River	River mouth	37° 5′26.91″ S	149°52′20.21″ E
Flinders Island			
Northeast River	River mouth	39°43′51.81″ S	147°57′38.73″ E
Samphire River	River mouth	40°13′10.56″ S	148°11′47.93″ E
Secondary sites			
Victoria			
Freshwater Creek Inlet	Inlet	39° 4'14.53" S	146°25'37.53" E
Sealers Creek	Creek	39° 1'19.13" S	146°26'34.16" E
Miranda Creek Inlet	Inlet	38°54'59.05" S	146°28'26.84" E
Clonmel Inlet West	Inlet	38°43'37.84" S	146°40'46.03" E
Clonmel Inlet East	Inlet	38°41'42.22" S	146°45'2.52" E
Merriman Creek (Seaspray)	River mouth	38°22′56.18″ S	147°11′4.26″ E
Lake Bunga	Inlet	37°56′50.00″ S	147°48′18.98″ E

Site name	Site type	Latitude	Longitude
Lake Tyers	Inlet	37°51′33.78″ S	148° 5′18.55″ E
Yeerung River	River mouth	37°47′28.02″ S	148°46′26.67″ E
Sydenham Inlet (Bemm River)	River mouth	37°46′49.61″ S	149° 1′11.26″ E
Tamboon Inlet (Cann River)	Inlet	37°46′39.31″ S	149° 9′11.11″ E
Thurra River	River mouth	37°46′56.67″ S	149°18′45.94″ E
Mueller River	River mouth	37°46′44.51″ S	149°19′41.29″ E
Shipwreck Creek	River mouth	37°38′51.45″ S	149°41′58.05″ E
Davis Creek	River mouth	37°34′43.46″ S	149°44′59.14″ E
NSW			
Saltwater and Woodburn Creek	Woodburn Creek	37°10′15.46″ S	150° 0′17.18″ E
	Saltwater Creek	37°10′8.25″ S	150° 0′9.11″ E
Fisheries Creek	Creek	37° 6′38.72″ S	149°55′47.31″ E
Boydtown Creek	River mouth	37° 6′9.86″ S	149°52′51.59″ E
Flinders Island			
Foochow Inlet	Inlet	39°53′53.77″ S	148° 7′20.71″ E
Melrose Road Inlet	Inlet	39°55′34.85″ S	148° 9′18.30″ E
Patriarch Inlet	Inlet	39°56′45.22″ S	148°11′0.45″ E
Cameron Inlet	Inlet	40° 4′14.54″ S	148°17′10.36″ E
Reddins Creek	Creek mouth	40°15′44.19″ S	148° 9′5.00″ E
Cronleys Creek	Creek mouth	40°14′54.22″ S	148° 3′32.09″ E
Fotheringate Creek	Creek mouth	40°12′51.95″ S	148° 2′15.05″ E
Nalinga Creek	Creek mouth	40° 8′10.47″ S	148° 1′1.70″ E
Pats River	River mouth	40° 5′51.62″ S	147°59′40.77″ E
Arthur Bay Conservation Area	Bay	40° 5′12.38″ S	147°58′1.53″ E
Lughrata Salt Marsh	Marsh entrance	39°54′31.82″ S	147°52′30.33″ E
Mines Creek	Creek mouth	39°54′13.00″ S	147°51′59.85″ E
Boat Harbour Creek	Creek mouth	39°51′3.29″ S	147°47′22.15″ E

Site name	Site type	Latitude	Longitude
Killiecrankie Creek	Creek mouth	39°50′9.47″ S	147°50′23.83″ E
Edens Creek	Creek mouth	39°45′40.28″ S	147°53′3.65″ E
Tertiary sites			
Gabo Island	Island	37°33′44.75″ S	149°54′39.07″ E

13.3.1 State government agencies

In response to a spill in Victoria, a shoreline protection and clean-up response will be led by the respective State response agency depending on the location and level of the spill. The Control Agency for Level 1 spills is Esso, while for Level 2 and 3 spills this will be DTP (refer to Table 4-3).

If the spill impacts extend into neighbouring State waters and shorelines, the Control Agencies will change (refer to Table 4-4). In NSW, the Control Agency for Level 1 State waters and shoreline spills will be the Port Authority of NSW. For Level 2 and 3 spills, Transport for NSW will act as the Control Agency. For Tasmania, Level 1 shoreline spills will under TasPorts as the Control Agency, while for Level 2 and 3 spills this will be EPA Tasmania.

The State Governments of Victoria, Tasmania and NSW will ultimately decide, through their Control Agencies, how oil spill response operations will occur on these shorelines, however, Esso will make the shoreline protection plan and TRPs, incident specific NEBA and resources to support the response available to the Control Agencies. Liaison Officers will likely be exchanged between IMTs to manage a coordinated response.

The National Plan also provides guidance on shoreline clean-up techniques as outlined in *National Plan Response, Assessment and Termination of Cleaning for Oil Contaminated Foreshores* (AMSA, 2015b).

13.4 Emergency Response Team/Incident Management Team roles

The individual roles and responsibilities for field personnel (ERT) and/or Esso IMT personnel as applicable for shoreline response (in addition to those described in Section 5), according to the response banding (refer to Section 1.6) are provided in Section 13.4.1, in Table 13-7.

13.4.1 Level 2 and 3 – State waters and shoreline impacts

Due to the nature of the Levels, IMT roles are only relevant to Level 2 and 3 spills where shoreline impacts are expected.

Table 13-7 Shoreline protection and clean-up strategy - IMT roles for Level 2 and 3, State waters and shoreline impacts

Level 2 and 3 spills – State waters and shoreline impacts Shoreline protection and clean-up strategy			Completed?
Inform and agree with Control Agency IMT tactical execution of shoreline planning			
Planning Section Chief/Esso Liaison Officer	Day 1, then each day	• Inform DTP/ Control Agency IMT of Esso's intention to undertake planning for shoreline impacts.	
		• Using data from SMV and TRPs, establish shoreline planning: - shoreline extents - nearest potential incident command points - shoreline incident control structure (sectors, segments and divisions) - draft a sector command structure	

Level 2 and 3 spills – State waters and shoreline impacts Shoreline protection and clean-up strategy			Completed?
		- shoreline access points – people and vehicles.	
		• Share this data with DTP Control Agency IMT for implementation.	
Commence pre-impact surveys and pre-impact shoreline cleaning			
Operations Section Chief	Day 1	• Commence pre-impact surveys: - shoreline surveys on foot – AMOSC, OSRL and Esso personnel - shoreline surveys by air – UAV/contracted platforms.	
	Day 2	• Implement operations - commence shoreline pre-cleaning for areas at immediate risk (first light of Day 2).	
Implement shoreline TRPs to reduce oil impact on sensitive receptors			
Planning Section Chief	Day 1	• Based on trajectory, agree with Control Agency IMT regarding the shoreline TRPs to be implemented.	
Logistics Section Chief	Day 1	• Esso to count equipment and personnel required for the selected TRPs.	
		• Mobilise equipment from: - AMOSC Geelong stockpile - Gippsland Ports/AMSA equipment cache - OSRL global stockpiles.	
		• Request personnel from Esso Core Group and operational workforces; AMOSC Staff/Core Group and Gippsland Ports.	
		• Decide upon incident command posts and shoreline staging areas (east and west extents) for equipment.	
		• Commence the mobilisation of equipment and personnel to the staging area (Lakes Entrance – Bullock Island or BBMT).	
Operations Section Chief	Day 1	• Liaise with Gippsland Ports to commence execution of TRPs.	
		• Commence TRP implementation (based on the agreement with Control Agency IMT/Gippsland Ports).	
Mass mobilisation of equipment, personnel and support for large-scale shoreline operations			

Level 2 and 3 spills – State waters and shoreline impacts **Shoreline protection and clean-up strategy**			**Completed?**
Logistics Section Chief	Day 1	• Activate supply and service contracts for ground support.	
		• Establish equipment staging areas.	
		• Use a third-party to identify accommodation providers (hotels, motels, caravan parks, and campsites).	
		• Select ground transport providers (bus charter).	
		• Use a third-party to identify remote camp options including: - locations - hygiene services - catering - laundry - water treatment options.	
Logistics Section Chief	Day 1	• Activate specialised labour and oil spill response equipment support: - request AMOSC Core Group personnel - request AMOSC immediate deployment of availed Core Group to lead shoreline clean-up teams (<24 hours) - include PPE, shoreline consumables, and other shoreline kits - request OSRL responders to assist with shoreline response.	

Note: Implementation is dependent on NEBA and oil trajectory.

13.5 Response resources

A detailed capability assessment has been undertaken to ensure that Esso has access to sufficient resources to support the State Control Agency with an effective response in a timely manner. The assessment concluded sufficient resources are available within acceptable timeframes to conduct a response should it be required. The shoreline protection and clean-up capability assessment has been completed for planning and preparedness purposes. The State Control Agency will ultimately decide what strategies are to be implemented and the quantity and source of resources to be used during an incident.

13.5.1 Response requirements calculations - Protection and deflection

The requirements for a conducting shoreline protection and deflection can be seen in Table 13-8 . It must be noted that in the event of an incident, these numbers may change according to the situation, informed by pre-impact surveys conducted before shoreline impact. Resources required will depend on the area impacted and should consider weather conditions, tides, and shoreline type when selecting equipment. The *ExxonMobil Oil Spill Response Field Manual* provides industry best practice guidelines and information which was utilised as the basis for typical resources required for strategies and recognised shoreline types.

Worst-case scenario requirements have been calculated based on the TRPs predicted to be impacted within the deterministic modelling scenario with the highest shoreline impact. In scenario 8, a total of 3302m^3 of Kipper condensate was modelled to be released from a pipeline rupture, over 1 hour (RPS, 2025). Deterministic run 92 was selected as a guide for WCDS protection and deflection resource requirements, as this was the simulation that represented the maximum length of accumulated shoreline loading ≥100g/m² from all simulations and scenarios, which was 16km. While this is only one possible outcome from the oil spill modelling, it has been used to calculate the worst case shoreline impact requirements, as it predicts the maximum length of 16km of oiled shoreline by Day 22 (at the ≥100g/m² threshold) (refer to Figure 13-4).

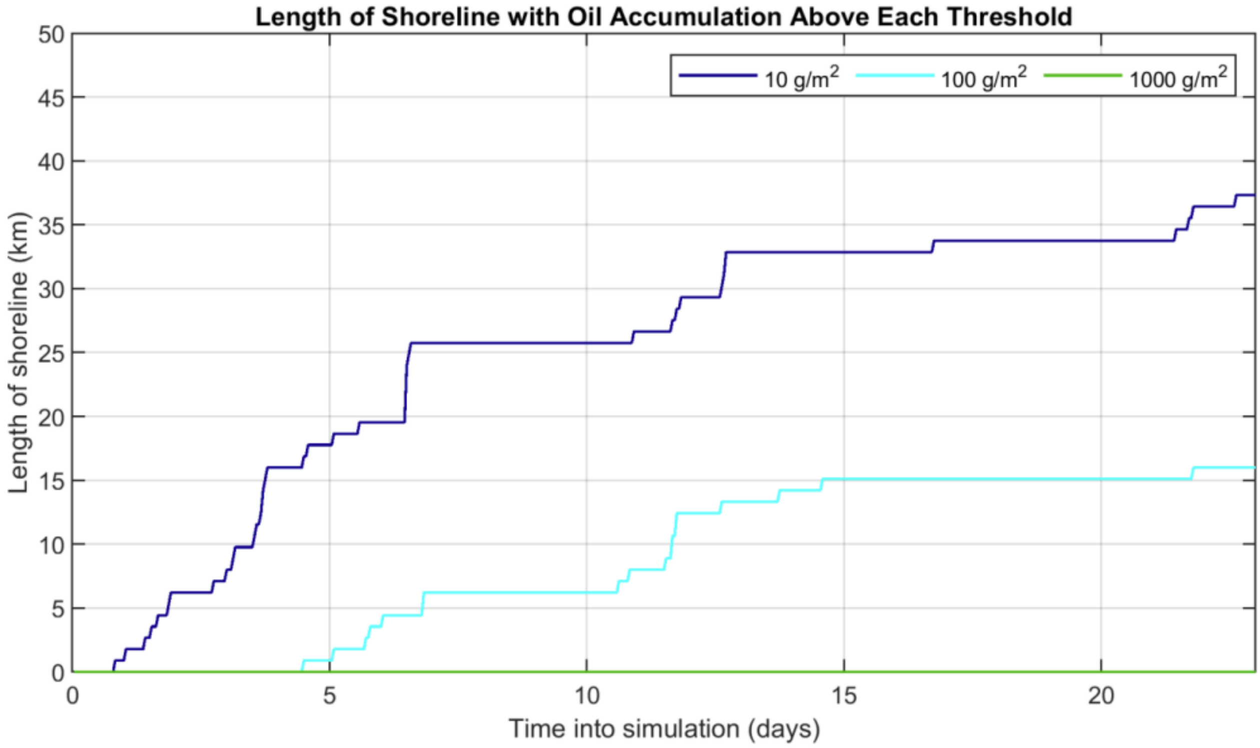

Figure 13-4 Scenario 8, deterministic run 92 shows the predicted length of shoreline accumulation for the simulation with the largest volume of oil ashore and longest length of shoreline with accumulation ≥100g/m² (RPS, 2025)

While the maximum length of shoreline is not predicted to be impacted until the 22nd day, hydrocarbons are forecast to reach the shoreline as early as Day 1, and the threshold of ≥100g/m² of oil accumulation is reached as early as day 4 (RPS, 2025) (Figure 13-4). Therefore, as a strategy, shoreline protection and deflection should be implemented as early as possible in order to prevent as much shoreline accumulation as possible in the event shorelines are threatened by a spill event.

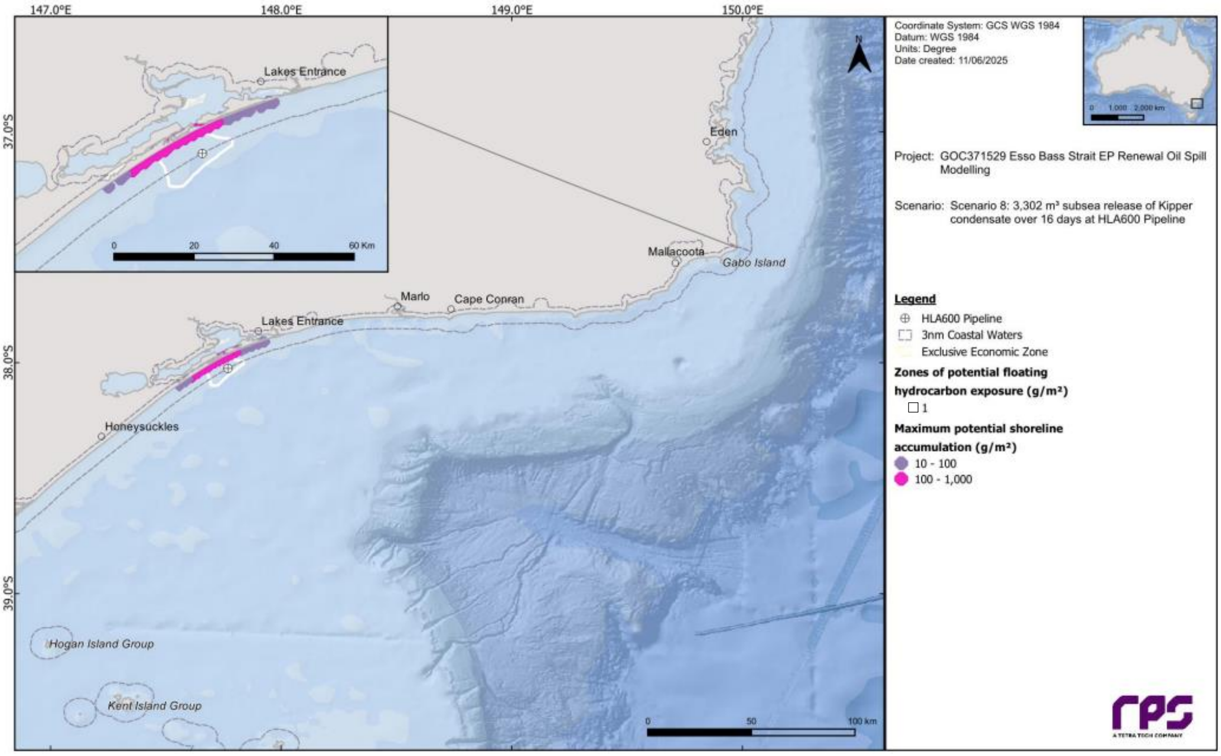

Figure 13-5 Zones of potential floating oil exposure and shoreline accumulation over the entire 22 days, for the simulation with the largest volume of oil ashore and longest length of shoreline with accumulation above 100g/m². As seen in modelling report (RPS, 2025)

Within the shoreline predicted to be impacted in this scenario, the TRP for Lake's Entrance was found to have the highest resource requirements. Therefore, the resources listed in this TRP have been used to inform the worst-case resource needs for Shoreline Protection. WCDS requirements for Lakes Entrance are outlined in Table 13-6.

13.5.2 Response requirements and capability - Protection and deflection

Table 13-8 details both the required resources for implementing a WCDS shoreline protection response, and the shoreline protection capability of Esso. It should be noted that this is a generic list and may be subject to change depending on the situation.

By comparing the minimum requirements needed for implementing a shoreline protection response, to the resources available to Esso, it is evident that Esso's capability far exceeds that required to implement the WCDS shoreline protection and deflection strategy, within the required timeframe to arrive on scene from notification. This demonstrates that Esso has the necessary response capabilities to conduct adequate protection and deflection operations within an acceptable timeframe.

Table 13-8 Resources required to implement a WCDS shoreline protection response compared to the availability of shoreline protection equipment (obtained from oil spill response organisations equipment inventories, August 2025)

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
Nearshore and shoreline	2 x shore seal boom (25m).	Esso	Sea sentinel nearshore boom (5 x 50m = 250m)	Long Island Point oil spill shed: 2	<12 hours

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
boom and ancillaries	26 x nearshore boom (25m). 7 x shoreline anchor kit. 2 x nearshore anchor kit. 2 x shoreline deployment kits. Refer to relevant QRGs and TRPs for more information. Boom type should consider purpose, weather conditions, water depth, anchoring points, and shoreline type. Appropriate ancillaries for deployment of boom i.e. anchors, stakes, air blowers, rope, shackles etc. Anchor selection should consider sediment/shoreline type, suitable anchor points, and access.		Shore seal boom (10 x 25m = 250m)	Long Island Point oil spill shed: 1	
			Sea sentinel power packs	Long Island Point oil spill shed: 6	
			Shore guardian water pumps suction/discharge hoses	Long Island Point oil spill shed: 4	
			Echo blowers with Monson connectors	Long Island Point oil spill shed: 4	
		AMOSC*	Beach guardian Shore seal (25m)	Broome: 4 Exmouth: 20 Jandakot: 19 Geelong: 45	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
			Zoom boom (25m)	Broome: 6 Exmouth: 19 Jandakot: 30 Geelong: 129	
			Boom accessories - Beach guardian deployment kit	Broome: 1 Exmouth: 3 Jandakot: 2 Geelong: 8	
			Boom accessories - Zoom boom anchor kit	Broome: 4 Exmouth: 10 Jandakot: 28 Geelong: 29	
			Sorbent boom	Broome: 6 Geelong: 66	
			Lamor heavy duty boom 1300 (200m) on reel	Broome: 2	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			Lamor heavy duty boom 1500 boom (100m) on reel	Jandakot: 1 Geelong: 1	
			Lamor SFB-18 GP Solid flotation curtain boom (30m lengths)	Jandakot: 18 Geelong: 40	
		AMSA**	Inflatable - STRUCTURFLEX	Melbourne: 6 Sydney: 8	Access to National Plan equipment through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
			Inflatable - CANADYNE	Sydney: 4	
			Self-inflating - VERSATECH zoom	Melbourne: 6 Sydney: 10	
			200m boom - offshore - ROULANDS ro-bay 1500	Melbourne: 1 Sydney: 3	
			Solid buoyancy - STRUCTURFLEX	Sydney: 3	
			Shoreline - CANADYNE shoreline barrier	Melbourne: 6	
			Shoreline - STRUCTURFLEX land sea	Melbourne: 1 Sydney: 15 Gippsland: 1	
			Shoreline land sea kit	Gippsland: 1	
			Shoreline – VERSATECH land sea kit	Gippsland: 4	
		OSRL***	Air skirt boom 10m	Globally: 220	Timings vary according to stockpile location.
			Air skirt boom 20m	Globally: 657	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			Air skirt boom 200m	Globally: 5	Guaranteed access to 50% of SLA stockpile by equipment type. Access to more than 50% approved on a case-by-case basis.
			Shore sealing boom 10m	Globally: 88	
			Shore sealing boom 15m	Globally: 65	
			Shore sealing boom 20m	Globally: 71	
		Mutual aid	Nearshore and shore sealing boom	More equipment is available through the mutual aid agreement AMOS Plan	Various depending on location, facilitated by AMOSC.
Shoreline skimmers	2 x shore based skimming system.	AMOSC*	Minimax 12-brush	Broome: 1 Exmouth: 1 Geelong: 1 Jandakot: 2	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
			Komara 12K-disc	Exmouth: 1 Jandakot: 1 Geelong: 2	
			Komara 20K-disc	Jandakot: 1	
			Komara 30K-disc	Geelong: 2	
			Passive-weir	Exmouth: 1 Jandakot: 1 Geelong: 1	
			Desmi GT 185-brush/weir	Exmouth: 1 Geelong: 1	
			Lamor LWS500-brush/weir	Jandakot: 3 Geelong: 3	
			Lamor rock cleaner brush	Jandakot: 2 Geelong: 2	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			Canadyne multi head-brush/disc/drum	Geelong: 1	
			Versatech multi head-brush/disc/drum	Geelong: 1	
			Egmopol barge with brush skimmer	Geelong: 1	
		AMSA**	Rope mop - OMI 140	Melbourne: 3	Access to National Plan equipment through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
			Rope mop - OMI 260	Melbourne: 1	
			Suction - VIKOMA shorevac	Melbourne: 1	
			Suction - VIKOMA Vikovac	Melbourne: 1	
			Rope mop - Petro CSC62	Sydney: 1	
			Suction - VIKOMA MiniVac	Sydney: 1	
		OSRL***	Rope mop	Globally: 17	Timings vary according to SLA stockpile location. Guaranteed access to 50% of stockpile by equipment type. Access to more than 50% approved
			Cowen weir skimmer	Globally: 2	
			Komara 12k disc	Globally: 1	
			Komara 7k disc	Globally: 17	
			Elastec combi drum	Globally: 5	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			Elastec Magnum 100	Globally: 3	on a case-by-case basis.
			Vikoma MinVac vacuum	Globally: 16	
			Roclean Minivac	Globally: 8	
			Delta Skimmer	Globally: 15	
			Slickdisc MK-13	Globally: 3	
			Aquaguard RBS-20/RBS-5	Globally: 7	
			Desmi DBD 5/13/16	Globally: 12	
			Lamor Multimax	Globally: 1	
			Elastec TracVac	Globally: 1	
			Vikoma Duplex skimmer	Globally: 1	
			Lamor LWS 70	Globally: 3	
			Minimax weir	Globally: 5	
			Skim Pak skimmer head	Globally: 1	
		Mutual aid	Inshore recovery skimmers	More equipment is available through the mutual aid agreement AMOSPlan.	Various depending on location, facilitated by AMOSC.
Waste storage	10 x Fastanks.	Esso	Fastank (9000L)	Long Island Point oil spill shed: 3	<12 hours
			38L eskies	Long Island Point oil spill shed: 8	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			Plastic bags 18" x 23" boxes of 400	Long Island Point oil spill shed: 65	
			60L blue plastic drums with lids	Long Island Point oil spill shed: 145	
		External contractors	See Section 15.2 for both solid and liquid waste storage and transport capabilities	Various	<24 hrs
		AMOSC*	Waste (land) - Vikotank (13,000L)	Broome: 1 Geelong: 1	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
			Waste (land) - Fastank temporary storage (9000L)	Exmouth: 2 Jandakot: 1 Geelong: 3	
			Waste (Land)- Fastank Temporary Storage (3000Ltr)	Jandakot: 1 Geelong: 1	
			Waste (land) - Lamor temporary storage (11,400L)	Jandakot: 4	
		AMSA**	Stationary - FASTANK 10t	Melbourne: 1 Sydney: 4	Access to National Plan equipment through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles
			Stationary - VIKOMA Flexidam 10t	Melbourne: 2 Sydney: 4	
			Stationary – STRUCTURFLEX 10t	Gippsland: 4	
			Stationary – STRUCTURFLEX 5t	Gippsland: 5	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
					<48 hours • National stockpiles <72 hours.
		OSRL***	Fastanks ($5m^3$)	Global: 4	Mobilisation of OSRL equipment from Singapore to Victoria is estimated at 12 hours, while mobilisation from the United Kingdom to Victoria is estimated at 30 hours. Other bases will have longer mobilisation times and can be given upon request.
Vessels	7 x vessels.	Various	Vessel of opportunity.	Multiple (sourced via contractor on an ad-hoc basis).	6 - 12 hours initialisation, available within 72 hours.
Personnel	63 (4 x site supervisor/team leader, 11 x responders, 48 x labourers) All vessel crew and plant operators are assumed to be included when	AMOSC*	AMOSC Staff	Australia: 16****	AMOSC Staff are on call 24 hours a day, 365 days a year. Timeframe for AMOSC personnel depends on location of the
			AMOSC Core Group	Australia: Target to maintain at least 100 members***** (minimum 84, maximum	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
	sourcing heavy machinery and vessels and are therefore not considered under personnel count.			140) as per *AMOSC Core Group Program and Policies* (AMOSC, 2024a)	spill and transport to site.
		OSRL***	OSRL responders	Global: 18	OSRL Staff are on call 24 hours a day, 365 days a year. Timeframe for OSRL personnel depends on location of the spill and transport to site.
Vessels	2 x vessel and crew i.e. shallow draft (1 per strike team)	Various	Vessel of opportunity.	Multiple (sourced via contractor on an ad-hoc basis).	6 - 12 hours initialisation, available within 72 hours.

* Up-to-date lists of AMOSC equipment can be accessed via the AMOSC Members Hub – https://amosc.com.au/members/** For National AMSA resources, only equipment from the nearest two stockpiles has been included (Sydney and Melbourne), however additional resources are available from other locations. Up-to-date lists of National AMSA stockpile equipment can be accessed via the AMSA Contractor Portal (AMSA, 2025b). Additional AMSA State equipment has been included from their Gippsland stockpile and up to date equipment lists can be found on the AMSA Contractor Portal (AMSA, 2025c).

*** Up-to-date lists of OSRL equipment can be accessed via their website (OSRL, 2025), under Response Readiness Report. Availability likely to change monthly, see Readiness Report for most up to date information.

**** AMOSC has a permanent staff of 16 available on a 24/7 basis (AMOSC, 2021), 12 of which are available for field response, and four for administrative/management support roles.

***** A total of 124 personnel in the Core Group via the AMOSC Members Hub – https://amosc.com.au/members/.

These equipment lists were accurate as of August 2025. In the event of a spill, Esso would utilise real-time monitoring and field data from the SMV strategies to inform any tactical decisions on where resources should be allocated for an effective response. The above information is aligned with shoreline protection planning based on location specific TRPs that have been developed for pre-identified priority locations. There exists the potential requirement to implement multiple TRPs during a single incident.

13.5.3 Response requirements calculations: shoreline clean-up

The minimum requirements for a single strike team conducting shoreline clean-up are shown in Table 13-9. It must be noted that in the event of an incident, these may change according to the situation, generally informed by the TRPs, and/or surveys conducted before shoreline impact.

The *ExxonMobil Oil Spill Response Field Manual* provides industry best practice guidelines and information which was utilised as the basis for typical resources required for particular strategies and recognised shoreline types.

Table 13-9 Strike team resource requirements - Shoreline clean-up

Single strike team resource requirements – Shoreline clean-up	
• Clean-up equipment i.e. shovels, rakes (1-2 shovels per two people). • Flushing equipment (1-2 systems per strike team). • Decontamination equipment. • Shoreline boom i.e. shore guardian and sea sentinel, of suitable length for specific area. • Appropriate ancillaries for deployment of boom (i.e. anchors, stakes, line, air blowers). • 1 x skimmer appropriate for the oil type per strike team. • Waste storage equipment (bags, temporary storage). • PPE. • Personnel (Per team: 1 x team leader, 10 x responders).	Resources required will depend on the area impacted and will be directed by the site-specific TRPs and QRGs.

Worst-case scenario requirements have been calculated based on the deterministic modelling for affected shorelines. In Scenario 7, a total of 1123m^3 of Kipper condensate was modelled to be released from a pipeline rupture, over 1 hour (RPS, 2025). Deterministic run 52 was selected as a guide for WCDS shoreline clean-up resource requirements, as this was the simulation that represented the largest volume of oil ashore from all simulations and scenarios. While this is only one possible outcome from the modelling report, it has been used to calculate the WCDS requirements, as it predicts a total volume of 155.8m^3 ashore (Figure 13-6), predicted to begin arriving on Day 1, over a maximum length of 7km of shoreline (Figure 13-7).

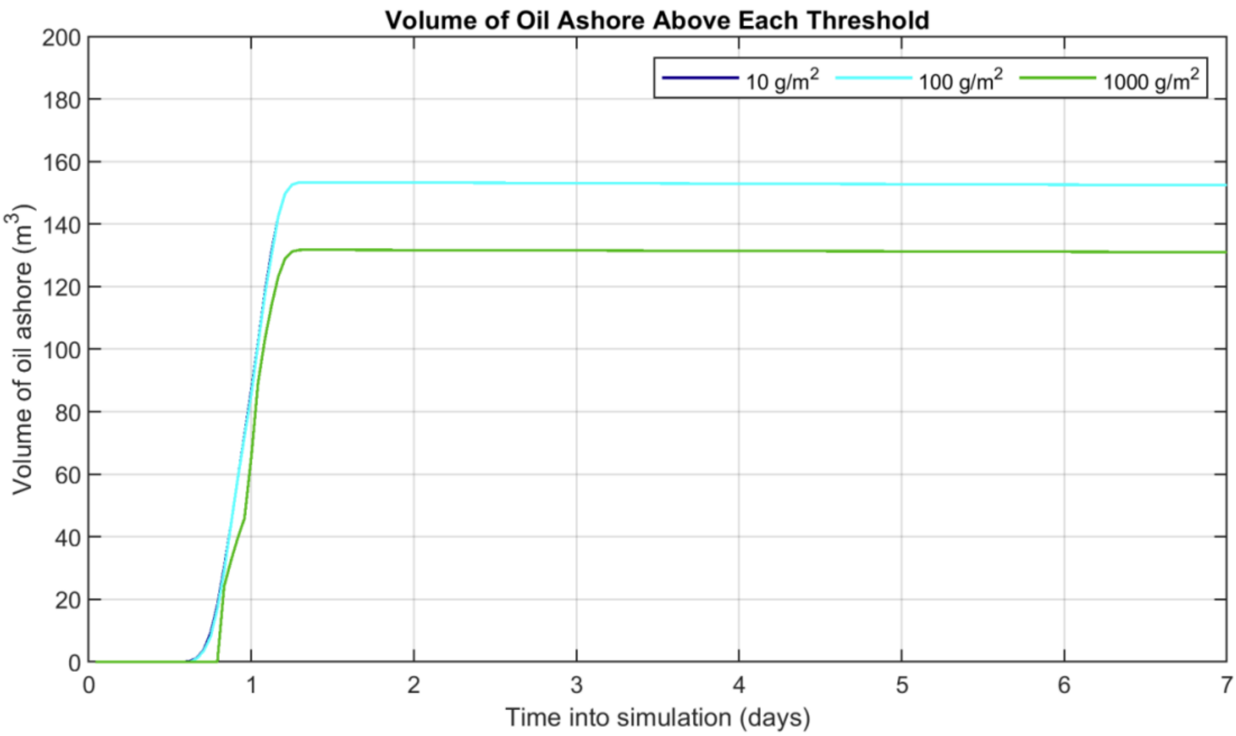

Figure 13-6 Scenario 7 deterministic run 52 predicted a volume of oil ashore above each threshold for the simulation with the largest volume of oil ashore (RPS, 2025)

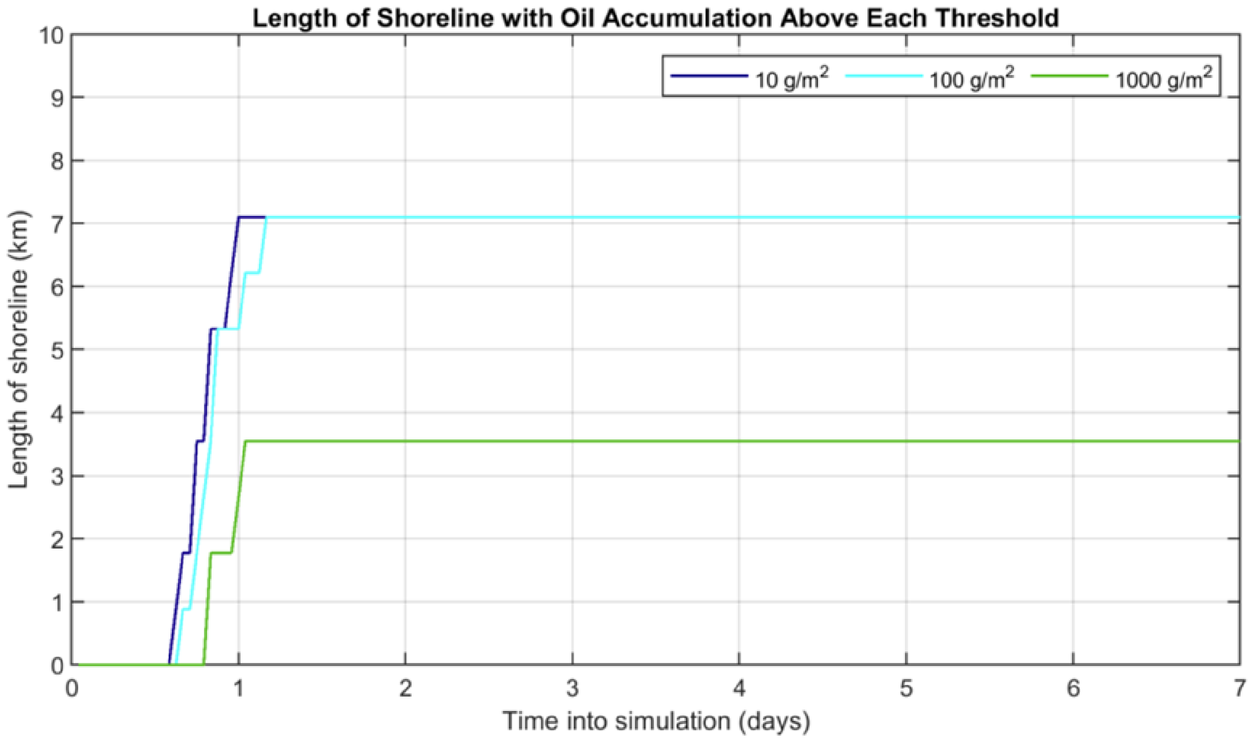

Figure 13-7 Scenario 7 deterministic run 52 predicted a length of shoreline accumulation for the simulation with the largest volume of oil ashore and the largest area of dissolved hydrocarbons above 50ppb (RPS, 2025)

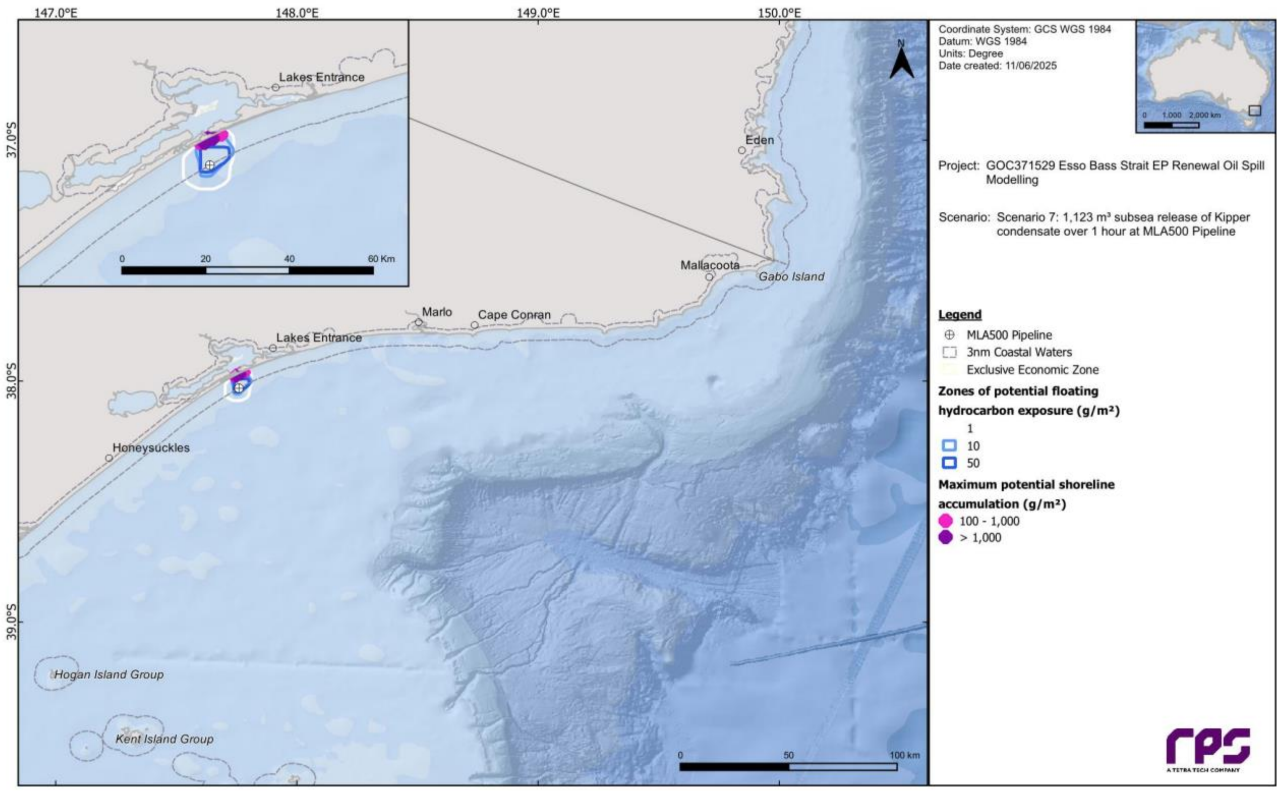

Figure 13-8 Zones of potential floating oil exposure and shoreline accumulation over the entire 7 days, for the simulation with the largest volume of oil ashore (RPS, 2025)

By applying a bulking factor of 10 to account for the volume of oil predicted to come ashore and be collected through shoreline clean-up, it is estimated that up to approximately 1560m^3 of waste will be produced (IPIECA-IOGP, 2015a). This is a highly conservative estimate, as condensate will continue to weather, and is not likely to emulsify, likely reducing shoreline accumulation. Considering this, resourcing requirements for shoreline clean-up operations are calculated based on a manual clean-up rate of 1m^3 of oily waste per person per day (10m^3 daily total per team (excluding the team leader)), as per IPIECA guidelines (IPIECA-IOGP, 2015a). Based on this, and on reasonable resourcing requirements for shoreline clean-up, it is suggested that approximately six shoreline clean-up strike teams are sourced, over a period of approximately 4 weeks, with each strike team containing 11 people (1 x team leader, and 10 x spill responders). Assuming an estimated 10m^3 of oiled waste can be collected per team per day, the following is calculated:

- 6 strike teams x 10m^3 per day x 28 days of operation = 1680 m^3 of oiled waste collected in total.

This more than allows for the collection of the estimated maximum of 1560m^3 of oiled waste. These assumptions account for the maximum modelled volume of oil ashore for this scenario, and the likely collection rate per strike team as per IPIECA guidelines (IPIECA-IOGP, 2015a). The WCDS requirements for six shoreline clean-up strike teams are outlined in Table 13-10.

13.5.4 Response requirements and capability - Shoreline clean-up

Table 13-10 details both the required resources for implementing a WCDS shoreline clean-up response of six strike teams, and the shoreline clean-up capability of Esso. It should be noted that this is a generic list and may be subject to change depending on the situation.

By comparing the minimum requirements needed for implementing a shoreline clean-up response, to the resources available to Esso, it is evident that Esso's capability far exceeds that required to implement the WCDS shoreline clean-up strategy, within the required timeframe to arrive on scene from notification. This demonstrates that Esso has the necessary response capabilities to conduct adequate clean-up operations within an acceptable timeframe.

Table 13-10 Resources required to implement a WCDS shoreline clean-up response compared to the availability of shoreline clean-up equipment (obtained from oil spill response organisations equipment inventories, August 2025)

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
Nearshore and shoreline boom and ancillaries	Dependent on the booming configuration, shoreline length, and boom type. Boom type should consider purpose, weather conditions, water depth, length of area, and shoreline type. Refer to specific QRGs and TRPs for more detail.	Esso	Sea sentinel nearshore boom (5 x 50m = 250m)	Long Island Point jetty: 2	<12 hours
			Shore seal boom (10 x 25m = 250m)	Long Island Point jetty: 1	
			Sea sentinel power packs	Long Island Point jetty: 6	
			Shore guardian water pumps suction/discharge hoses	Long Island Point jetty: 4	
			Echo blowers with Monson connectors	Long Island Point jetty: 4	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
		AMOSC*	Beach guardian shore seal (25m)	Broome: 4 Exmouth: 20 Jandakot: 19 Geelong: 45	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
			Zoom boom (25m)	Broome: 6 Exmouth: 19 Jandakot: 30 Geelong: 129	
			Boom accessories - Beach guardian deployment kit	Broome: 1 Exmouth: 3 Jandakot: 2 Geelong: 8	
			Boom accessories - Zoom boom anchor kit	Broome: 4 Exmouth: 10 Jandakot: 28 Geelong: 29	
			Sorbent boom	Broome: 6 Geelong: 66	
			Lamor heavy duty boom 1300 (200m) on reel	Broome: 2	
			Lamor heavy duty boom 1500 Boom (100m) on reel	Jandakot: 1 Geelong: 1	
			Lamor SFB-18 GP solid flotation curtain boom (30m lengths)	Jandakot: 18 Geelong: 40	
		AMSA**	Inflatable - STRUCTURFL EX	Melbourne: 6 Sydney: 8	Access to National Plan equipment

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			Inflatable - CANADYNE	Sydney: 4	through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
			self-inflating - VERSATECH zoom	Melbourne: 6 Sydney: 10	
			200m boom - offshore - ROULANDS Ro-Bay 1500	Melbourne: 1 Sydney: 3	
			Solid buoyancy - STRUCTURFLEX	Sydney: 3	
			Shoreline - CANADYNE shoreline barrier	Melbourne: 6	
			Shoreline - STRUCTURFLEX land sea	Melbourne: 1 Sydney: 15	
		OSRL***	Air skirt boom 10m	Globally: 220	Timings vary according to stockpile location. Guaranteed access to 50% of SLA stockpile by equipment type. Access to more than 50% approved on a case-by-case basis.
			Air skirt boom 20m	Globally: 657	
			Air skirt boom 200m	Globally: 5	
			Shore sealing boom 10m	Globally: 88	
			Shore sealing boom 15m	Globally: 65	
			Shore sealing boom 20m	Globally: 71	
		Mutual aid	Nearshore and shore sealing boom	More equipment is available through the mutual aid agreement AMOSPlan.	Various depending on location, facilitated by AMOSC.

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
Shoreline skimmers	6 to 12 (1 to 2 system per strike team – dependant on operation)	AMOSC*	Minimax 12-brush	Broome: 1 Exmouth: 1 Geelong: 1 Jandakot: 2	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
			Komara 12K-disc	Exmouth: 1 Jandakot: 1 Geelong: 2	
			Komara 20K-disc	Jandakot: 1	
			Komara 30K-disc	Geelong: 2	
			Passive-weir	Exmouth: 1 Jandakot: 1 Geelong: 1	
			Desmi GT 185 - brush/weir	Exmouth: 1 Geelong: 1	
			Lamor LWS500-brush/weir	Jandakot: 3	
			Lamor rock cleaner brush	Jandakot: 2	
			Canadyne multi head-brush/disc/drum	Geelong: 1	
			Versatech multi head-brush/disc/drum	Geelong: 1	
			Egmopol barge with brush skimmer	Geelong: 1	
		AMSA**	Rope mop - OMI 140	Melbourne: 3	Access to National Plan

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			Rope Mop - OMI 260	Melbourne: 1	equipment through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
			Suction - VIKOMA shorevac	Melbourne: 1	
			Suction - VIKOMA Vikovac	Melbourne: 1	
			Rope Mop - Petro CSC62	Sydney: 1	
			Vaccuum system VIKOMA	Gippsland: 1	
			Suction - VIKOMA MiniVac	Sydney: 1	
		OSRL***	Rope mop	Globally: 17	Timings vary according to stockpile location. Guaranteed access to 50% of stockpile by equipment type. Access to more than 50% on a case-by-case basis.
			Cowen weir skimmer	Globally: 2	
			Komara 12k disc	Globally: 1	
			Komara 7k disc	Globally: 17	
			Elastec combi drum	Globally: 5	
			Elastec Magnum 100	Globally: 3	
			Vikoma MinVac vacuum	Globally: 16	
			Roclean minivac	Globally: 8	
			Delta skimmer	Globally: 15	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			Slickdisc MK-13	Globally: 3	
			Aquaguard RBS-20/RBS-5	Globally: 7	
			Desmi DBD 5/13/16	Globally: 12	
			Lamor Multimax	Globally: 1	
			Elastec TracVac	Globally: 1	
			Vikoma duplex skimmer	Globally: 1	
			Lamor LWS 70	Globally: 3	
			Minimax weir	Globally: 5	
			Skim pak skimmer head	Globally: 1	
		Mutual Aid	Inshore recovery skimmers	More equipment is available through the mutual aid agreement AMOSPlan.	Various depending on location, facilitated by AMOSC.
Decontamination kits	6 (1 per strike team)	Esso	Pipeline oil spill recovery trailer (10 person) - LJ2013	Long Island Point: 1	<12 hours
			Decontamination trailer - LJ2069	Long Island Point: 1	
			Bags of rags	Long Island Point: 35	
			Bags of sorbent	Long Island Point: 45	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			granuals (approximately 20kg per bag)		
			200L yellow wheely bin spill kits	Long Island Point: 8	
			Oil spill recovery trailer - LJ2015	Long Island Point: 1	
		AMOSC*	Decontamination-kit (PPE)	Broome: 1 Exmouth: 1 Geelong: 1	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
			Decontamination-kit locker	Exmouth: 1 Jandakot: 1 Geelong: 1	
			Decontamination - Vehicle washdown trailer	Jandakot: 1 Geelong: 1	
		AMSA**	Decontamination-kit - Trailable	Gippsland: 1	Access to National Plan equipment through AMOSC. Mobilisation from Victoria stockpiles estimated at <48 hours.
		OSRL***	De-contamination equipment pallet	Globally: 3	Timings vary according to stockpile location. Guaranteed access to 50% of stockpile by equipment type. Access to more than 50% on a

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
					case-by-case basis.
		Mutual aid	Decontamination equipment	More equipment is available through the mutual aid agreement AMOSPlan,	Various depending on location, facilitated by AMOSC.
Waste storage	Waste storage appropriate to the level of waste (towable storage bladder, on deck, or built-in vessel containers)	Esso	Fastank (9000L)	Long Island Point: 3	<12 hours
			38L eskies	Long Island Point: 8	
			Plastic bags 18" x 23" boxes of 400	Long Island Point: 65	
			60L blue plastic drums with lids	Long Island Point: 145	
		External contractors	See Section 15.2 for both solid and liquid waste storage and transport capabilities.	Various	<24 hours
		AMOSC*	Waste (land)-Vikotank (13,000L)	Broome: 1 Geelong: 1	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
			Waste (land)-Fastank temporary storage (9000L)	Exmouth: 2 Jandakot: 1 Geelong: 3	
			Waste (land) - fastank temporary storage (3000L)	Jandakot: 1 Geelong: 1	
			Waste (land) - Lamor temporary	Jandakot: 4	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
			storage (11,400L)		
		AMSA**	Stationary - FASTANK 10t	Melbourne: 1 Sydney: 4	Access to National Plan equipment through AMOSC. Equipment mobilisation times will vary according to stockpile location, estimated as the following: • Victoria stockpiles <48 hours • National stockpiles <72 hours.
			Stationary - VIKOMA Flexidam 10t	Melbourne: 2 Sydney: 4	
			Stationary – STRUCTURFLEX 10t	Gippsland: 4	
			Stationary – STRUCTURFLEX 5t	Gippsland: 5	
		OSRL***	Fastanks ($5m^3$)	Global: 4	Mobilisation of OSRL equipment from Singapore to Victoria is estimated at 12 hours, while mobilisation from the United Kingdom to Victoria is estimated at 30 hours. Other bases will have longer mobilisation times and can
			Fastanks ($10m^3$)	Global: 142	

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
					be given upon request.
Manual clean-up tools	30 to 60 shovels	Esso	Beach oil spill clean-up trailer LJ2012 - 40 people	Long Island Point: 2	<12 hours
			Oil spill recovery trailer – LJ2015	Long Island Point: 1	
		AMOSC*	Boom accessories beach guardian deployment kit	Broome: 1 Exmouth: 3 Jandakot: 2 Geelong: 8	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
		AMSA**	Shoreline clean-up kit	Gippsland: 4	Access to National Plan equipment through AMOSC. Victoria stockpiles mobilisation estimated at <48 hours
		Hardware stores	Manual clean-up tools	N/A	Various depending on availability and location
		Mutual aid	Decontamination equipment	More equipment is available through the mutual aid agreement AMOSPlan	Various depending on location, facilitated by AMOSC
Shoreline flushing	6 to 12 (1 to 2 system per strike team	AMOSC*	Shoreline - Impact lance kit	Geelong: 1	Geelong: <12 hours

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
	– dependant on operation)		Shoreline - Flushing kit (4")	Geelong: 1	Jandakot: 3 - 7 days
			Shoreline - Flushing kit (3")	Geelong: 1 Jandakot: 1	
		OSRL***	Shoreline deluge/ flushing system	Globally: 3	Mobilisation of OSRL equipment from Singapore to Victoria is estimated at 12 hours, while mobilisation from the United Kingdom to Victoria is estimated at 30 hours. Other bases will have longer mobilisation times and can be given upon request.
Personnel	66 (6 team leaders, 60 responders). All vessel crew and plant operators are assumed to be included when sourcing heavy machinery and vessels and are therefore not considered under personnel count.	AMOSC*	AMOSC Staff	Australia: 16****	AMOSC Staff are on call 24 hours a day, 365 days a year. Timeframe for AMOSC personnel depends on location of the spill and transport to site.
			AMOSC Core Group	Australia: Target to maintain at least 100 members***** (minimum 84, maximum 140) as per *AMOSC Core Group Program and Policies* (AMOSC, 2024a)	
		OSRL***	OSRL responders	Global: 18	OSRL Staff are on call 24 hours a day, 365 days a year.

Equipment type	Required	Capability			
		Organisation	Type	Location/ quantity	Estimated mobilisation timeframe
					Timeframe for OSRL personnel depends on location of the spill and transport to site.

* Up-to-date lists of AMOSC equipment can be accessed via the AMOSC Members Hub – https://amosc.com.au/members/.

** For National AMSA resources, only equipment from the nearest two stockpiles has been included (Sydney and Melbourne), however additional resources are available from other locations. Up-to-date lists of National AMSA stockpile equipment can be accessed via the AMSA Contractor Portal (AMSA, 2025b). Additional AMSA State equipment has been included from their Gippsland stockpile and up to date equipment lists can be found on the AMSA Contractor Portal (AMSA, 2025c).

*** Up-to-date lists of OSRL equipment can be accessed via their website (OSRL, 2025), under Response Readiness Report. Availability likely to change monthly, see Readiness Report for most up to date information.

**** AMOSC has a permanent staff of 16 available on a 24/7 basis (AMOSC, 2021), 12 of which are available for field response, and four for administrative/management support roles.

***** A total of 124 personnel in the Core Group via the AMOSC Members Hub – https://amosc.com.au/members/.

Equipment lists were accurate as of August 2025. In the event of a spill, Esso would utilise real-time monitoring and field data from the SMV strategies to inform any tactical decisions on where resources should be allocated for an effective clean-up response.

13.5.5 Shoreline controls, Environmental Performance Outcomes, Environmental Performance Standards and Measurement criteria

Table 13-11 provides consideration of all controls considered that are either adopted or not adopted for improved capability for shoreline response.

Table 13-11 Controls considered for shoreline response strategy

All controls considered	Benefit	Feasibility	Adopted
Shoreline assessment	Ensure understanding of sensitivities and shorelines within potentially impacted zones can help to inform the response and areas of priority.	Implement OSMP modules: • O3.1 Shoreline segmentation • O3.2 Shoreline character • O3.3 Oil on shorelines • O3.4 Shoreline profile. Resources are required to conduct both pre- and post-impact shoreline assessments, however the value of the information is important when informing the response. Conducting these assessments are practicable under the circumstances.	Adopted **(OPEP13-CM01)**
Shoreline TRPs	Where shoreline contact is predicted, implementing shoreline TRPs in consultation with Control	These plans will be made available to the Control Agency.	Adopted **(OPEP13-CM02)**

All controls considered	Benefit	Feasibility	Adopted
	Agency to inform response and aid decision making. Using these to inform shoreline response reduces time taken to respond, as shoreline protection plan and TRPs describe the shoreline types and have categorised primary and secondary sites which have been assessed and chosen based on appropriate shoreline response options, shoreline type and key sensitive receptors, along with resources required to pre-emptively create these plans and identify priority sites.	Pre-made TRPs can be used to inform the response and increase efficiency of decision making, therefore should be implemented. This is an achievable and practicable action.	
Incident specific NEBA	NEBA completed prior to conducting dispersant activities can help to inform response and aid decision making.	The NEBA assessment can be implemented with minimal additional resources required, and with no additional safety risks. It is feasible to conduct this as a control to assist with response strategy selection.	Adopted **(OPEP13-CM03)**
Daily records of oil recovered	Collecting daily records of location, volume of oil recovered, and volume of water recovered can help to determine effectiveness of response.	Information on the effectiveness of equipment and techniques can be obtained through daily data collection to improve the efficiency of the response. This is an achievable action that requires minimal additional resourcing.	Adopted **(OPEP13-CM04)**
Exclusion zones	Establishing exclusion zones can prevent further decontamination and reduce safety risks to personnel.	The OPEP requires that exclusion zones are put in place which consider health and safety and environment risks. These exclusion zones are determined in consultation with the State Control Agency. Disruption to other maritime activities may be caused by exclusion zones, however the reduction to potential safety risks makes this a necessary action.	Adopted **(OPEP13-CM05)**
Shoreline protection equipment	Can be used to limit or reduce shoreline impact. Where shoreline contact is predicted from operational monitoring to be accumulations >100g/m^2, shoreline clean-up equipment is mobilised to help reduce the impact on	Esso has assessed that sufficient equipment is available in Level 1 and 2 equipment stockpiles located in Geelong to support shoreline protection and response requirements during the Initial Response Phase (first 48 hours). Relatively high numbers of personnel can be required for	Adopted **(OPEP13-CM06)**

All controls considered	Benefit	Feasibility	Adopted
	the environment by reducing shoreline impact.	deployment and may be impacted by the weather and sea state.	
Shoreline clean-up personnel	Can conduct both shoreline protection and shoreline clean-up to reduce the environmental impact of an incident.	The required personnel may be obtained through various sources and will need to be managed internally. It is feasible to do this in the event of an incident.	Adopted **(OPEP13-CM07)**
Shoreline protection and clean-up operations continued during the night	Shoreline response operations running 24 hours and not only confined to daylight hours would shorten response duration.	Response during the night has significant safety risks (e.g. injury) to personnel. Also, effectiveness of response would be more difficult to monitor in the dark.	Not adopted
Incident specific waste management plan	*Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011) can be used to develop incident specific waste management plans.	An incident specific waste management plan is a viable operational control which can be implemented in the event of a spill. Minimal resources are required to implement this and no additional safety risks are associated with the development of a plan.	Adopted **(OPEP13-CM08)**
Waste management transport and disposal	Management of waste disposal will allow oil to be disposed of responsibly, further reducing the impact on the environment.	Poor waste management arrangements can bottleneck response. Therefore, agreements must be in place to responsibly transport and dispose of any waste collected. Cost of maintaining agreements will be involved, however it is appropriate in the circumstances to adopt this in the event of a spill.	Adopted **(OPEP13-CM09)**
Implement measures to minimise secondary contamination at temporary storage locations	Minimising secondary decontamination will reduce clean-up efforts required and will contain response efforts. Secondary contamination may lead to further clean-up efforts if other areas become oiled. Zoning of hot, warm and cold zones can assist with preventing secondary contamination.	Actions to prevent secondary contamination are appropriate in the circumstance and are practicable to implement.	Adopted **(OPEP13-CM10)**
Reconfigure and relocate equipment	Reduce mobilisation times.	Relocation of equipment will be costly. The current equipment location allows for rapid mobilisation to the priority shorelines which are most likely to be impacted based on modelling. Relocation of shoreline protection and clean-up equipment will only bring	Not adopted

All controls considered	Benefit	Feasibility	Adopted
		minimal, if any, benefits in response capability. Relocation will also affect other industry titleholders. Esso has assessed that sufficient equipment is available in Level 1 and 2 equipment stockpiles located in Geelong to support shoreline protection and response requirements during the Initial Response Phase (first 48 hours).	
Resource to implement shoreline protection strategies prior to minimum shoreline contact time	Reduce environmental impacts to estuaries.	Stochastic modelling of 100 oil spills for eight scenario was conducted, indicating a minimum time of 14 hours for oil to accumulate on shoreline cells $\geq 10 g/m^2$ (East Gippsland and Lakes Entrance). Additional cost in maintaining response capacity of this size to implement TRPs prior to shoreline impact is disproportionate to the risk. Esso has assessed that sufficient equipment is available in Level 1 and 2 equipment stockpiles located in Victoria to support shoreline protection and response requirements during the Initial Response Phase (first 48 hours).	Not adopted
Agreement with response company	Access to additional shoreline protection and clean-up equipment and personnel.	Esso has an agreement in place with AMOSC and OSRL to allow access to AMOSC/OSRL equipment. Esso can provide some of its own responders, has agreements in place with labour hire companies and has access to personnel from AMOSC Core Group and OSRL. The cost of having an agreement in place with additional response companies outweighs the small benefit that would come from such an agreement.	Not adopted
Additional agreements in place with monitoring providers	Access to additional personnel for implementation of O3 Shoreline assessment.	There would be added costs associated with having additional agreements in place and assessing and maintaining the capability to respond. While the length of shoreline to be assessed is potentially significant, the number of field teams only needs to be enough to stay 2 - 3 days ahead of the shoreline operations (IPIECA-IOGP, 2015a). in order to support the effective and	Not adopted

All controls considered	Benefit	Feasibility	Adopted
		timely implementation of shoreline clean-up and protection. The third-party OSMP consultant has access to staff with shoreline assessment experience. Based on the WCDS for shoreline protection and deflection, resources available through the existing agreement easily meet this requirement and would be sufficient for the implementation of the OSMP O3 module. In the case of a Level 3 incident, Esso would draw upon relationships and/or agreements with SCAT specialists that will be called upon on a best endeavours basis.	
Increase number of trained personnel	Additional trained personnel available who could direct untrained labourers.	There is a significant cost associated with increasing the number of trained personnel and maintaining training status. Esso has access to AMOSC Core Group, OSRL and ExxonMobil GRT trained personnel in addition to agreements with labour hire companies which is sufficient to meet required the capability. Should additional personnel be required to support a response, just in time training can be utilised to train labourers and management staff for these labourers.	Not adopted
Agreements with shoreline response vessel operators	Esso-coordinated access to vessels in the event of a spill.	Benefit limited because Gippsland Ports are able to provide suitable vessels for nearshore response activities. Further agreements not deemed necessary.	Not adopted
TRP/GRPs for the whole coastline	Increased understanding of capability requirements beyond the areas currently covered by TRPs.	TRPs have been developed for priority sites that are appropriate for shoreline response, covering a large stretch of coastline. TRPs are supported by the TRP – shoreline protection and clean-up document which provides non-location specific guidance. Given the low likelihood for shoreline exposure beyond this area, the benefit of addition TRPs is considered minimal.	Not adopted
Shoreline protection and clean-up undertaken during	Response duration would be reduced by continuing work throughout the night.	Conducting shoreline response overnight introduces safety risks e.g. injury) to personnel.	Not adopted

All controls considered	Benefit	Feasibility	Adopted
the night in addition to daylight hours		Undertaking shoreline protection and clean-up during daylight hours to ensure personnel can see sensitive environmental receptors and minimise impacts cause by unplanned interactions with flora and fauna.	

EPOs and EPSs for shoreline response are outlines in Table 13-12.

Table 13-12 EPOs and EPSs for shoreline response

EPO	Control	EPS	Measurement criteria
OPEP13-EPO01: Reduce oil impact on shoreline environmental sensitivities	**OPEP13-CM01:** Shoreline assessment	**OPEP13-EPS01:** Implement OSMP modules: • O3.1 Shoreline segmentation • O3.2 Shoreline character • O3.3 Oil on shorelines • O3.4 Shoreline profile. In accordance with requirements and timeframes in Section 3.3 of the OSMP. Trained shoreline assessment field personnel will be available in the first 24 hours.	• IMT logs demonstrating a shoreline assessment technique. • Incident Action Plan with tasking for shoreline assessment teams. • Operational monitoring reports. • Field reports.
	OPEP13-CM02: Shoreline TRPs	**OPEP13-EPS02:** Where shoreline contact is predicted, implement shoreline TRPs in consultation with Control Agency	• TRPs documented and on file. • Incident Action Plan outlines locations for shoreline response teams.
	OPEP13-CM03: Incident specific NEBA	**OPEP13-EPS03:** NEBA assessment is completed prior to shoreline response.	• IMT logs confirm NEBA was conducted to assist with response strategy selection. • Incident Action Plan details instruction for shoreline response teams. • Incident specific NEBA on file.
	OPEP13-CM04: Daily records of oil recovered	**OPEP13-EPS04:** Daily shoreline protection and clean-up operations are recorded (location, estimated amount of oil recovered,	• IMT logs recording volume of oil collected. • Incident Action Plan outlines locations for

EPO	Control	EPS	Measurement criteria
		estimated amount of water recovered).	shoreline response and oil recovery. • Records stating locations, types and volumes of oil recovered.
	OPEP13-CM05: Exclusion zones	**OPEP13-EPS05:** Exclusion zones are put in place which consider health and safety and environment risks. These exclusion zones are determined in consultation with the Control Agency.	• IMT logs demonstrating decisions regarding exclusion zones. • Incident Action Plan details the exclusion zones. • Records stating exclusion zones.
	OPEP13-CM06: Shoreline protection equipment	**OPEP13-EPS06:** Where shoreline contact is predicted from operational monitoring to be accumulations >100g/m^2, shoreline clean-up equipment is mobilised from closest stockpile in Geelong in the first 48 hours – refer to Table 13-10. This stockpile includes: • 1125m of shore seal boom (45 x 25m) • 3125m of zoom boom (125 x 25m) • 15 x offshore skimmer system • 4 x fast tanks • anchor kits + accessories. Additional shoreline clean-up equipment can be mobilised from State/AMOSC/AMSA/OSRL stockpiles.	• IMT Logs confirm shoreline equipment was available within 48 hrs. • Incident Action Plan details the shoreline protection equipment required.
	OPEP13-CM07: Shoreline protection personnel	**OPEP13-EPS07:** Where shoreline contact is predicted, shoreline protection personnel will be mobilised in the first 48 hours	• IMT logs confirming personnel were available and mobilised within 48 hours. • Incident Action Plan details the actions for the shoreline protection teams.
	OPEP13-CM08:	**OPEP13-EPS08:**	• IMT logs records of waste management

EPO	Control	EPS	Measurement criteria
	Incident specific waste management plan	An incident specific waste management plan is developed to ensure management of waste.	plan being implemented. • Incident Action Plan outlines directions to the shoreline response teams to follow the waste mgt plan. • Incident specific waste management plan recorded and on file.
	OPEP13-CM09: Waste management transport and disposal	**OPEP13-EPS09:** For waste management capabilities, see Section 15.2. Where shoreline contact is predicted from operational monitoring to be accumulations >100g/m^2, shoreline clean-up equipment is mobilised from closest stockpile from 48 hours. The waste capability can be found in Section 15.2 and includes up to: • 63,000kL of liquid storage • 180kL/day of liquid processing • six liquid non-flammable trucks/day • 10 iso flammable liquid trucks/ day • 33,400t of solids storage • 1050t/day of solid processing • 20 solid trucks/day. Waste management contractors used will comply with state waste management regulations, by using facilities that have suitable licenses or permits in place to transport and receive oiled waste.	• IMT logs confirming waste management transport and disposal resources were available within 48 hours. • Incident Action Plan details the requirements of the waste management plan to be followed.
	OPEP13-CM10: Implement measures to minimise secondary contamination at temporary storage locations	**OPEP13-EPS10:** Soil will be initially sampled to establish baseline clean levels. Establish bunding adequate to hold the daily bagged totals.	• IMT logs demonstrating zoning techniques. • Incident Action Plan details directions for shoreline clean-up

EPO	Control	EPS	Measurement criteria
			teams to dispose of waste. • Final operational monitoring reports.

13.6 Environmental impact assessment

Nearshore shoreline protection activities are likely to be undertaken from smaller shallow-draft vessels that may be launched from a number of different locations along the coastline, or directly on beaches vis trailer or boat ramp. Access to the crafts, equipment and transit to the affected areas has the potential to disturb local fauna, sensitive habitats, and cultural heritage areas and disrupt local recreational activities.

Shore clean-up activities may disturb a number of nearshore habitats as identified in the prepared TRPs and QRGs. The collection, handling and disposal of hydrocarbons introduces potential environmental impacts from the oily waste generated.

An impact assessment for each environmental aspect has been undertaken, and additional controls have been identified to minimise the environmental impacts associated with shoreline protection and clean-up which are detailed within the ALARP assessment in Section 13.7. Further assessment of the acceptability of these impacts in an oil spill response context and controls identified for minimising the environmental impact of shoreline protection and clean-up activities are described below.

Change to the function, interests or activities of other users could occur through disruption to recreational and commercial activities from vessel operations and site access. Assessment of the acceptability of these impacts in an oil spill response context are described in Table 13-13.

The environmental impacts associated with shoreline operations include:

- socioeconomic (fisheries, tourism, culture)
- physical presence - interaction with fauna and flora
- physical presence – sensitive and protected areas and parks
- waste generation and secondary contamination.

Table 13-13 Environmental aspects of shoreline clean-up

Affected receptor	Impact assessment	Consequence Level
Socioeconomic (fisheries, tourism, culture)	Recreational fishing is generally concentrated inside the Gippsland Lakes or along the Ninety Mile Beach coastline. Additional vessels and personnel in the area may cause disruption to fishing activities. The movement of personnel, vehicles and equipment may disturb or damage aboriginal and non-aboriginal cultural heritage artefacts or sites). The presence of stranded oil and clean-up operations may require temporary beach closures. The mobilisation of equipment and personnel for shoreline protection and clean-up activities will be localised. The oil spill TRPs detail socioeconomic sensitives for each location. The response activities will be in accordance with State response agency directions and Esso will provide the incident specific NEBA, TRPs and shoreline protections plan and support where requested.	III

Affected receptor	Impact assessment	Consequence Level
	The additional presence of vessels and personnel will only be short-term and in localised area for the response period. Once the response has been stood down nearshore socioeconomic activities can resume without disruptions, therefore the consequence of the impacts of the response activity is considered to be to be Consequence Level III.	
Physical presence - Interaction with fauna and flora	Shoreline clean-up activities could lead to damage to shoreline habitats from high-pressure washing, trampling of shoreline sediments, flora and fauna from vehicles and mechanical recovery techniques, and disturbance of shoreline biota by human responders and vehicles. The sandy beaches, lakes, mangroves and salt marshes in the Bass Strait provide potential foraging and breeding habitat for numerous bird species and benthic communities. Environmental impacts to intertidal shoreline habitats and communities may have indirect effects on the food chains, affecting the macro fauna communities which they support. In addition, the removal of habitat (such as sand from beaches) may also make them more vulnerable to ongoing erosion. The TRPs detail environmental sensitives for each location and the OPEP states the requirement for setting up exclusion zones in conjunction with the State Control Agency. Response activities should avoid these exclusion zones, unless they have been selected specifically for clean-up or OWR activities. Shoreline clean-up activities may adversely affect important natural behaviours of biota, e.g. nesting of shorebirds and seabirds, or pinnipeds. Human presence may also cause ground disturbance due to manual raking and turnover of sandy beaches or intertidal flats to remove accumulations of weathered oil, which could affect sediment infauna, and cultural heritage sites. The potential consequences will be localised, and short term, flora and fauna should recover quickly once activities cease.	III
	Protection and deflection activities utilise booms which sit on the water's surface, therefore fauna capable of diving, such as cetaceans and pinnipeds can avoid contact. Pinnipeds are likely to be present in large numbers. Impacts to species that inhabit the water column such as sharks and fish are not expected. Protection and deflection response activities primarily occur in the ocean with exception of laydown areas. The mobilisation of equipment and personnel for shoreline protection and clean-up activities will be localised. The oil spill TRPs detail environmental sensitives for each location and the OPEP states the requirement for setting up exclusion zones in conjunction with the State Control Agency. Laydown areas will use existing road and paths for access; therefore, the shoreline impacts are expected to be inconsequential and have no adverse effects. The additional presence of vessels, equipment and personnel will only be short-term and in localised area for the response period,	III

Affected receptor	Impact assessment	Consequence Level
	therefore, the consequence of the impacts of the response activity is considered to be Consequence Level III.	
Physical presence - Sensitive and protected areas and parks	Potential impacts to sensitive and protected areas may be impacted from shoreline protection and clean-up activities. Human activity in sensitive areas may adversely affect important natural behaviours of biota, e.g. nesting of shorebirds and seabirds, or pinnipeds. Human presence may also cause ground disturbance due to manual raking and turnover of sandy beaches or intertidal flats to remove accumulations of weathered oil, which could affect sediment infauna, cultural heritage sites, temporary exclusion of residents and tourists from amenity beaches. Laydown areas for protection and deflection activities will use existing road and paths for access, therefore, the impacts to sensitive and protected areas and parks are expected to be inconsequential and have no adverse effects. The oil spill TRPs detail environmental sensitives for each location and the OPEP states the requirement for setting up exclusion zones in conjunction with the State Control Agency. The consequence to sensitive areas is assessed as localised and short term, it will recover quickly once activities cease.	III
Waste management and secondary contamination	Accidental loss of waste during recovery, transport and disposal activities may result in secondary contamination. The *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011) details requirement for selecting waste management options and equipment and storage to be utilised to prevent secondary contamination. The shoreline protection and clean-up plan and site-specific TRPs include information on staging areas and access points. The generation of waste will be short-term and is localised for the response period, therefore, the consequence of the impacts of the response activity is considered to be to be Consequence Level III.	III

13.7 Demonstration of ALARP

The rationale for the demonstration of ALARP for shoreline response can be seen in Table 13-14.

Table 13-14 ALARP Decision Context justification

ALARP Decision Context and justification	**Decision Context A** Shoreline protection and clean-up activities are standard practice for hydrocarbon spills to reduce hydrocarbons in the marine environment and minimise impacts to shoreline sensitivities. There is a good understanding of potential impacts from shoreline protection and clean-up activities. This response option would be supported by an incident specific NEBA. All activities undertaken in State waters will be led by the State-led Control Agency. Good practice controls have been identified to ensure environmental impacts associated with mobilising this response are reduced to ALARP. These controls will be implemented by the State led Control Agency in a response scenario and have been included in the OPEP. Note that the response must be led by State Control Agencies, with Esso providing support and resources when requested.

Shoreline response strategies have been demonstrated to be ALARP.

13.8 Demonstration of acceptability

Table 13-15 outlines the demonstration of acceptability of environmental impact from shoreline response.

Table 13-15 Acceptability of environmental impacts from shoreline protection and clean-up

Factor	Demonstration Criteria	Criteria Met	Rationale
Principles of ESD	a) The integration principle - decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations.	✓	Not inconsistent. Planning for Bass Strait producing and non-producing activities and decision making as to the most appropriate strategies and methods has incorporated contemplation of both short and long term economic, environmental, social and equitable considerations.
	b) The precautionary principle - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	✓	Not inconsistent. All oil spill response activities are implemented with the aim of reducing the overall environmental impact from a spill incident. Source control activities are implemented to stop the flow of oil and minimise safety risks and environmental damage. Impacts associated with source control are offset by the broader positive effects of reducing the impact of a spill incident on coastal and marine sensitivities and socio-economic receptors (e.g. fishing, tourism).
	c) The intergenerational principle - the present	✓	Not inconsistent.

Factor	Demonstration Criteria	Criteria Met	Rationale
	generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.		The assessment undertaken has concluded that environmental impacts will be short term in nature. Any impacts as a result of implementation of source control activities to respond to an unplanned release of fuel will not impact the health, diversity and productivity of the environment in such a manner that future generations may be impacted.
	d) The biodiversity principle - the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making.	✓	Not inconsistent. All aspects related to source control activities have been detailed in Producing and Non-Producing EPs Sections 6 and 7 and have been evaluated as having the potential to result in a Consequence Level III or lower (IV). Controls, EPO's, EPS's and measurement criteria are also described in Sections 6 and 7 of the Producing and Non-Producing EPs. The potential impact associated with the implementation of this emergency response option is limited to a localised short-term impact, which is not considered as having the potential to affect biological diversity and ecological integrity.
Legislative and other requirements	Legislative and other requirements have been identified and met.	✓	The proposed control measures align with the requirements of: • OPGGS Act • *Emergency Management Act 2013* (Vic) • *Emergency Management Act 1989* (NSW) • *Emergency Management Act 2006* (Tas) • *Wildlife Act 1975* (Vic) • EPBC Act • *Wildlife Act 1975* (Vic) • *Nature Conservation Act 2002* (Tas) • *National Parks and Wildlife Act 1974* (NSW).
Internal context	Consistent with Esso's Environment Policy.	✓	Proposed control measures are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*".
	Meets OIMS objectives.	✓	Proposed control measures meet: • OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements • OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors

Factor	Demonstration Criteria	Criteria Met	Rationale
			• OIMS System 10-2 objective to ensure effective response to emergencies and business disruptions that threaten the safety, security and health of the public, contractors and employees, the environment, asset integrity, and critical business operations
External context	Stakeholder concerns have been considered/addressed through the consultation process.	✓	No specific stakeholder concerns have been raised.

14 Oiled wildlife response

14.1 Overview

Coastal areas are most likely to have the largest number of affected wildlife from an oil spill given that coastal areas provide habitat for breeding and foraging as well as protection from the elements. The scale of the impacts to wildlife does not always correlate with the amount of oil spilled but is dependent on factors such as the timing and location of an incident, the product type, metocean conditions, and the corresponding movements of species that feed, nest or generally inhabit a particular area.

OWR is a combination of activities with the objective to minimise the impacts of an oil spill on wildlife (such as birds, mammals and reptiles) by both prevention of oiling where possible and mitigating the effects on individuals following an oil spill incident.

It is important to note that the *Western Australian Oiled Wildlife Response Manual* (WAOWRM) and the *Western Australian Oiled Wildlife Response Plan* (WAOWRP) are documents that are generally accepted as best practise throughout Australia. Due to the absence of an Oiled Wildlife specific plan in Victoria, the WAOWRM and WAOWRP have been used to inform this OPEP. The key stages of OWR according to the WAOWRP are:

- wildlife reconnaissance
- preventative actions
- wildlife rescue/capture
- wildlife field processing
- wildlife intake
- wildlife cleaning/decontamination
- wildlife rehabilitation including conditioning
- post rehabilitation release.

These stages can be grouped into three main strategies according to Global Oiled Wildlife Response Service (GOWRS, 2015):

- Keep the oil away from the wildlife - Keeping oil away from the potentially affected populations through various oil spill response strategies e.g. containment and recovery.
- Keeping wildlife away from the oil - Deterrence or displacement strategies (e.g. hazing, visual flags/balloons, barricade fences; or pre-emptive capture) i.e. keep the wildlife away from the oil.
- Rehabilitation of oiled wildlife - Recovery, construction of operating OWR unit, transport, waste management, veterinary examination, triage, stabilisation, cleaning/washing, rehabilitation, release.

All of these strategies coincide with constantly gaining situational understanding of the species/populations potentially affected. Site-specific wildlife reconnaissance would be undertaken on foot, by vehicle, by vessel or by aircraft, and should be conducted across areas potentially at risk, and can be undertaken in conjunction with other monitoring activities (e.g. SCAT, vessel surveillance, etc.). This activity is key to gather baseline information on the numbers of wildlife present and/or individuals oiled. Information from the reconnaissance is then used to inform the NEBA and assist the IMT to select suitable response options. Ongoing SMV may utilise surveillance and monitoring aircraft and vessel resources.

The level of OWR required can be scaled up or down based on the predicted/observed number of wildlife affected. The magnitude of the wildlife impact can be determined based on the available data and through the use of the evaluation tool in the WAOWRP (Table 14-1).

Table 14-1 WAOWRP guide for rating the wildlife impact of an oil spill (Department of Transport and AMOSC, 2022b)

Wildlife impact rating (rating for each criterion)	LOW	MEDIUM	HIGH
What is the likely duration of the wildlife response?	<3 days	3 - 10 days	>10 days
What is the likely <u>total</u> intake of animals?	<10	11 - 25	>25
What is the likely <u>daily</u> intake of animals?	0 - 2	2 - 5	>5

Wildlife impact rating (rating for each criterion)	**LOW**	**MEDIUM**	**HIGH**
Are threatened species, or species protected by treaty, likely to be impacted, either directly or by pollution of habitat or breeding areas?	No	Yes - possible	Yes - likely
Is there likely to be a requirement for building primary care facility for treatment, cleaning and rehabilitation?	No	Yes - possible	Yes - likely

As part of wildlife preparedness activities, petroleum titleholders must outline in their EP the details for operational and scientific monitoring, identification of priority protection areas and collection of baseline data on wildlife that may be impacted during a spill scenario. A number of Esso species response plans have been developed and are available on the Esso ACONEX database, to provide responders with guidance on appropriate response strategies for individual species.

Advantages and disadvantages of OWR are outlined in Table 14-2.

Table 14-2 OWR strategy objectives, critical outputs, critical IMT tasks, and termination criteria

Advantages	**Disadvantages**
Protection/hazing methods may minimise oiling of wildlife.	Presents safety risks.
Can reduce hydrocarbon exposure to wildlife e.g. cetaceans, birds.	Distress caused to wildlife.
Can rehabilitate and re-release wildlife that has been impacted by hydrocarbons.	Labour intensive.
-	Increase in environmental impacts e.g. generates waste and potential for secondary contamination.
	Mainly applicable for shoreline environments and where surface oil is present.
	Wildlife may become desensitised to hazing.

14.1.1 Protection of nesting/haul-out sites

Some species can aggregate in large groups for nesting or haul out sites. In the context of an oil spill, this may put large numbers of animals at risk of being oiled. Resources can be used to protect these areas of aggregation to reduce this risk. Similar to the strategies outlined in Section 13.1, some sensitive areas may be protected from the impacts of the spill through use of protection and deflection response tactics. This involves the deployment of shoreline boom e.g. sea sentinel and shore guardian, to prevent oil from reaching an identified sensitivity.

In the case of nesting and haul out sites, these are predominantly located along shorelines and coastal areas. It should be noted that some response activities can cause disturbance to both target and non-target animals, and a NEBA should be conducted prior to response strategies being implemented.

14.1.2 Hazing and deterrence

Hazing and deterrence are terms used for activities that are undertaken to prevent or discourage wildlife from entering contaminated sites or move them away from areas that are likely to be affected by the spill. This can reduce the number of organisms that come into contact with the oil, therefore reducing the overall wildlife impact. Commonly used methods can include use of vehicles, noise makers, and visual deterrents. *Key principles for the protection, care and rehabilitation of oiled wildlife* (IPIECA-IOGP, 2017b) can be referenced for more information on the implementation of hazing as a wildlife protection strategy.

A potential negative outcome of hazing can be disturbance of non-target biota, potential for behavioural impacts and stress-related responses, and unintended movement of animals into areas of higher risk. Therefore, it is essential that these activities are considered carefully before implementing and are informed by a trained expert so as to be most effective, and to minimise negative effects on the wildlife.

14.1.3 Pre-emptive capture

Pre-emptive capture is the capture of healthy, unoiled wildlife and transporting them to an area that is unlikely to be affected by the spill. Wildlife can either be held in captivity post capture until the risk of oiling has passed or can be relocated to an alternative habitat where no risk of oiling is present. Captured wildlife must be continually monitored for signs of stress, and this should only be conducted by trained personnel. More information on implementing this strategy can be found in the WAOWRM (2022).

Potential negative impacts of this method are inadequate capture techniques that have potential to cause stress, exhaustion or injury to wildlife and pre-emptive capture could cause undue impacts when oiling is not certain. It is therefore essential that these activities are informed and carried out by trained experts so as to be most effective, and to minimise negative effects on the wildlife. It is important to note that pre-emptive capture cannot be done with all species, as some are more sensitive to human contact and stress-inducing activities. An expert will help to inform if this method is appropriate.

14.1.4 Triage assessments

Triage is the process of prioritising and sorting wildlife based on their overall health, welfare, conservation value and resource availability. A triage assessment may be required if rehabilitation is taking place, to ensure the best chance of long-term survival. Triage allows for resources to be prioritised, to provide the optimum results for the rehabilitation process. Depending on the number of animals admitted, the species present, financial resources available, and personnel availability, this system of selection allows for the animals with the best chance of release and long-term survival to be identified and prioritised. This also serves to minimise the suffering of animals with the least chance of survival. Considerations in this decision-making process may include:

- medical requirements e.g. overall health prior to the spill
- conservation status
- life stage e.g. breeding adults may be prioritised over juveniles
- reproductive stage e.g. breeding adults may be prioritised over non-breeding adults.

The overall aim of rehabilitation is to return as many animals to pre-spill condition as possible, and triage can be used to direct resources where they have the highest chance of success. The assessment process is typically undertaken by a veterinarian under direction of the State agency.

14.1.5 Rehabilitation centres for oiled wildlife

Rehabilitation methods that aim to effectively reverse the effect of oiling, and return the health of an oiled animal back to an assumed pre-oiling state are wildly researched and can be found in the WAOWRP, and IPIECA good practise guides (IPIECA-IOGP, 2017b) (IPIECA-IOGP, 2014). They often require the set-up of a primary care facility. For a functional and effective primary care facility to be set up, several requirements must be met:

- Location - Facilities should be as close as possible to field operations to minimise the transit time and potential stress caused by transportation.
- Water - Unlimited supply of heated fresh water is required for washing oiled animals. A water flow capacity reaching up to 60,000L/day will be required for an approximate 100 - 500 wildlife casualties at any one time. A heavily oiled seabird requires an average of 600L of water during the washing process, in addition to that required for pools, general cleaning, showers and food preparation.
- Ventilation - For the health and safety of both humans and animals, indoor holding areas must have a minimum of 10 - 15 air exchanges per hour to minimise airborne diseases, and petroleum fume effects.
- Electricity - This is required for lighting, electrical equipment e.g. dryers, and heating and cooling of pools. An electrical load of at least 800 amps will be required for a centre dealing with 100 to 500 wildlife casualties.
- Space - Adequate space will be required to house holding rooms, triage, washing and drying processes, food preparation, personnel facilities, conditioning pools, parking and waste facilities. An approximate 5000m^2 is required for approximately 500 wildlife casualties.
- Access - Adequate parking for unloading animals, equipment laydown areas and facilitating waste disposal are necessary.

- Accommodation and facilities – Primary care facility should be located within a reasonable distance from personnel accommodation and sanitation facilities. This includes having rest areas for personnel on site.

Facilities should be designed in accordance with hot, warm and cold zones to minimise the potential for secondary contamination.

Potential negative impacts of wildlife rehabilitation include the potential to cause injury, stress and pressures to wildlife. All handling should be carried out by trained personnel to minimise this.

14.1.6 Waste

The rehabilitation and cleaning process for oiled wildlife generates large amounts of contaminated waste which requires appropriate disposal. This includes but is not limited to:

- contaminated water from washing and rinsing activities
- pool water (wildlife pools will require continuous skimming)
- contaminated towels, rags, paper, transport boxes etc.
- used syringes and PPE
- medical waste (sharps, biological material)
- carcasses
- plastics, food scraps and other wastes from human activities.

Wastewater from cleaning will contain oil, dirt and detergent. Any oil contaminated water, towels or PPE are to be collected and disposed of according to the incident's waste management plan.

It is important to note that according to the WAOWRM it takes approximately 600L of water to clean a heavily oiled seabird. On top of this, water is required for pools, general cleaning, showers, food preparation etc, and this will all require proper disposal.

14.1.7 State Government agencies

In response to a spill, an OWR will be led by the respective State Control Agency. Shoreline receptors in Victoria, NSW and Tasmania have been identified by modelling results to be potentially impacted by the WCDS spills.

The State Governments of Victoria, Tasmania and NSW will ultimately decide, through their Control Agencies, how oiled wildlife spill response operations will occur on these shorelines, however, Esso will make the shoreline protection plan and TRPs and resources to support the response available.

If an incident occurs in Commonwealth waters and has the potential to enter State waters, State agencies must be immediately notified and Esso will support and provide resources when requested. Esso personnel may also be deployed under the direction of the State to undertake wildlife response activities, however only trained people can interact with oiled fauna species.

14.1.7.1 Victoria

The DEECA has primary responsibility for wildlife impacted by marine pollution in Victorian State waters, regardless of spill size. DEECA respond by:

- assessing the situation and the welfare needs of the animals
- determining the type of intervention required
- maintaining core resources such as trained and experienced personnel, equipment and response plans
- managing these events in a safe and coordinated way.

In the event of an oil spill in which a wildlife response is required, DEECA coordinate the rescue, treatment and rehabilitation of wildlife with the aim of returning as many affected animals to the wild post treatment as possible. Response plans generated in the event of a spill should also include post-spill monitoring of populations and habitats. Impacted Wildlife is generally treated at the Phillip Island Nature Park or by other wildlife rehabilitators with relevant experience.

The DEECA are guided by the *Victorian Emergency Animal Welfare Plan* and the *State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3* (DTP, 2025a). Refer to Table 4-5 for links to these documents.

14.1.7.2 Tasmania

The Control Agencies within Tasmania are Tasmanian Ports Corporation (TasPorts) within port waters and the Tasmanian EPA outside of port waters. The TasPlan is administered by the EPA and is integrated with the National

Plan, the *TasPorts Oil Spill Contingency Plan*, the *Tasmanian Emergency Management Plan* and the *Tasmanian Oiled Wildlife Response Plan*.

According to the TasPlan, for OWR in Tasmanian waters, the NRE Tas contribute support roles in a maritime environmental incident including the activation of the *Tasmanian Oiled Wildlife Response Plan*, provision of advice on wildlife management, provision of an observer on initial reconnaissance flights, and management of the rescue and rehabilitation of oiled wildlife. The Parks and Wildlife Service, a subgroup of NRE Tas, will also provide advice on national parks and reserves, and assistance with rescue and rehabilitation of oiled wildlife. Refer to Table 4-5 for links to these external documents.

14.1.7.3 New South Wales

NSW Maritime is the Control Agency for marine pollution control incidents within State waters in accordance with the *NSW State Emergency Management Plan* and the *NSW State Waters Marine Oil and Chemical Spill Contingency Plan* (NSW State Emergency Management Committee, 2022) which is a sub-plan of the *NSW State Emergency Management Plan*.

According to the *NSW State Emergency Management Plan*, for marine pollution incidents involving wildlife, NSW EPA will provide immediate relief to limit the impact of the emergency on the environment and provide humane care to native wildlife. The EPA, as sponsor and coordinator of the Environmental Services Functional Area, will lead or assist as appropriate where there is or will likely to be impacts to the environment in line with the *Environmental Services Functional Area Supporting Plan*. The responsibility for an emergency affecting wildlife is therefore to be placed within the Environmental Services Functional Area. Refer to Table 4-5 for links to these external documents.

14.1.8 Strategy summary – Oiled wildlife response

Esso will assist the State-led OWR response with equipment and technical personnel as requested. Table 14-3 provides the overall OWR strategy objective, critical outputs, critical IMT tasks, and termination criteria.

Relevant EPOs and EPSs are provided in Section 14.3.3.

Table 14-3 OWR strategy objectives, critical outputs, critical IMT tasks, and termination criteria

OWR strategy	
Response objective	Esso assists State Government efforts through the timely provision of industry OWR resources.
Critical outputs	For all spills: • Esso will activate the OWR resources of AMOSC and OSRL, equipment, personnel, and technical • these resources will be provided to the Control Agency-led IMT for use in reducing the impact of oil on wildlife • Esso to coordinate with contractors (AMOSC/OSRL/other wildlife organisations) and jurisdiction (e.g. DTP) throughout response, to support ongoing OWR • Esso to support jurisdiction in maintaining ongoing reconnaissance oiled wildlife surveys.
Planning section instructions	All planning for protection of coastlines is to be done in conjunction with the Control Agency IMT. Allocate an Esso IMT member to act as Liaison Officer to Control Agency IMT. A dedicated Liaison Officer for OWR will likely be required. This role may be filled by the AMOSC OWR Coordinator. Details of numbers, type, status and type of fauna impacted by marine pollution to be collated by SITU. Daily ICS 204 work assignments to be developed in consultation with operations, logistics and Control Agency IMT.

OWR strategy	
	Utilise area response plans and/or Esso species response plans to assist with incident specific response planning. Critical daily tasking: • oiled wildlife surveys to be conducted, with data being reported back to IMT • assist with the identification and set up of rehabilitation centres • support OWR contractors and personnel • conduct daily NEBAs to establish response strategies • plan local temporary waste reception facilities • activate long-term waste treatment contracts from temporary waste storage sites (refer to Section 15 and *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011).
Operations section instructions	Based on the advice received from Esso by DTP, the operations section, will work along with DTP to ensure that resources under Esso command undertake OWR consistently and under the control of the DTP. Safety planning for this strategy must focus on remote operations, manual handling risks, and potential for exposure to hydrocarbons. Critical daily tasking: All spills: • support OWR activities as directed by Control Agency IMT and per ICS 204 work assignments • execute the Incident Action Plan for the current operational period • operations must also adhere to good practice decontamination practices, establishing and keeping to hot, warm, and cold zones, as well as personnel and equipment washdown facilities.
Logistics section instructions	Based on the advice received from Esso by DTP, the logistics section, will work along with DTP to ensure that resources under Esso command undertake OWR consistently and under the control of the DTP. On request from Control Agency IMT, mobilise OWR equipment from AMOSC, DwyerTech contract, and/or OSRL (equipment, Sea Alarm and Global Oiled Wildlife Response Service). Equipment owned by State agencies will be requisitioned via the Control Agency IMT under National Plan arrangements. Critical daily tasking: All spills: • execute the Incident Action Plan for the current operational period • liaise with the planning/operations section to ensure that support and services for the relevant ICS 204 forms are delivered • work closely with the DTP logistics section to deliver services and supply under a unity of command • ensure that recovered waste is efficiently managed • develop a forward plan of rotations for OWR staff engaged in physical labouring activity.
Termination criteria	All oiled wildlife has been successfully rehabilitated and released. Daily NEBA has determined that the strategy is no longer resulting in an overall net benefit to the environment and the identified affected shoreline.

OWR strategy	
	An agreement has been reached with Jurisdictional Authorities and stakeholders to terminate the incident response.

14.2 Emergency Response Team/Incident Management Team roles

The individual roles and responsibilities for field personnel (ERT) and/or Esso IMT personnel as applicable for shoreline response (in addition to those described in Section 5), according to the response banding (refer to Section 1.6) are provided in Table 14-4, Table 14-5 and Table 14-6.

14.2.1 Level 1 - Commonwealth waters, localised impacts only

Table 14-4 OWR strategy - IMT roles for Level 1, Commonwealth waters, localised impacts only

Level 1 spills - Commonwealth waters, localised impacts only **OWR**			**Completed?**
Through the Control Agency IMT, engage with DEECA/NRE Tas/NWS EPA – Marine Conservation Program and provide support to their concept of operations for OWR.			
Planning Section Chief/Environment Unit Lead	Day 1	• Based on the NEBA, fates and trajectory modelling, ascertain likely wildlife impacts – provide this data to Control Agency IMT, DEECA/NRE Tas/NWS EPA and DTP. • Refer to area response plan and/or species response plans to determine likely tactics to reduce wildlife impacts: - hazing - re-location - capture and rehabilitation. If any of the above tactics are to be implemented, local experts will be required to inform responses.	
Logistics Section Chief	Day 1	• As requested, or directed by Control Agency IMT and based on advice of the OWR Coordinator, stand up AMOSC OWR resources: - facility support contract - equipment and clean-up resources from Geelong - equipment and clean-up resources from Jandakot - AMOSC OWR support team.	
Operations Section Chief Industry OWR Coordinator	Day 2	• Execute Esso OWR response operations as required or directed by Control Agency IMT.	

Note: This strategy is dependent on NEBA outcomes and oil trajectory.

14.2.2 Level 2 and 3 - Commonwealth waters, no predicted shoreline impacts

Table 14-5 OWR strategy - IMT roles for Level 2/3, Commonwealth waters, no predicted shoreline impacts

Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts OWR strategy			Completed?
Through the Control Agency IMT, engage with DEECA/NRE Tas/NSW EPA – Marine Conservation Program and provide assistance to their concept of operations for OWR			
Planning Section Chief/Environment Unit Lead	Day 1	• Based on the NEBA, fates and trajectory modelling, ascertain likely wildlife impacts – provide this data to DEECA/NRE Tas/NWS EPA and Control Agency IMT. Refer to area response plan and species response plan for guidance.	
		• Send Liaison Officer Control Agency IMT.	
		• Advise ExxonMobil GRT Coordinator of potential resource requirements.	
		• Determine likely tactics to reduce wildlife impacts: - hazing - re-location - capture and rehabilitation. If any of the above tactics are to be implemented, local experts will be required to inform species specific responses.	
Operations Section Chief	Day 1	• Establish Industry OWR Coordinator (from AMOSC) to oversee Esso OWR activity.	
Logistics Section Chief	Day 1	• As requested, or directed by Control Agency IMT and on the basis of advice of the OWR Coordinator, stand up AMOSC OWR resources: - facility support contract - equipment and clean-up resources from Geelong - equipment and clean-up resources from Jandakot - AMOSC OWR support team.	
		• If required, stand up OSRL OWR resources. - 48-hour first response equipment - Sea Alarm and Global Oiled Wildlife Response Service personnel.	
	Day 2	• Deploy requested OWR resources to the OWR incident command post/field facility.	

Level 2 and 3 spills - Commonwealth waters, no predicted shoreline impacts **OWR strategy**			**Completed?**
Operations Section Chief Industry OWR Coordinator	Day 2	• Execute Esso OWR response operations as required or directed by Control Agency IMT.	

Note: This strategy is dependent on NEBA outcomes.

14.2.3 Level 2 and 3 - State waters and shoreline impacts

Table 14-6 OWR strategy - IMT roles for Level 2/3, State waters and shoreline impacts

Level 2 and 3 spills – State waters and shoreline impacts **OWR strategy**			**Completed?**
Through the Control Agency IMT, liaise with DEECA/NRE Tas/NSW EPA and aid their concept of operations for OWR			
Planning Section Chief/Environment Unit Lead	Day 1	• Based on the NEBA, fates and trajectory modelling, ascertain likely wildlife impacts – provide this data to Control Agency IMT.	
		• Send Liaison Officer to Control Agency IMT.	
		• Propose tactics to Control Agency IMT that may reduce wildlife impacts. Refer to area response plan or species response plans for guidance.	
Operations Section Chief	Day 1	• Establish Industry OWR Coordinator (from AMOSC) to oversee Esso OWR activity.	
Logistics Section Chief	Day 1	• As requested, or directed by Control Agency IMT and based on the advice of the OWR Coordinator, stand up AMOSC OWR resources: - facility support contract - equipment and clean-up resources from Geelong - equipment and clean-up resources from Jandakot - AMOSC OWR support team.	
		• Establish availability of ExxonMobil GRT personnel trained in OWR.	
		• If required, stand up OSRL OWR resources. - 48-hour first response equipment - Sea Alarm and Global Oiled Wildlife Response Service personnel.	
		• Coordinate ground transport, accommodation, and other support needs for industry response personnel.	

Level 2 and 3 spills – State waters and shoreline impacts OWR strategy			Completed?
	Day 2	• Deploy requested OWR resources to the OWR incident command post/field facility.	
Operations Section Chief/Industry OWR Coordinator	Day 2	• Execute Esso OWR response operations as required or directed by Control Agency IMT.	

Note: Dependant on NEBA and oil trajectory.

14.3 Response resources

14.3.1 Response requirements calculations

The requirements for OWR will be heavily informed by in-field data collected during reconnaissance surveys and will be situation specific. Resources required will depend on the number of individuals impacted, species effected, season, life stage, location or distance from rehabilitation centre. Response will be directed by local experts and reconnaissance data collected throughout response. Refer to the WAOWRM and WAOWRP for best practise guidance. It must be noted that in the event of an incident, these numbers may change according to the situation, generally informed by the TRPs, and/or pre-impact surveys conducted prior to sensitivity being impacted.

According to the WAOWRP, personnel numbers can be estimated based on the severity ratings listed in Table 14-1. This tool can be used to estimate the number of personnel that will be required depending on the severity of the wildlife impacts and has been summarised in Table 14-7.

Table 14-7 Projected OWR personnel requirements based on severity of impact ranking (Department of Transport and AMOSC, 2022b)

Role	Wildlife impact		
	LOW	MEDIUM	HIGH
IMT and operational management	1	2 - 3	4
Site leaders, Team leaders and specialist staff	0 - 3	10 - 13	19
Team members	0 - 2	39	70
Maximum total	6	55	93

Worst-case scenario requirements are based on the deterministic modelling for affected shorelines. In Scenario 7, a total of 1123m^3 of Kipper condensate was modelled to be released from a pipeline rupture, over 1 hour (RPS, 2025). Deterministic run 52 was selected as a guide for WCDS OWR resource requirements, as this had the earliest arrival times ashore (refer to Figure 13-6 and Figure 13-7). Oil accumulation above at both ≥100g/m^2 and ≥1000g/m^2 thresholds could be observed on Day 1, amounting in a peak volume of 155.8m^3 accumulation (RPS, 2025). This scenario has been used as the WCDS for OWR due to it predicting the highest levels of shoreline accumulation for the Gippsland region and therefore higher potential for interaction with wildlife along the shore. The threshold of ≥100g/m^2 was used as this has been defined as having the potential to harm shorebirds and wildlife ((French, 1996); (French-McCay D. , 2009)). The modelling report identified multiple Biologically Important Areas within the Bass Strait region, some of which are ranked as Vulnerable and Endangered by *The IUCN Red List of Threatened Species* (IUCN, 2025). Additionally, avian receptors are likely to require primary care facilities. For this reasoning, using Table 14-1, the wildlife impacts are likely to be medium to high. Therefore, according to Table 14-7, the likely number of personnel required for an OWR is 55 to 93 (Department of Transport and AMOSC, 2022b).

14.3.2 Response requirements and capability

While DEECA would ultimately manage OWR, Esso can provide first strike actions, including reconnaissance, monitoring, mobilisation of equipment, hazing (supported by experts and partner organisations), and formulation of wildlife plans within the Incident Action Plan.

14.3.2.1 Australian Marine Oil Spill Centre

Esso has the capability to mobilise wildlife equipment within 12 hours through access to the AMOSC Geelong equipment stockpile (refer to Table 14-8), which could be supplemented with additional equipment and personnel from further afield within 3 - 7 days. This response would be maintained until such time that DEECA take over the organisation of OWR. Esso would continue to support OWR as a supporting agency.

14.3.2.2 OSRL

Esso has access to the services of both Global Oiled Wildlife Response Service and Sea Alarm through OSRL, alongside equipment targeted for the first 48 hours of an avian response.

The Global Oiled Wildlife Response Service network is a group of affiliated wildlife emergency response organisations, who represent a unified voice for preparedness and response activities as delineated in a signed Collaboration Agreement and associated Governance Charter. The network's members provide professional Level 3 oiled wildlife services through the utilisation of experienced and trained wildlife response personnel working to agreed international standards. Global Oiled Wildlife Response Service can provide a four-person assessment team to determine the scope and scale of an incident; assess existing wildlife response capabilities (personnel, facilities and equipment); and recommend the most appropriate wildlife strategies. These roles are as follows:

- an operations and planning specialist
- a field capture specialist
- a rehabilitation/facility specialist
- an incident-specific specialist or veterinarian.

Sea Alarm are a non-governmental organisation that works to improve global preparedness for oiled wildlife incidents. They assess the readiness in countries across the world and initiates and develops solutions to fill gaps, both in-country and from an international Level 3 perspective. This has led to agreed international standards, global and regional responder networks, responder training programs, innovative exercises and progressive integration of wildlife response capabilities in governmental and industry planning and preparedness systems. Sea Alarm can be activated 24/7 as part of the wider OSRL mobilisation. Under the SLA the full-time availability of 2 persons is guaranteed as follows:

- full time availability of one Sea Alarm expert for strategic and tactical advice, if necessary on-site after requested mobilisation by the client
- full time availability of one Sea Alarm expert for strategic and tactical advice to client and OSRL. This expert will not be mobilised but provide remote advice and support.

OSRL also maintains equipment packages with a focus on avian response. This critical equipment is aimed to support search and capture, medical, and cleaning and rehabilitation with 50% of the stockpile available to members. While not exhaustive, the equipment will support initial wildlife response operations in situations where local supply chain logistics are not yet fully functional. An OSRL response specialist will be responsible for set-up and maintenance on site and to liaise with wildlife experts and the IMT to reorder and replenish consumables if required. It should be noted that these resources are in addition to those provided by DEECA, and these OWR arrangements and capabilities would be deployed in conjunction with State Government, agencies and other stakeholders.

Table 14-8 details both the required resources for implementing an OWR response, and the OWR capability of Esso. It should be noted that this is a generic list and may be subject to change depending on the situation.

By comparing the minimum requirements needed for implementing an OWR, to the resources available to Esso, it is evident that Esso's capability far exceeds that required to implement the OWR strategy, within the required timeframe to arrive on scene from notification. This demonstrates that Esso has the necessary response capabilities to conduct adequate OWR operations within an acceptable timeframe, until such time as DEECA become involved and take over OWR operations. Esso would remain involved as a support agency throughout.

Table 14-8 Resources required to implement a OWR response compared to the availability of OWR equipment (obtained from oil spill response organisations equipment inventories, August 2025)

Required	Capacity			
	Organisation	Type	Location/quantity	Estimated mobilisation timeframe
OWR equipment				
Dependant on the number of individuals impacted, species effected, season, life stage, location or distance from rehabilitation centre.	AMOSC*	Wildlife-oiled fauna kit	Broome: 1 Exmouth: 1	Geelong: <12 hours Broome: 3 - 7 days Jandakot: 3 - 7 days Exmouth: 3 - 7 days
		Wildlife-bird scarer	Jandakot: 1	
		Wildlife First Strike Response Kit	Jandakot: 1 Geelong: 1	
		Wildlife-washdown container	Jandakot: 1 Geelong: 1	
	OSRL***	Wildlife cleaning and rehabilitation (Part 1 and 2)	Globally: 3 (of each)	Timings vary according to stockpile location. Guaranteed access to 50% of stockpile by equipment type. Access to more than 50% approved on a case-by-case basis.
		Wildlife cleaning and rehabilitation medical	Globally: 2	
		Wildlife search and capture	Globally: 2	
		Wildlife search and capture medical	Globally: 2	
	AMSA**	OWR containers (processing 100 units per day)	NATIONAL PLAN: 4	48 - 72 hours
Aerial/vessel observation				
1 x helicopter/aerial surveillance platform - Aircraft to have 100nm range and 3-hour duration 1 x vessel	Various	Vessel of opportunity.	Multiple (sourced via contractor on an ad-hoc basis).	6 - 12 hours initialisation, available within 72 hours.
		Helicopter	Longford heliport: 1	<4 hours, twice daily aerial surveillance. (Note: assumes good visibility, daylight hours and suitable flying conditions)

Required	Capacity			
	Organisation	Type	Location/quantity	Estimated mobilisation timeframe
Helicopters and vessels may be utilised for surveillance alongside other operations.	Royal Victorian Aero Club	Under fixed-wing aerial surveillance capability contract	Moorabbin Airport (VIC): 2	Contractors to have wheels up in 4 hours from notification. Mobilisation time to Bass Strait < 6 hours.
Personnel				
55 to 93 as outlined in the WAOWRP.	AMOSC*	AMOSC Staff	Australia: 16	AMOSC Staff are on call 24 hours a day, 365 days a year. Timeframe for AMOSC personnel depends on location of the spill and transport to site.
		AMOSC Core Group	Australia: Target to maintain at least 100 members***** (minimum 84, maximum 140) as per *AMOSC Core Group Program and Policies* (AMOSC, 2024a)	
		MoU with Phillip Island Nature Parks and other organisations	Australia: Best Endeavours	Through several MoUs between AMOSC and other response organisations, additional personnel would be available in the event of an incident. Timings will vary according to location of spill.
		Call-off contract with Dwyer Tech. Can fulfil role of facilities manager and facilities coordinator.	A minimum of two personnel teams	Best endeavours as to when they arrive upon AMOSC request for service.
	OSRL***	Responders	Globally: 18	OSRL Staff are on call 24 hours a day, 365 days a year. Timeframe for OSRL personnel depends on location of the spill and transport to site. It must be noted that OSRL are not trained to handle wildlife, however, can be utilised for setting up OWR equipment, site set up and for IMT advise.

Required	Capacity			
	Organisation	Type	Location/quantity	Estimated mobilisation timeframe
				OSRL can also be used to facilitate Sea Alarm and Global Oiled Wildlife Response Service personnel.
		Sea Alarm technical advisors	Belgium: 2	Timings will vary according to location of spill. Can be activated 24/7 as part of a wider OSRL mobilisation.
		Global Oiled Wildlife Response Service assessment team	Globally: 4	
	AMSA**	State personnel	National Plan: ~100	Timings will vary according to location of spill.

* Up-to-date lists of AMOSC equipment can be accessed via the AMOSC Members Hub – https://amosc.com.au/members/.

** For National AMSA resources, only equipment from the nearest two stockpiles has been included (Sydney and Melbourne), however additional resources are available from other locations. Up-to-date lists of National AMSA stockpile equipment can be accessed via the AMSA website (AMSA stockpile Equipment). Additional AMSA State equipment has been included from their Gippsland stockpile and up to date equipment lists can be found at VIC Equipment or via NOGGIN.

*** Up-to-date lists of OSRL equipment can be accessed via their website, under Response Readiness Report, found at Activation Procedure | Response Readiness Report. Availability likely to change monthly, see Readiness Report for most up to date information.

***** A total of 124 personnel in the Core Group via the AMOSC Members Hub – https://amosc.com.au/members/.

14.3.3 Oiled wildlife response controls, Environmental Performance Outcomes and Environmental Performance Standards and Measurement criteria

Table 14-9 provides consideration of all controls considered that are either adopted or not adopted for improved capability for OWR.

Table 14-9 Controls considered for OWR strategy

All controls considered	Benefit	Cost/feasibility	Adopted
Incident specific NEBA	NEBA completed prior to conducting dispersant activities can help to inform response and aid decision making.	The NEBA assessment can be implemented with minimal additional resources required, and with no additional safety risks. It is feasible to conduct this as a control to assist with response strategy selection.	Adopted **(OPEP14-CM01)**
Primary and secondary shoreline TRPs	Where shoreline contact is predicted, implementing shoreline TRPs in consultation with Control Agency to inform response and aid decision making. Using these to inform shoreline response reduces time taken to respond, as shoreline protection plan and TRPs describe the shoreline types and	These plans will be made available to the Control Agency. Pre-made TRPs can be used to inform the response and increase efficiency of decision making, therefore should be implemented. This is an achievable and practicable action.	Adopted **(OPEP14-CM02)**

All controls considered	Benefit	Cost/feasibility	Adopted
	have categorised primary and secondary sites which have been assessed and chosen based on appropriate shoreline response options, shoreline type and key sensitive receptors, along with resources required to pre-emptively create these plans and identify priority sites.		
Daily OWR records	Collecting daily records of location, volume of oil recovered, and volume of water recovered can help to determine effectiveness of response.	Information on the effectiveness of equipment and techniques can be obtained through daily data collection to improve the efficiency of the response. This is an achievable action that requires minimal additional resourcing.	Adopted **(OPEP14-CM03)**
Exclusion zones	Establishing exclusion zones can prevent further decontamination and reduce safety risks to personnel.	The OPEP requires that exclusion zones are put in place which consider health and safety and environment risks. These exclusion zones are determined in consultation with the State Control Agency. Disruption to other maritime activities may be caused by exclusion zones, however the reduction to potential safety risks makes this a necessary action.	Adopted **(OPEP14-CM04)**
Develop OWR management plan for the Bass Strait.	Reduced time to implement strategy.	Regulations establish that the State is responsible for management of wildlife impacted by marine pollution and the State has established plans and arrangements for this hazard. In consultation with State agencies, Esso has developed species response plans to provide supplementary information for management of oiled wildlife. (e.g New Zealand fur seal, short-tailed shearwater (*Ardenna tenuirostris*), white-faced storm petrel (*Pelagodroma marina*), little penguin (*Eudyptula minor*)- species response plans)	Partially adopted **(OPEP14-CM02)**
Fauna observation	Observing fauna behaviour can help tailor response efforts to cause minimal disturbance.	Implement OSMP modules: O4.1 Fauna observation (at sea) O4.2 Fauna observations (onshore) May cause delays in response efforts if fauna sighted in area, however the benefits to the response mean that this is a practicable action that is appropriate in the circumstances	Adopted **(OPEP14-CM05)**

All controls considered	Benefit	Cost/feasibility	Adopted
Oiled wildlife personnel and subject matter expertise	Experts can be contacted through pre-arranged agreements. Having wildlife experts within the IMT to direct the OWR will increase the efficiency of the response.	Delays may be experienced if specialised personnel required. The benefits to the response mean that this is a practicable action that is appropriate in the circumstances.	Adopted **(OPEP14-CM06)**
Incident specific waste management plan	*Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011) can be used to develop incident specific waste management plans.	An incident specific waste management plan is a viable operational control which can be implemented in the event of a spill. Minimal resources are required to implement this, and no additional safety risks are associated with the development of a plan.	Adopted **(OPEP14-CM07)**
Implement measures to minimise secondary contamination at temporary storage locations	Minimising secondary decontamination will reduce clean-up efforts required and will contain response efforts. Secondary contamination may lead to further clean-up efforts if other areas become oiled. Zoning of hot, warm and cold zones can assist with preventing secondary contamination.	Actions to prevent secondary contamination are appropriate in the circumstance and are practicable to implement.	Adopted **(OPEP14-CM08)**

EPOs and EPSs for OWR are outlined in Table 14-10.

Table 14-10 EPSs and EPOs for OWR

EPO	Control	EPS	Measurement criteria
OPEP14-EPO01: Monitor, evaluate and reduce environmental impact on fauna	**OPEP14-CM01:** Incident specific NEBA	**OPEP14-EPS01:** NEBA assessment is completed prior to OWR.	• IMT logs confirm NEBA was conducted to assist with response strategy selection. • Incident Action Plan details instruction to response teams. • Incident specific NEBA completed and on file.
	OPEP14-CM02: Shoreline TRPs	**OPEP14-EPS02:** Where OWR is predicted: • inform and agree with Control Agency IMT tactical execution of planning OWR • based on trajectory, agree with Control Agency IMT regarding applicable shoreline TRPs	• Completed TRPs on file. • Incident Action Plan outlines direction for OWR teams and requests for suitable equipment and personnel.

EPO	Control	EPS	Measurement criteria
		• commence mobilisation of equipment, personnel and support for OWR.	
	OPEP14-CM03: Daily OWR records	**OPEP14-EPS03:** Daily OWR operations are recorded (numbers, type and status of fauna).	• IMT logs recording volume of oiled wildlife encountered. • Incident Action Plan outlines direction for OWR teams and requests for suitable equipment and personnel. • Records stating numbers, type and status of fauna.
	OPEP14-CM04: Exclusion zones	**OPEP14-EPS04:** Exclusion zones are put in place which consider health and safety and environment risks. These exclusion zones are determined in consultation with the Control Agency.	• IMT logs demonstrating decisions regarding exclusion zones. • Incident Action Plan outlines direction for OWR teams and requests for suitable equipment and personnel. • Records stating exclusion zones.
	OPEP14-CM05: Fauna observation	**OPEP14-EPS05:** Where oiled wildlife impacts are predicted, implement OSMP modules: • O4.1 Fauna observation (at sea) • O4.2 Fauna observations (onshore). Modules to be implemented in accordance with requirements and timeframes in Section 3.4 of the OSMP.	• IMT logs noting any fauna observations, including details of species, number, status, and location. • Incident Action Plan outlines direction for OWR teams and requests for suitable equipment and personnel. • Operational monitoring reports.
	OPEP14-CM06: Oiled wildlife personnel and subject matter expertise	**OPEP14-EPS06:** Esso will consult with Control Agency IMT on requirements for OWR clean-up personnel, for all spills that impact wildlife. Esso will mobilise OWR personnel from AMOSC, OSRL and other Level 3 providers to meet Control Agency requests	• IMT logs records confirming mobilisation and input of subject matter expertise. • Incident Action Plan outlines direction for OWR teams and requests for suitable equipment and personnel. • Record of oiled wildlife personnel and subject matter expertise.
	OPEP14-CM07: Incident specific waste	**OPEP14-EPS07:** An incident specific waste management plan is developed	• IMT logs records of waste management plan being implemented. • Incident Action Plan outlines direction for OWR teams and

EPO	Control	EPS	Measurement criteria
	management plan	to ensure management of waste.	requests for suitable equipment and personnel. • Incident specific waste management plan.
	OPEP14-CM08: Implement measures to minimise secondary contamination at temporary storage locations	**OPEP14-EPS08:** Soil will be initially sampled to establish baseline clean levels. Establish bunding adequate to hold the daily bagged totals.	• IMT logs demonstrating zoning techniques. • Incident Action Plan outlines direction for OWR teams and requests for suitable equipment and personnel. • Final operational monitoring reports.

14.4 Environmental impact assessment

Nearshore OWR activities are likely to be undertaken on foot or by smaller vessels that may be launched from a number of different locations along the coastline. Access to vessels, equipment and transit to the affected areas has the potential to disturb local fauna and sensitive habitats.

A number of activities associated with this response involve direct contact with wildlife e.g. pre-emptive capture, rehabilitation and cleaning animals, and their release. These activities will only be undertaken by trained personnel and vets.

Wildlife rehabilitation centres should include reliable systems for the supply of potable water, electricity, heating or cooling, and ventilation that meet the specific wildlife requirements as well as amenities for personnel including food and lodging, waste disposal and communications. The construction of rehabilitation centres for OWR activities will be controlled by the State agency.

One of the disadvantages of running a rehabilitation centre is that it generates large volumes of waste. There is also a potential for secondary contamination through the handling of oiled wildlife and waste generation. The oily waste must be handled and disposed of correctly to prevent secondary contamination from contaminated equipment and PPE.

An impact assessment for each aspect has been undertaken, and additional controls have been identified to minimise the environmental impacts associated with OWR which are detailed within the ALARP assessment. Further assessment of the acceptability of these impacts in an oil spill response context and controls identified for minimising the environmental impact of OWR activities are described below.

Change to the function, interests or activities of other users that could occur through disruption to recreational and commercial activities from an OWR are provided in Table 14-11.

The environmental impacts associated with OWR operations include:

- socioeconomic (fisheries, tourism, culture)
- physical presence – interaction with fauna and flora
- physical presence – sensitive and protected areas and parks
- waste generation and secondary contamination

Table 14-11 Environmental aspects from wildlife response

Affected receptor	Impact assessment	Consequence Level
Socioeconomic (fisheries, tourism, culture)	Recreational fishing is generally concentrated inside the Gippsland Lakes or along the Ninety Mile Beach coastline. Additional vessels and personnel in the area may cause disruption to fishing activities.	III

Affected receptor	Impact assessment	Consequence Level
	The movement of personnel, vehicles and equipment may disturb or damage aboriginal or non-aboriginal cultural heritage artefacts or sites. The mobilisation of equipment and personnel for OWR activities will be localised. The oil spill TRPs detail socioeconomic sensitives for each location. The response activities will be in accordance with State response agency directions and Esso will provide the incident specific NEBA, TRPs and shoreline protections Consequence Level III.	
Physical presence - Interaction with fauna and flora	The sandy beaches, mangroves and salt marshes in the Bass Strait provide potential foraging and breeding habitat for numerous bird species and benthic communities. The flora and fauna within these habitats have the potential to be disturbed due to large numbers of personnel accessing sites. Human presence may also cause ground disturbance due to placement and construction of temporary of OWR rehabilitation centres. Fauna casualties from OWR techniques have the potential to result in an incremental effect on fauna populations (though oiling is expected to pose a greater risk). However, there is still the potential for the techniques to result in localised degradation of the environment or effects on individuals as opposed to population level. Hazing and pre-emptive capture of wildlife may result in the prevention of species accessing their preferred resources. This approach may also result in additional disturbance/handling stress without any benefit as many species tend to return to sites from which they have been moved. This may result in reduced reproduction and reduced energy stored for migratory animals. The incorrect handling of fauna may also result in increased stress levels and therefore increased fauna casualties. OWR activities will generally be conducted onshore. Wildlife rehabilitation centres will be set up in areas which have site access, electricity and amenities for personnel including food and lodging, waste disposal and communications. The general TRP -shoreline protection and clean-up plan and site-specific TRPs include information on staging areas and access points. Personnel shall use existing road and paths for access to minimise the impacts of increased foot and vehicle traffic. Fauna and flora interactions as a result of OWR and shoreline clean-up techniques will be localised and short term. Flora and fauna are expected to recover quickly once activities cease. Therefore, the consequence of the impacts of the response activity is considered to be Consequence Level III.	III
Physical presence - Sensitive and protected areas and parks	Potential impacts to sensitive and protected areas may be impacted from OWR activities. There is a potential that personnel may have to travel through sensitive areas to access wildlife or conduct hazing, wildlife deterrence activities. The OWR activities may adversely affect natural behaviours of biota, e.g. nesting of shorebirds and seabirds. Human presence may also	III

Affected receptor	Impact assessment	Consequence Level
	cause ground disturbance due to construction of OWR rehabilitation centres. The mobilisation of equipment and personnel for OWR activities will be localised. The Oil Spill TRPs detail environmental sensitives for each location. Temporary exclusion zones can be set up to avoid sensitive areas. The environmental consequence to sensitive marine areas is assessed as localised and short term, it will recover quickly once activities cease.	
Waste management and secondary contamination	Wildlife response activities, specifically running a rehabilitation centre, generates large volumes of waste. There is a potential for secondary contamination through the handling of oiled wildlife and waste generation. The Esso *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011), details requirement for selecting waste management options and equipment and storage to be utilised to prevent secondary contamination. The shoreline protection and clean-up plan and site specific TRPs include information on staging areas and access points. The generation of waste will be short-term and is localised for the response period, therefore, the consequence of the impacts of the response activity is considered to be Consequence Level III.	III

14.5 Demonstration of ALARP

The rationale for the demonstration of ALARP for OWR can be seen in Table 14-12.

Table 14-12 ALARP Decision Context justification

ALARP Decision Context and justification	**Decision Context A** OWR activities are standard practice for hydrocarbon spills to minimise the impacts resulting from an oil spill on wildlife. There is a good understanding of potential impacts from OWR activities. This response option would be supported by an incident specific NEBA. All activities undertaken in State waters will be led by the State Control Agency. Good practice control(s) have been identified to ensure environmental impacts associated with mobilising this response are reduced to ALARP, these controls will be implemented by the State Control Agency in a response scenario and have been included in the OPEP.

OWR response strategies have been demonstrated to be ALARP.

14.6 Demonstration of acceptability

Table 14-13 outlines the demonstration of acceptability of Environmental Impact from OWR.

Table 14-13 Acceptability of environmental impacts from OWR

Factor	Demonstration Criteria	Criteria	Rationale
Principles of ESD	a) The integration principle - decision making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations.	✓	Not inconsistent. Planning for Bass Strait producing and non-producing activities and decision making as to the most appropriate strategies and methods has incorporated contemplation of both short and long term economic, environmental, social and equitable considerations.
	b) The precautionary principle - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	✓	Not inconsistent. All oil spill response activities are implemented with the aim of reducing the overall environmental impact from a spill incident. Source control activities are implemented to stop the flow of oil and minimise safety risks and environmental damage. Impacts associated with source control are offset by the broader positive effects of reducing the impact of a spill incident on coastal and marine sensitivities and socio-economic receptors (e.g. fishing, tourism).
	c) The intergenerational principle - the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.	✓	Not inconsistent. The assessment undertaken has concluded that environmental impacts will be short term in nature. Any impacts as a result of implementation of source control activities to respond to an unplanned release of fuel will not impact the health, diversity and productivity of the environment in such a manner that future generations may be impacted.
	d) The biodiversity principle - the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making.	✓	Not inconsistent. All aspects related to source control activities have been detailed in Producing and Non-Producing EPs Sections 6 and 7 and have been evaluated as having the potential to result in a Consequence Level III or lower (IV). Controls, EPO's, EPS's and measurement criteria are also described in Sections 6 and 7 of the Producing and Non-Producing EPs. The potential impact associated with the implementation of this emergency response option is limited to a localised short-term impact, which is not considered as having the potential to affect biological diversity and ecological integrity.

Factor	Demonstration Criteria	Criteria	Rationale
Legislative and other requirements	Legislative and other requirements have been identified and met.	✓	Legislation and other requirements have been considered as relevant and include: • OPGGS Act • *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) • EPBC Act • *Wildlife Act 1975* (Vic) • *Nature Conservation Act 2002* (Tas) • *National Parks and Wildlife Act 1974* (NSW).
Internal context	Consistent with Esso's Environment Policy.	✓	Proposed control measures are consistent with Esso's Environment Policy, in particular, to "*comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist*".
	Meets OIMS objectives.	✓	Proposed control measures meet: • OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements • OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors • OIMS System 10-2 objective to ensure effective response to emergencies and business disruptions that threaten the safety, security and health of the public, contractors and employees, the environment, asset integrity, and critical business operations.
External context	Stakeholder concerns have been considered/addressed through the consultation process.	✓	No specific stakeholder concerns have been raised.

15 Waste management

15.1 Overview

The response to an oil spill often results in the rapid generation and accumulation of large quantities of oily waste. Waste generated from an oil spill response may come in many forms including oily solid and liquid wastes; contaminated equipment; wash water from recovery activities; and a range of mixed consumables required by the response team and activities.

Emulsified oil, oiled sand, gravel and entrained debris can increase the volume of waste to many times the volume of oil originally spilt. The waste produced has the potential to exceed capacity of the locally available waste management infrastructure if not managed correctly.

The quantity of waste produced from a spill is influenced by many factors, principally the quantity of oil spilled, the environmental fate of that oil and the clean-up strategy and techniques adopted.

Waste management within Australia is regulated and managed by each State independently through each States Environmental Protection Agency (EPA). The majority of waste management activities associated with an oil spill response from a Bass Strait operation would be undertaken within Victoria. As calculated in Section 13.5.3, the worst case Scenario 7, deterministic run 52 predicted a total of 155.8m^3 of oil to arrive ashore (RPS, 2025), which equates to approximately 1560m^3 of oiled waste produced during shoreline clean-up.

An oil spill waste management manual has been developed which provides guidance on contractor activation, equipment available, waste segregation, storage and disposal options. This document should be referenced to develop an incident specific waste management plan and should be used alongside the *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011).

Esso holds a number of waste management contracts with third parties that will be called upon in the event of a spill. These parties will be used to:

- provide a waste subject matter expert to the logistics section of the IMT
- work with the EPA to put in place waste management chains from point of collection to final disposal
- ensure that the waste management practises put in place are ethical, legal and follow Australian best practise waste management principles.

Different wastes will be generated from a variety of different sources including:

- Liquid wastes (oil/water) – Collected offshore by vessels from the shoreline through booming operations
- Bulk hard wastes (oils mixed with organic materials, sand, rocks, pebbles, etc.) collected in bulk from shorelines by mechanical and manual means
- Sundry wastes generated as a result of employing a large temporary workforce including PPE, waste from catering, etc.

Esso's waste management resource capability is described in detail in Section 15.2.

15.1.1 Strategy summary - Waste management

Waste generated through all aspects of spill response will be responsibly segregated and disposed of through the use of waste disposal contractors.

Table 15-1 provides the overall objective, critical outputs, critical IMT tasks, and termination criteria.

Table 15-1 Waste management strategy objectives, critical outputs, critical IMT tasks, and termination criteria

Waste management	
Response objective	To segregate and manage proper disposal of all waste produced through response activities.
Critical outputs	All waste management operations will be done in accordance with the Esso *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011) .

Waste management	
Planning section instructions	Individual waste management plans will be produced in the event of a spill and included within the Incident Action Plan.
Operations section instructions	
Logistics section instructions	

15.2 Response requirements and capability

A detailed capability assessment has been undertaken to ensure that Esso has access to sufficient resources available to manage waste as a result of spill clean-up operations (both offshore containment and recovery (Section 10) and shoreline protection and clean-up (Section 13)) to ensure that waste is removed from response sites and disposed of in a timely manner.

The availability of resources is assured through contractual arrangements with waste handling and processing providers, response agencies, industry bodies and labour hire organisations. Incident response planning is done in accordance with the Esso *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011) .

The waste management capability assessment is based on calculations from the WCDS deterministic outputs taken from the modelling report. Liquid and solid waste have been calculated independently as they will be processed separately.

For solid waste, the calculations were done using Scenario 7, where a total of 1123m^3 of Kipper condensate was modelled to be released from a pipeline rupture, over 1 hour. Deterministic run 52 was selected as a guide for WCDS waste management resource requirements, as this was the simulation that represented the largest volume of oil ashore from all simulations and scenarios, and therefore the largest volume of waste. There is a predicted 155.8m^3 of oil to begin arriving on Day 1. As seen in Figure 13-6, the entire volume of oil is predicted to have accumulated by the second day. By applying a bulking factor of 10 as per IPIECA guidelines to allow for volume of sand and other material, which is collected with the oil, it is calculated that a total of up to approximately 1560 m^3 of waste could be generated. It is assumed that 1m^3 per/person/day is able to be cleaned, per guidance provided in the *ExxonMobil Oil Spill Response Field Manual*. As per Section 13.5.3, a suggested six strike teams of 11 personnel each would be considered suitable for the WCDS shoreline impact, over a four-week period. As seen in Table 15-2, Table 15-4, Table 15-5 and Table 15-6, daily waste truck availability far exceeds the requirement to remove the volume of waste that is predicted to be generated.

This assessment is conservatively based on an unmitigated amount of oil stranding on the shoreline for solid waste. While unmitigated volumes have been used for the capability assessments, the volumes of stranded oil may be significantly reduced in a response situation through the use of offshore response strategies, such as mechanical dispersion which can reduce the volume of oil being stranded ashore, and therefore the quantity of waste generated as a result of clean-up. Additionally, oil will continue to weather after stranding, and processes such as evaporation will further reduce the volume remaining on the substrate.

State Control Agencies and the EPA will ultimately have decision making authority as to how waste is managed during a response.

15.2.1 Liquid waste

Liquid waste is based on the containment and recovery strategy, as this is the main strategy that produces significant volumes of liquid oily waste. The volume of liquid waste is calculated based on the volume of oil which is estimated to be recovered through the offshore containment and recovery strategy as described in Section 10. As the modelling report identified limited opportunities for containment and recovery, there cannot be an accurate estimation for the volumes of liquid waste collected during a containment and recovery response. An estimate of the volume of liquid waste collected by a single strike team has instead been used. Based on the assumption that a single strike team can collect up to 10m^3 per day, the waste facilities available through Cleanaway far exceed that required for storing and transporting this liquid waste, as seen in Table 15-2 and Table 15-3.

It is important to note that it is good practise when collecting liquid waste to always cover any containers to prevent excess liquid e.g. rainwater, from entering and increasing volumes stored within (e.g. using tarpaulin covers for temporary waste storage tanks to prevent rainwater ingress). Esso would work with the transport company and the authorities to classify the liquid waste streams, however it is unlikely that all waste would be classified as flammable given it would be mixed with seawater and would have undergone some degree of evaporation and weathering.

15.2.2 Oiled wildlife response waste

Where OWR is required, it is managed by the State response agency with support from Esso through provision of resources such as fully equipped OWR containers including washing/storage facilities. The need for waste handling would be managed via the State. Temporary storage would be required at each impacted location and transferred to layup areas before being transported to waste processing facilities.

15.2.3 Transport, storage and processing – Victoria capability

Transportation of waste is provided by the waste contractor; Table 15-2 below shows the availability of trucks per day and their capacity. Table 15-3 provides additional equipment and temporary storage which is available within 48 hours and can be used in lay down areas or temporary storage sites to facilitate the waste management process. Table 15-2 and Table 15-3 are correct as of August 2025. Additional equipment will be hired by contractors through equipment hire services.

Table 15-2 Solid and liquid transport Esso capability through Cleanaway – Victoria (obtained from Esso capability document, November 2025)

Transport**	Liquids		Solids
	ISO (flammable)	Non-flammable	
Trucks per day	10	6	20
Volume per truck	28kL	20kL	30t
Volume transported /day (1 trip each) *	280kL	120kL	300t

** The number of trucks per day is based on 48 hours+ from spill occurring, trucks are available prior to the 48 hours but are not likely to be needed in that timeframe. Required trucks will increase on a daily basis pending volume of material expected each day during the spill event. Cleanaway will work with all parties in daily requirements to ensure we maximize daily requirements and foreseen volumes as data is available.

*Capability is conservatively based on one trip per day per truck, multiple trips would be possible depending on the specific logistics requirements, although not needed for the scenarios presented in this EP.

Table 15-3 Additional equipment and temporary storage capability (obtained from oil spill response organisations equipment inventories and Cleanaway November 2025)

Additional resources		Resource	Available within 48 hours
Equipment	Cleanaway	EPA approved walking floor truck 24t loads. (EPA temporary permit may need to be provided in event of emergency).	3
Temporary solid waste storage	Esso	38L eskies	8
		Plastic bags 18" x 23" boxes of 400	65
	Cleanaway	Bulk bins hook lift 10t pay loads EPA permitted	2
Temporary liquid waste storage	Esso	Fastank (9000L)	3
		60L blue plastic drums with lids	145

Additional resources		Resource	Available within 48 hours
	AMOSC	Lancer barge (25kL capacity)	2
		Deck bladders (25kL capacity)	3
		Viko tanks (13kL capacity)	1
		Fast tanks (9kL capacity)	3
		Fast tanks (3kL capacity)	1
		Lamor temporary storage (11.4kL capacity)	2
	AMSA	Fast tanks (10t)	5
		Flexidam (10t)	6
		Structurflex (10t)	4
		Structurflex (5t)	5
		Canflex towable (10t)	2
		Canflex towable (16t)	1
		Canflex towable (25t)	1
		Covertex towable (20t)	2
		Vikoma barge (25t)	3
	OSRL	Storage barge (50m^3)	6
		Storage barge (25m^3)	13
		Fastanks (10m^3)	142
		Fastanks (5m^3)	4
		Floating storage tank 50m^3	3
		Floating storage tank 25m^3	4
	Cleanaway	Poly tanks (50kL)	10
		Rental of ISO tanks (14kL to 28kL capacity) pending	10

* Up-to-date lists of AMOSC equipment can be accessed via the AMOSC Members Hub – https://amosc.com.au/members/.

** For National AMSA resources, only equipment from the nearest two stockpiles has been included (Sydney and Melbourne), however additional resources are available from other locations. Up-to-date lists of National AMSA stockpile equipment can be accessed via the AMSA website (AMSA stockpile Equipment). Additional AMSA State equipment has been included from their Gippsland stockpile and up to date equipment lists can be found at VIC Equipment or via NOGGIN.

*** Up-to-date lists of OSRL equipment can be accessed via their website, under Response Readiness Report, found at Activation Procedure | Response Readiness Report. Availability likely to change monthly, see Readiness Report for most up to date information.

Accumulated waste is taken directly to designated waste facilities where waste can be stored and processed. Where waste volume exceeds processing rate, it is stored at the waste facility (where possible) or at offsite storage facilities where it can be progressively transported for processing. Table 15-4 shows the storage and processing facilities available to Esso to handle solid and liquid waste as of August 2025. The table shows that waste facilities have capacity to store solid waste (up to 33,400t) on site, however not liquid wastes. Where daily liquid waste volume generated exceeds the daily liquid waste processing capacity, the waste must be stored at offsite facilities and transported from there for processing.

In the event of an oil spill, Gippsland Ports maintains several bulk waste oil storage facilities at key locations within the Gippsland region that may be available for use during emergency response operations. These facilities are primarily for port operations but can be accessed by external response parties (e.g. oil companies or contractors) **subject to prior approval** and coordination with Gippsland Ports.

Table 15-4 Solid and liquid storage and processing facilities in Victoria (obtained from Esso capability document, November 2025)

Facility	Liquids		Solids		
	Processing (kL/day)	Trucks/day able to be processed	Storage (t)	Processing (t/day)	Trucks/day able to be processed
Dutson Downs	40	1.3	200	-	-
Cleanaway Campbellfield	60	2	-	-	-
Cleanaway Dandenong	20	1	200	60	2.4
Veolia treatment plant	60	2	2500	50	2
Renex treatment facility	-	-	25,000	215	8.6
SOLVE	-	-	5,500	725	29
Total	**180**	**6**	**33,400**	**1050**	**42**

15.2.4 Transport, storage and processing – New South Wales capability

If a spill reached shorelines in NSW, waste from beach clean-up would need to be processed in NSW. As offshore containment and recovery occurs near the source of the spill, it is unlikely that oily water waste collection/processing would be needed in the NSW. Table 15-5 shows transport capability in NSW. Processing capacity for NSW is shown in Table 15-6.

Table 15-5 Solid and liquid transport capability NSW (obtained from Esso capability document, November 2025)

Transport	Liquids		Solids
	ISO (flammable)*	Non-flammable	
Trucks per day	0	10	10
Volume per truck	0	20kL	20t
Volume transported /day (1 trip each)	0	200kL	200t

*Flammable Disposal dependent on current site volumes/intermediate bulk container availability, as there are no bulk disposal options NSW all Class 3 waste must be Decanted into intermediate bulk containers then sent on for treatment. Daily site capacities not known at this point.

Table 15-6 Solid and liquid storage and processing facilities in NSW (obtained from Esso capability document, August 2025)

Facility	Liquids			Solids		
	Storage (kL)	Processing (kL/day)	Trucks/day able to be processed	Storage (t)	Processing (t/day)	Trucks/day able to be processed
Cleanaway Kemps Creek	-	-	-	-	3000 15,000t/wee k	
Unanderra oily water treatment plant	240	60	3	-	-	-
Port Kembla oily water treatment plant	380	300	15	-	-	-
Windsor	100	200	10	-	-	-
Total	**720**	**560**	**28**	**-**	**3000**	**-**

The Waste Management capabilities for both solids and liquids highlighted in Table 15-2, Table 15-3, Table 15-4, Table 15-5 and Table 15-6, compared to the requirements outlined throughout Section 15.2, demonstrate that the resources available to Esso far exceed those required to implement the WCDS waste management strategy throughout the response. This demonstrates they have the necessary response capabilities to conduct adequate waste operations within an acceptable timeframe.

The *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011) document outlines collection and transfer methodology for the two primary waste streams – oil/water liquid stream (from offshore containment and recovery activities) and oil/solid stream (from shorelines) as has been shown in Section 15.2. A waste plan would be enacted from Day 2 of a response to allow operational response strategies to be employed. This is consistent with the resourcing requirements being shown from the 48-hour timeframe. Unmitigated marine Oil spill trajectory modelling would be conducted at the time of the spill to evaluate shoreline response clean-up requirements based on time of impact and geographic sectors that would likely be impacted, producing a listing and analysis of the receptors, likely volume ashore with time of predicted impact and accessibility at each location.

While Esso has assessed resource requirements and has necessary agreements in place within Cleanaway and other contractors to be able to execute those plans, the State Control Agency will ultimately determine how waste will be managed for any waste collected in State waters and shorelines. Esso will coordinate access to plans and resources for waste management.

15.2.5 Waste management controls, Environmental Outcomes, Environmental Performance Standards and Measurement criteria

Table 15-7 provides consideration of controls considered that are either adopted or not adopted for improved capability of waste management.

Table 15-7 Controls considered for waste management strategy

All controls considered	Benefit	Feasibility	Adopted
Implement measures to minimise secondary contamination at temporary storage locations	Minimising secondary decontamination will reduce clean-up efforts required and will contain response efforts.	Actions to prevent secondary contamination are appropriate in the circumstance and are practicable to implement.	Adopted **(OPEP15-CM02)**

All controls considered	Benefit	Feasibility	Adopted
	Secondary contamination may lead to further clean-up efforts if other areas become oiled. Zoning of hot, warm and cold zones can assist with preventing secondary contamination.		
Waste removal undertaken in accordance with regulatory and license requirements	Ensuring contractors can handle and remove the specific volumes of waste produced from a worst-case spill and that waste is disposed of in an environmentally friendly manner to further reduce the impact on the environment. Having multiple waste contractors in place to ensure waste management can be conducted can increase resource availability.	This is a regulatory requirement and therefore must be implemented.	Adopted **(OPEP15-CM03)**

EPOs and EPSs for shoreline response are outlines in Table 15-8.

Table 15-8 EPSs and EPOs for waste management strategy

EPO	Control	EPS	Measurement criteria
OPEP15-EPO01: Reduce oil impact on shoreline environmental sensitivities	**OPEP15-CM01:** Incident specific waste management plan	**OPEP15-EPS01:** An incident specific waste management plan is developed to ensure management of waste.	• IMT logs records of waste management plan being implemented. • Incident action plan outlines direction for response teams and requests for suitable equipment and personnel. • Incident specific waste management plan.
	OPEP15-CM02: Implement measures to minimise secondary contamination at temporary storage locations	**OPEP15-EPS03:** Soil will be initially sampled to establish baseline clean levels. Establish bunding adequate to hold the daily bagged totals	• IMT logs demonstrating zoning techniques. • Incident action plan outlines exclusion zones communicated to response teams. • Final operational monitoring reports.
	OPEP15-CM03: Waste removal undertaken in	**OPEP15-EPS03:** Ensures that waste Is removed in accordance with the license	• Waste management company licenses.

EPO	Control	EPS	Measurement criteria
	accordance with regulatory and license requirements	requirements and handled and disposed of without harm to the environment.	• Waste transport certificate.

All other associated controls, EPOs, EPSs, and measurement criteria have been described and assessed within the Producing and Non-Producing EPs Section 4 and no additions have been identified for SMV response activities.

15.3 Environmental impact assessment

Environmental Impacts from the containment and recovery of waste offshore and from clean-up of shorelines impacted by oil have been described in Section 10 and Section 13 respectively.

Accidental loss of waste during recovery, transport and disposal activities may result in secondary contamination. Secondary contamination is the spread of oil to otherwise unpolluted areas via response activities associated with people, transport and equipment. Secondary contamination could lead to pollution of the environment adjacent to storage areas or runoff of waste into waterways.

The Esso *Bass Strait Oil Spill Response Waste Management Plan* (AUGO-EV-ELI-011) details requirements for selecting waste management options and equipment and storage to be utilised to prevent secondary contamination. The QRGs and site specific TRPs include information on staging areas and access points.

The generation of waste will be short-term and is localised for the response period, therefore, the consequence of the impacts of the response activity is considered to be Consequence Level III.

15.4 Demonstration of ALARP

The rationale for the demonstration of ALARP for waste management can be seen in Table 15-9.

Table 15-9 ALARP Decision Context justification

ALARP Decision Context and justification	Decision Context A Waste management is a standard practice for hydrocarbon spills clean-up. There is a good understanding of potential impacts from waste management activities and the regulatory requirements to manage waste in accordance with State based regulations. Good practice controls have been identified to ensure environmental impacts associated with mobilising this response are reduced to ALARP. These controls will be implemented by the State led Control Agency in a response scenario and have been included in the OPEP. Note that the response must be led by State Control Agencies, with Esso providing support and resources when requested.

Waste Management response strategies have been demonstrated to be ALARP.

15.5 Demonstration of acceptability

Table 15-10 outlines the demonstration of acceptability of environmental impact from waste management.

Table 15-10 Acceptability of environmental impacts from waste management

Factor	Demonstration criteria	Criteria met	Rationale
Principles of ESD	a) The integration principle - decision	✓	Not inconsistent.

Factor	Demonstration criteria	Criteria met	Rationale
	making processes should effectively integrate both long term and short term economic, environmental, social and equitable considerations.		Planning for Bass Strait producing and non-producing activities and decision making as to the most appropriate strategies and methods has incorporated contemplation of both short and long term economic, environmental, social and equitable considerations.
	b) The precautionary principle - if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	✓	Not inconsistent. All oil spill response activities are implemented with the aim of reducing the overall environmental impact from a spill incident. Source control activities are implemented to stop the flow of oil and minimise safety risks and environmental damage. Impacts associated with source control are offset by the broader positive effects of reducing the impact of a spill incident on coastal and marine sensitivities and socio-economic receptors (e.g. fishing, tourism).
	c) The intergenerational principle - the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.	✓	Not inconsistent. The assessment undertaken has concluded that environmental impacts will be short term in nature. Any impacts as a result of implementation of source control activities to respond to an unplanned release of fuel will not impact the health, diversity and productivity of the environment in such a manner that future generations may be impacted.
	d) The biodiversity principle - the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making.	✓	Not inconsistent. All aspects related to source control activities have been detailed in Producing and Non-Producing EPs Sections 6 and 7 and have been evaluated as having the potential to result in a Consequence Level III or lower (IV). Controls, EPO's, EPS's and measurement criteria are also described in Sections 6 and 7 of the Producing and Non-Producing EPs. The potential impact associated with the implementation of this emergency response option is limited to a localised short-term impact, which is not considered as having the potential to affect biological diversity and ecological integrity.
Legislative and other requirements	Legislative and other requirements have been identified and met.	✓	The proposed control measures align with the requirements of: • OPGGS Act • *Emergency Management Act 2013* (Vic) • *Emergency Management Act 1989* (NSW)

Factor	Demonstration criteria	Criteria met	Rationale
			• *Emergency Management Act 2006* (Tas) • *Wildlife Act 1975* (Vic) • EPBC Act • *Wildlife Act 1975* (Vic) • *Nature Conservation Act 2002* (Tas) • *National Parks and Wildlife Act 1974* (NSW) • *Environment Protection Act 2018* (Vic) • *Environmental Management and Pollution Control Act 1994* (Tas).
Internal context	Consistent with ExxonMobil's Environment Policy.	✓	Proposed control measures are consistent with ExxonMobil's Environment Policy, in particular, to *"comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist"*.
	Meets OIMS objectives.	✓	Proposed control measures meet: • OIMS System 6-5 objective to identify and assess environmental aspects; significant aspects are addressed and controlled consistent with policy and regulatory requirements • OIMS System 8-1 objective to clearly define and communicate OI requirements to contractors. • OIMS System 10-2 objective to ensure effective response to emergencies and business disruptions that threaten the safety, security and health of the public, contractors and employees, the environment, asset integrity, and critical business operations.
External context	Stakeholder concerns have been considered/addressed through the consultation process.	✓	No specific stakeholder concerns have been raised.

16 Bibliography

AEP. (2021). *Joint Industry Operational And Scientific Monitoring Plan Framework Revision D | 12 March 2021 Joint Industry Operational and Scientific Monitoring Plan Framework. [online] Available at: https://www.appea.com.au/wp-content/uploads/2021/08/Joint-Industry-OSM-Framework-Rev-D-12032021.pdf [Accessed 15 Aug. 2025].*

AMOSC. (2021). *AMOSPlan Section III 2021.*

AMOSC. (2024a). *AMOSC Core Group Program and Policies.*

AMOSC. (2024b). *Fixed Wing Aerial Dispersant Operational Plan.*

AMOSC. (2025). *Australian Industry Cooperative Spill Response Arrangements.* Australian Marine Oil Spill Centre.

AMSA. (2008). *Inter-governmental Agreement on the National Maritime Emergency Response Arrangement.* AMSA. Retrieved from https://www.amsa.gov.au/sites/default/files/2023-11/intergovernmental-agreement-on-the-national-maritime-emergency-response-arrangement.pdf

AMSA. (2012a). *National Plan Oil Spill Dispersant Effectiveness Field Test Kit (Nat-DET) Operational Guide.* Retrieved September 11, 2025, from https://www.amsa.gov.au/sites/default/files/2012-06-np-gui013-oil-spill-disp-effectiveness-kit.pdf

AMSA. (2012b). *The AMSA Efficacy Test Protocol for the Register.* Retrieved from https://www.amsa.gov.au/marineenvironment/pollution-response/register-oil-spill-control-agents <div>
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AMSA. (2015a). *Independent Human Health and Environmental Hazard Assessments of Dispersant Chemicals in Australia, produced by NICNAS and CSIRO. [online] Available at: https://www.amsa.gov.au/sites/default/files/2023-11/2016-05-mp-csiro-dispersant-report.pdf [Accessed 15 Aug. 2025].*

AMSA. (2015b). *National Plan Response, Assessment And Termination Of Cleaning For Oil Contaminated Foreshores.* Retrieved from https://www.amsa.gov.au/marine-environment/national-plan-maritime-environmental-emergencies/np-gui-025-national-plan

AMSA. (2017). *Maritime discharges of oil and oily water during emergency and response situations.* National Plan Strategic Coordination Committee. Retrieved from https://www.amsa.gov.au/sites/default/files/np-gui-016-maritime-discharges-of-oil-and-oily-water-during-emergency-and-response-situations.pdf

AMSA. (2018). *National Plan Guidance on: Marine Oil Spill Response Health and Safety.* Retrieved from https://www.amsa.gov.au/sites/default/files/np-gui-027-marine-oil-spill-response-health-and-safety-guidance.pdf

AMSA. (2020). *National Plan for Maritime Environmental Emergencies – 2020 edition.* Retrieved from www.amsa.gov.au/sites/default/files/national-plan-maritime-envrironmental-emergencies-2020.pdf

AMSA. (2023a, March 27). *Intergovernmental agreement on the National Plan to combat pollution of the sea by oil and other noxious and hazardous substances*. Retrieved from AMSA.gov: https://www.amsa.gov.au/about/who-we-work/intergovernmental-agreement-national-plan-combat-pollution-sea-oil-and-other

AMSA. (2023b). *National Plan: National Response Team Policy.* National Plan. Retrieved September 2, 2025, from https://www.amsa.gov.au/sites/default/files/national-response-team-policy-february-2023_0.pdf

AMSA. (2024). Harmful substances report (POLREP)—oil (form 197). *AMSA 197*. Retrieved from https://www.amsa.gov.au/sites/default/files/AMSA197-Harmful-suabstances-report-POLREP-Oil%202024.pdf

AMSA. (2025a, January 24). *Marine order 91—Marine pollution prevention—oil*. Retrieved from AMSA.gov: https://www.amsa.gov.au/about/regulations-and-standards/marine-order-91-marine-pollution-prevention-oil

AMSA. (2025b). *AMSA Contractor Portal: Melbourne*. Retrieved from National Environmental Maritime Operations: https://amsa-forms.nogginoca.com/public/equipment.html?loc=%2Fapi%2Fv1%2Fasset%2F2547401

AMSA. (2025c). *AMSA Contractor Portal: Gippsland*. Retrieved from National Environmental Maritime Operations: https://amsa-forms.nogginoca.com/public/equipment-vic.html?loc=/api/v1/asset/2897822&Name=GIPPSLAND

Bock, M. R.-M. (2018). *Comparative risk assessment of oil spill response options for a deepwater oil well blowout: Part II. Relative risk methodology. Marine Pollution Bulletin, [online] 133, pp.984–1000. doi:https://doi.org/10.1016/j.marpolbul.2018.05.032.*

Burns, K. G. (1993). *How many years until mangrove ecosystems recover from catastrophic oil spills? Marine Pollution Bulletin, 26(5), pp.239–248. doi:https://doi.org/10.1016/0025-326x(93)90062-o.*

Campo, P. V. (2013). *Biodegradability of Corexit 9500 and Dispersed South Louisiana Crude Oil at 5 and 25 °C. Environmental Science & Technology, 47(4), pp.1960–1967. doi:https://doi.org/10.1021/es303881h.*

Cardno. (2019). *In-situ Produced Formation Water, Marine Water and Sediment Sampling Program 2018. Prepared by Cardno for Esso Australia Pty Ltd. Report 59916029_005 13 February 2019.*

CEDRE. (2021). *Condensates - Cedre. [online] Cedre.fr. Available at: https://wwz.cedre.fr/en/Resources/Publications/Chemical-Response-Guides/Condensates [Accessed 14 Aug. 2025].*

CEDRE. (2024). *Diesels and biodiesels - Cedre. [online] Cedre.fr. Available at: https://wwz.cedre.fr/en/Resources/Publications/Chemical-Response-Guides/Diesels-and-biodiesels [Accessed 14 Aug. 2025].*

Dean, T. S. (1998). *Eelgrass (Zostera marina L.) in Prince William Sound, Alaska: Effects of the Exxon Valdez oil spill. Marine Pollution Bulletin, 36(3), pp.201–210. doi:https://doi.org/10.1016/s0025-326x(97)00184-7.*

DEECA. (2024). *Victorian Emergency Animal Welfare Plan .*

Department of Transport and AMOSC. (2022a). *Western Australia Oiled Wildlife Response Manual.* Government of Western Australia. Retrieved from https://www.dbca.wa.gov.au/media/1886/download

Department of Transport and AMOSC. (2022b). *Western Australia Oiled Wildlife Response Plan for Maritime Environmental Emergencies.* Government of Western Australia. Retrieved from https://www.dbca.wa.gov.au/media/1887/download

DSEWPAC. (2012). *Species group report card – marine reptiles. Supporting the marine bioregional plan for the Temperate East Marine Region. [online] Available at: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.dcceew.gov.au%2Fsites%2Fdefault%2Ffiles%2Fenv%2Fpages%2F1e59b6ec-8b7e-42a8-9619-b5d728f878b2%2Ffiles%2Ftemperate-east-report-card-reptiles.doc&wdOrigin=BROWSELINK [Accessed 27 Aug. 2025]. Prepared under the Environment Protection and Biodiversity Conservation Act 1999.*

DTP. (2025a). *State Maritime Emergencies (Non-search and Rescue) Sub-Plan Edition 3.* State of Victoria. Retrieved from https://files.emv.vic.gov.au/2024-10/SEMP_Maritime_Emergencies_Sub-plan_Edition-3_October%202024.pdf

DTP. (2025b). *Victorian Joint Industry and State Oil Pollution Responses Guidance Note Version 3.*

EMSA. (2009). *Manual On The Applicability Of Oil Spill Dispersants. [online] Available at: bing.com/ck/a?!&&p=5f0e5c7c0bc62ec82c76bff5a6109841f4467a4021d9e59e0634f6ba02ac389dJmltdHM9MTc1ODQ5OTIwMA&ptn=3&ver=2&hsh=4&fclid=0dd6f5d4-19ee-6455-2e05-e38a182e65cd&psq=EMSA+(2009).+Manual+On+The+Applicability+Of+Oil+Spill+Dispersants&u=a1aHR0cHM6Ly93d3cuZW1zYS5ldXJvcGEuZXUvb3ByLWRvY3VtZW50cy9kb3dubG9hZC8xMTY2LzcxOS8yMy5odG1s&ntb=1 [Accessed 15 Aug. 2025].*

EPA Tasmania. (2022). *Tasmanian Marine Oil and Chemical Spill Contingency Plan.* Retrieved from https://epa.tas.gov.au/Documents/TasPlan.pdf

ExxonMobil. (2014). *ExxonMobil Oil Spill Response Field Manual 2014.*

ExxonMobil. (2024, June). Risk Matrix Application Guide. Exxon Mobil Corporation.

French, D. R. (1996). *'The CERCLA Type A natural resource damage assessment model for coastal and marine environments (NRDAM/CME), Technical Documentation, Volume I - Model Description,.*

French-McCay, D. (2009). *'State-of-the-art and research needs for oil spill impact assessment modelling', Proceedings of the 32nd Arctic and Marine Oil Spill Program (AMOP) Technical Seminar, Environment Canada, Ottawa, pp. 601–653.*

French-McCay, D. C. (2019). *Sensitivity of modeled oil fate and exposure from a subsea blowout to oil droplet sizes, depth, dispersant use, and degradation rates. Marine Pollution Bulletin, 146, pp.779–793. doi:https://doi.org/10.1016/j.marpolbul.2019.07.038.*

French-McCay, D. H. (2018). *Modeling Distribution, Fate, and Concentrations of Deepwater Horizon Oil in Subsurface Waters of the Gulf of Mexico. Oil Spill Environmental Forensics Case Studies, pp.683–735. doi:https://doi.org/10.1016/b978-0-12-804434-6.00031-8.*

Gales, R. (1982). *Effects of Noise of Offshore Oil and Gas Operations on Marine Mammals – An Introductory Assessment Volume 1. Naval Oceans Systems Center Technical Report 844. Report to the Bureau of Land Management, Department of Interior. San Diego, California.*

Gallagher et al., B. J. (2019). *Kinetic Blowout Stopper - The Airbag for the Oil and Gas Industry. SPE/ICoTA Well Intervention Conference and Exhibition. doi:https://doi.org/10.2118/194274-ms.*

Glover, C. M.-O. (2014). *Photochemical degradation of Corexit components in ocean water. Chemosphere, 111, pp.596–602. doi:https://doi.org/10.1016/j.chemosphere.2014.05.012.*

GOWRS. (2015). *About Us – GOWRS. [online] Gowrs.org. Available at: https://gowrs.org/about-us/#oiled-wildlife-response [Accessed 12 Sep. 2025].*

Gray, J. K. (2014). *Presence of the Corexit component dioctyl sodium sulfosuccinate in Gulf of Mexico waters after the 2010 Deepwater Horizon oil spill. Chemosphere, 95, pp.124–130. doi:https://doi.org/10.1016/j.chemosphere.2013.08.049.*

Hemmer, M. B. (2011). *Comparative toxicity of eight oil dispersants, Louisiana sweet crude oil (LSC), and chemically dispersed LSC to two aquatic test species. Environmental Toxicology and Chemistry, [online] 30(10), pp.2244–2252. doi:https://doi.org/10.1002/etc.619.*

Hook & Lee, S. a. (2015). *Risk analysis of chemical oil dispersants on the Australian register. The APPEA Journal, 55(1), p.393. doi:https://doi.org/10.1071/aj14033.*

Hook, S. B. (2016). *Oil Spill Monitoring Handbook. CSIRO Publishing. Melbourne.*

IPIECA-IOGP. (2013a). *Guidelines on oil characterization to inform spill response decisions .* Oil Spill Response Joint Industry Project. Retrieved August 14, 2025, from https://environmentalunit.com/Documentation/03%20Oil%20Fate%20and%20Behavior/IPIECA%20JIP%2019%20-%20Oil%20characterization%20Final.pdf

IPIECA-IOGP. (2013b). *The use of decanting during offshore oil spill recovery operations.* IPIECA. Retrieved from https://www.ipieca.org/resources/the-use-of-decanting-during-offshore-oil-spill-recovery-operations

IPIECA-IOGP. (2014). *Wildlife response preparedness.* Retrieved September 10, 2025, from https://www.ipieca.org/resources/wildlife-response-preparedness

IPIECA-IOGP. (2015a). *A guide to shoreline clean-up techniques.* Retrieved from https://www.ipieca.org/resources/a-guide-to-shoreline-clean-up-techniques

IPIECA-IOGP. (2015b). *At-sea containment and recovery.* IPIECA. Retrieved from https://www.ipieca.org/resources/at-sea-containment-and-recovery

IPIECA-IOGP. (2015c). *Dispersants: surface application.* IPIECA. Retrieved August 14, 2025, from https://www.ipieca.org/resources/dispersants-surface-application

IPIECA-IOGP. (2015d). *Response strategy development using net environmental benefit analysis (NEBA).* Retrieved August 14, 2025, from https://www.ipieca.org/resources/response-strategy-development-using-net-environmental-benefit-analysis-neba

IPIECA-IOGP. (2017a). *Guidelines on implementing spill impact mitigation assessment (SIMA).* Retrieved August 14, 2025, from https://www.ipieca.org/resources/guidelines-on-implementing-spill-impact-mitigation-assessment-sima

IPIECA-IOGP. (2017b). *Key principles for the protection, care and rehabilitation of oiled wildlife.* Retrieved September 10, 2025, from https://www.ipieca.org/resources/key-principles-for-the-protection-care-and-rehabilitation-of-oiled-wildlife

IPIECA-IOGP. (2019). *Oil spill preparedness and response: an introduction.* Retrieved August 14, 2025, from https://www.ipieca.org/resources/oil-spill-preparedness-and-response-an-introduction

ITOPF. (2024). *International Tanker Owners Pollution Federation Handbook. [online] Available at: https://iims-media-library.s3.eu-west-2.amazonaws.com/wp-content/uploads/2023/08/17093320/ITOPF_Handbook_2023_c.pdf [Accessed 27 Aug. 2025].*

IUCN. (2025). *The IUCN Red List of Threatened Species*, 2025-2. Retrieved from https://www.iucnredlist.org

Lessard, R. a. (2000). *The Significance of Oil Spill Dispersants. Spill Science & Technology Bulletin, 6(1), pp.59–68. doi:https://doi.org/10.1016/s1353-2561(99)00061-4.*

National Academies of Sciences, E. (2019). *The Use of Dispersants in Marine Oil Spill Response. [online] nap.nationalacademies.org. The National Academies Press. Available at: https://nap.nationalacademies.org/catalog/25161/the-use-of-dispersants-in-marine-oil-spill-response.*

National Oceanic and Atmospheric Administration, U. C. (2006). *Special Monitoring Of Applied Response Technologies. [online] Office of Response and Restoration, NOAA. Available at: https://response.restoration.noaa.gov/sites/default/files/SMART_protocol.pdf [Accessed 15 Aug. 2025].*

Navigatus Consulting Limited . (2011). *Victorian Marine Pollution Risk Assessment 2011. Prepared for Victorian Department of Transport Reference DOT, No. 293814.*

Nedwed, T. a. (2021). *Advanced Well Control Reduces Risk of a Blowout. International Oil Spill Conference Proceedings, 2021(1). doi:https://doi.org/10.7901/2169-3358-2021.1.687221.*

Nedwed, T. a. (2024). *Advanced Well Control using Rapid Cross-linking Polymers. International Oil Spill Conference Proceedings, [online] 2024(1). doi:https://doi.org/10.7901/2169-3358-2024.1.304.*

NOAA ESI, P. J. (2019). *Environmental Sensitivity Index Guidelines, Version 4.0. NOAA Technical Memorandum NOS OR&R 52. Accessed at: https://response.restoration.noaa.gov/sites/default/files/ESI_Guidelines.pdf.*

Noise Control Engineering. (2007). *Review of Existing and Future Potential Treatments for Reducing Underwater Sound from Oil and Gas Industry Activities.*

NOPSEMA. (2024). *Australian dispersant acceptance process N-04750-IP1597. [online] Available at: https://www.nopsema.gov.au/sites/default/files/documents/Australian%20dispersant%20acceptance%20process.pdf [Accessed 25 Aug. 2025].*

NOPSEMA. (2025). *Notification, Reporting and Recording Requirements for Incidents.* Guidance Note. Retrieved from https://www.nopsema.gov.au/sites/default/files/documents/N-03300-GN2303%20-%20Notification%20Reporting%20and%20Recording%20Requirements%20for%20Incidents%20%28A1179039%29.pdf

NRC. (2005). *Oil Spill Dispersants: Efficacy and Effects. [online] National Academies Press. Washington, D.C.: National Academies Press. Available at: https://nap.nationalacademies.org/catalog/11283/oil-spill-dispersants-efficacy-and-effects.*

NRDA. (2012). *April 2012 Status Update for the Deepwater Horizon Oil Spill. Accessed at: http://www.gulfspillrestoration.noaa.gov. Natural Resource Damage Assessment.*

NSW Emergency Services Coordination. (2023). *NSW State Emergency Management Plan (EMPLAN).*

NSW EPA. (2024). *NSW Environmental Services Functional Area Supporting Plan (ENVIROPLAN).* Retrieved from https://www.nsw.gov.au/sites/default/files/2024-10/supporting-plan-EnviroPlan_0.pdf

NSW State Emergency Management Committee. (2022). *NSW State Waters Marine Oil and Chemical Spill Contingency Plan .*

NSW State Emergency Management Committee. (2023). *NSW Wildlife in Emergencies Sub Plan.* Retrieved from https://www.nsw.gov.au/sites/default/files/noindex/2024-01/NSW_Wildlife_in_Emergencies_Sub_Plan.pdf

OSAT. (2011). *Sumary Report for Sub-Sea and Sub-Surface Oil and Dispersant Detection: Exotoxicity Addendum.*

OSRL. (2025). *Activation Procedure*. Retrieved from osrl.com: https://www.osrl.com/in-action/activation-procedure/

Place, B. A. (2010). *A Role for Analytical Chemistry in Advancing our Understanding of the Occurrence, Fate, and Effects of Corexit Oil Dispersants. Environmental Science & Technology, 44(16), pp.6016–6018. doi:https://doi.org/10.1021/es102319w.*

Popovech, M. (2017). *Analysis of Hazards of Dispersant Constituents and Review of Toxicological Studies. International Oil Spill Conference Proceedings, 2017(1), pp.311–330. doi:https://doi.org/10.7901/2169-3358-2017.1.311.*

RPS. (2019). *Gippsland Basin Vessel Activities Oil Spill Modelling.*

RPS. (2025). *Bass Strait Environmental Plan Renewal Oil Spill Modelling .*

State of Victoria. (2024). *Victorian State Emergency Management Plan.* Emergency Management Victoria. Retrieved from https://files.emv.vic.gov.au/2024-10/2024%20SEMP%20-%20functional%20and%20interactive%20PDF.pdf?VersionId=1OVia0rthBPlfTOxCjhsIlaXj7oBCs0E

Word, J. C. (2014). *Comparison of the Acute Toxicity of Corexit 9500 and Household Cleaning Products. Human and Ecological Risk Assessment: An International Journal, 21(3), pp.707–725. doi:https://doi.org/10.1080/10807039.2014.920227.*

Appendix A: Templates and forms

Appendix A-1 ICS 201–1: Incident briefing map/sketch

INCIDENT BRIEFING	**2. Date prepared:** ________________
1. Incident Name: ____	**3. Time prepared:** ________________

4. Map Sketch (include sketch, showing the total area of operations, the incident site/area, impacted and threatened areas, overflight results, trajectories, impacted shorelines, or other graphics depicting situational status and resource assignment):

5. Situation Summary and Health and Safety Briefing (for briefings or transfer of command): Recognize potential incident Health and Safety Hazards and develop necessary measures (remove hazard, provide personal protective equipment, warn people of the hazard) to protect responders from those hazards:

6. Prepared by:

Name: _________________________________ Title: ____

Signature: ____________________________ __ Date: __________ Time: ___________

Appendix A-2 ICS 201–2: Current objectives and actions

1. Incident Name: ________________	**3. Date:** ________
2. Incident Number: ________________	**4. Time:** ________

5. Current and Planned Objectives:

6. Current and Planned Actions, Strategies and Tactics:

Time assigned	Actions	Responsible	Status	Time complete

7. Prepared by:

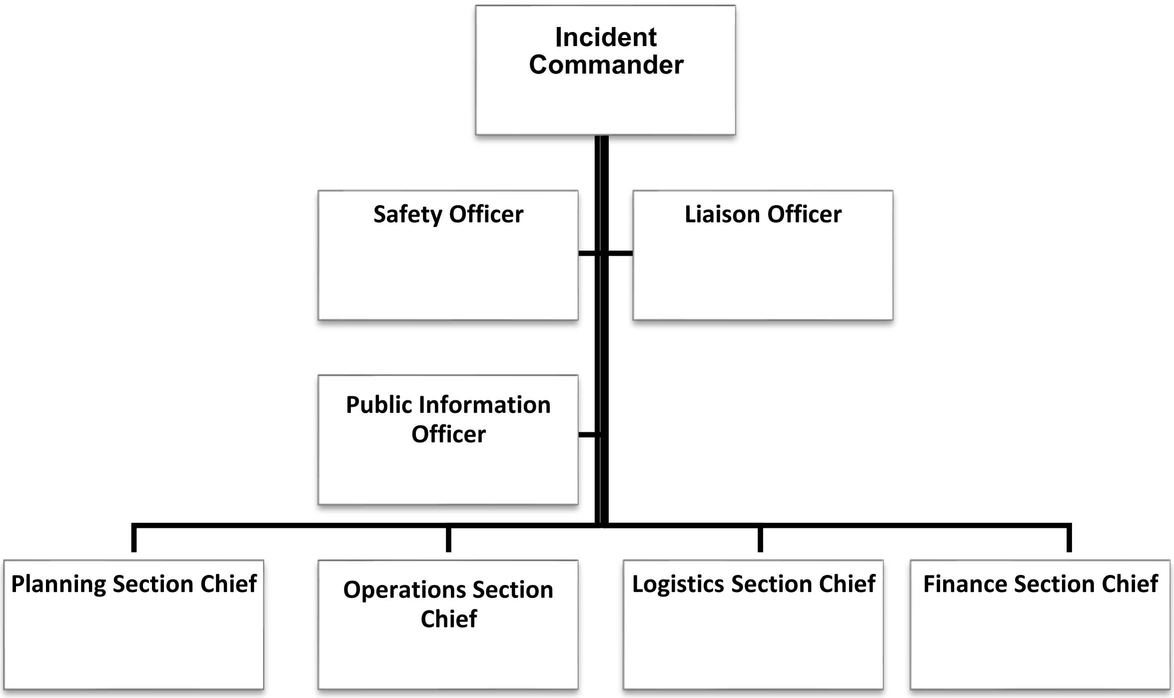
Name: ________________ Title: ________________

Signature: ________________ Date: ________ Time: ________

Appendix A-3 ICS 201–3: Current organisation

1. Incident Name: ______________________________	**3. Date:** ____________
2. Incident Number: ____________________________	**4. Time:** ____________

5. Current Organization (fill in additional organization as appropriate):



6. Prepared by:

Name: ______________________________ Title: ______________________________

Signature: ______________________________ Date: ____________ Time: ____________

Appendix A-4 ICS 201–4: Resource summary

1. Incident Name: ______________________	**3. Date:** ____________
2. Incident Number: ______________________	**4. Time:** ____________

5. Resource Summary:

Resource	Resource Identifier	Date/Time Ordered	ETA	Arrived	Notes

6. Prepared by:

Name: ______________________ Title: ______________________

Signature: ______________________ Date: __________ Time: __________

Appendix A-5 ICS 202: General response objectives

1. Incident Name:

____

2. Operational Period:

Date from: _______________ Date to: _______________

Time from: _______________ Time to: _______________

3. Objective(s):

4. Operational Period Command Emphasis:

5. General Situational Awareness:

6. Site Safety Plan:

Required? Yes ☐ No ☐ Approved Site Safety Plan(s) located at: _______________________________

7. Incident Action Plan:

The items checked below are included in the Incident Action Plan:		Other attachments:
☐ ICS 202 General Response Objectives	☐ ICS 206 Medical Plan	☐ _______________
☐ ICS 203 Organisation Assignment	☐ ICS 207 Organisation Chart	☐ _______________
☐ ICS 204 Assignment List	☐ ICS 208 Site Safety Plan	☐ _______________
☐ ICS 205 Communications Plan	☐ Map/Chart	☐ _______________
☐ ICS 205A Communications List	☐ Weather Forecast/Tides	☐ _______________

8. Prepared by:

Name: _______________ Position/Title: _______________ Signature: _______________

9. Approved by Incident Commander:

Name: _______________ Signature: _______________ Date: _______________

Appendix B: Consultation Plan

Relevant control agencies

Regulation 25 of the Environment Regulations establishes that titleholders (and those with access authority) detail consultation arrangements with relevant Control Agencies within the potentially exposed area as described in the Environment Plan.

To address this, Control Agencies within the potentially exposed area as described in the Environment Plan shall be consulted to inform content of the OPEP (refer to Table B-1).

Relevant Control Agencies will act as a single point of contact for their jurisdiction and may coordinate review and comment from other agencies.

Table B-1 Relevant Control Agencies (includes but not limited to)

Control Agency	Relevance
DTP	Relevant for unplanned events. The Control Agency working closely with vessel operators and waterway and port managers to provide expert knowledge, education, support and direction in Victorian State waters.
Transport for NSW (NSW)	Relevant for unplanned events. The Control Agency for marine pollution incidents impacting NSW State waters. NSW waters could potentially be affected by an extended duration unplanned event.
EPA Tasmania (Tasmania)	Relevant for unplanned events as the Control Agency for marine pollution in Tasmanian State waters.

Sufficient time

The following consultation/review process was previously agreed with the state agencies:

- 30 days to review a new OPEP
- 14 days to review OPEP changes, by exception only
- 14 days to review QRGs or similar smaller documents

Relevant information

The following information may be provided to relevant Control Agencies:

- brief description of activity, including the intended schedule, location, distances to nearest landfall and map
- worst-case discharge volumes
- known or indicative oil type/properties
- amenability of oil to dispersants
- brief description of existing environment and protection priorities

- key inputs and outputs of the environmental risk assessment
- outcomes of oil spill trajectory modelling, including predicted times to enter State waters and contact shorelines
- details on initial response actions and key activation timeframes
- potential Incident Control Centre arrangements
- potential staging areas/forward operating base
- details on response strategies
- details on proposed IMT structure
- details on exercise and testing arrangements of OPEP/OSCP.

This list has been extracted from the EPA Tasmania – Offshore Petroleum Industry Guidance Note – Annex 3 and forms the basis of information provided. Additional information may be requested by individual agencies.

The information may be provided in summary form or through the provision of the OPEP.

Ongoing consultation

The methods and content of ongoing consultation will be determined with relevant stakeholders and may include meetings, exercises, forums or written communication (refer to Table B-2).

Table B-2 Ongoing consultation with relevant stakeholders

Stakeholder	Meeting	Exercises	Collaborative forums	Ad-hoc
Victoria State Control Agency DTP	Annual meeting	Annual review of Esso oil spill response exercise plan Participation in Esso and/or State exercises	Regional Marine Pollution Reference Group	Prior to commencement of new activities Changes to risk
NSW State Control Agency Transport for NSW	Annual meeting	Participation in Esso and/or State exercises	-	Prior to commencement of new activities Changes to risk
Tasmania State Control Agency EPA Tasmania	Annual meeting	Participation in Esso and/or State exercises	-	Prior to commencement of new activities Changes to risk
AMSA	As required	Participation in Esso, National Plan and/or State exercises		Prior to commencement of new activities Changes to risk
Victoria DEECA	As required (To be coordinated by Victorian	Annual review of Esso oil spill response exercise plan	Regional Marine Pollution Reference Group	-

Stakeholder	Meeting	Exercises	Collaborative forums	Ad-hoc
	State Control Agency)	Participation in Esso and/or State exercises		
Victorian EPA	-	-	Regional Marine Pollution Reference Group	-
Gippsland Ports	-	Participation in Esso, Regional and/or State exercises	Regional Marine Pollution Reference Group Esso Community Day	-
East Gippsland Shire Council	-	-	Regional Marine Pollution Reference Group Esso Community Day	-

Consultation during an unplanned event

In the occurrence of an unplanned event, the methods and content of consultation with relevant stakeholders may be determined by notification requirements and can include meetings, phone calls or written communication (refer to Table B-3).

Table B-3 Consultation with relevant stakeholders during an unplanned event

Stakeholder	Incident notification requirement	Trigger	Method
AMSA	Required for all spills from vessels	Notification requirement met National Plan resources requirements Impact to shipping	Pollution report/situational report Liaison Officer Joint Strategic Coordination Committee
Victoria State Control Agency DTP - Safety Resilience and Emergency Coordination	All spills that could impact Victorian State waters (> 80L).		Situational report Liaison Officer Joint Strategic Coordination Committee
NSW State Control Agency Transport for NSW	Required for: all spills that could impact NSW waters.	Notification requirement met	Situational report Liaison Officer

Stakeholder	Incident notification requirement	Trigger	Method
			Joint Strategic Coordination Committee
Tasmanian State Control Agency EPA Tasmania	Required for: all spills that could impact Tasmanian waters.	Notification requirement met	Situational report Liaison Officer Joint Strategic Coordination Committee
NOPSEMA	Required for: all spills (>80L).		Situational report
NOPTA	Required for: all spills (>80L).		Situational report
DEECA – Earth Resources Regulation	Required for: all spills (>80L).	Notification requirement met	Situational report Liaison Officer Joint Strategic Coordination Committee
DEECA – Oiled Wildlife		Potential impact to wildlife	Via Control Agency IMT OWR Coordinator/Liaison
Aboriginal Affairs Victoria		Planned shoreline protection or clean-up activities	Via Control Agency IMT
NRE Tas – Marine Conservation Program			Via Control Agency IMT
VIC Environment Protection Authority			Via Control Agency IMT
Transport Safety Victoria - Maritime Safety			Via Control Agency IMT
Parks Victoria		Impact to State waters or shoreline Parks Victoria resources required	Via Control Agency IMT
East Gippsland Shire Council			Via Control Agency IMT

Stakeholder	Incident notification requirement	Trigger	Method
Victorian Regional Channels Authority			Via Control Agency IMT
East Gippsland Catchment Management Authority			Via Control Agency IMT
DEECA (Energy Emergency)		Potential impact to supply	Via the Emergency Support Group
Department of Agriculture, Water and the Environment Parks Australia - Director of National Parks	Required for all spills that are within a marine park or could impact a marine park.	Notification requirement met	Verbal
Department of Agriculture, Water and the Environment	Required for all spills that impact or have the potential to impact on matters of national environmental significance.	Notification requirement met	Verbal
NSW Department of Primary Industries		Impact to NSW State waters or shoreline	Verbal

Appendix C: Oil Spill Monitoring Program implementation (scientific modules)

Table C-1 EPOs and EPSs for Operational and Scientific Monitoring Program

EPO	Strategy	Control	EPS	Measurement criteria
OPEP16-EPO01: Monitor and evaluate environmental impact and recovery from the spill and response activities.	Operational and Scientific monitoring	**OPEP16-CM01:** Implementation of the Operational and Scientific Monitoring Program	**OPEP16-EPS01:** Implement OSMP modules S1-S9, as required: • S1: Hydrocarbons in intertidal sediments and water • S2: Hydrocarbons in offshore sediments and water • S3: Fish and shellfish taint and toxicity for human consumption • S4: Short-term impacts to oiled fauna and flora • S5: Recovery of commercial and recreational fisheries • S6: Recovery of fauna • S7: Recovery of subtidal and intertidal benthic habitat • S8: Recovery of coastal flora • S9: Recovery of Ramsar values Modules to be implemented in accordance with requirements and timeframes in Section 4 of the *OSMP*.	• IMT logs • Incident Action Plan • Scientific monitoring reports

EPO	Strategy	Control	EPS	Measurement criteria
		OSMP Termination Criteria	Monitoring under OSMP module S1-9 continued until termination criteria set out in Section 4 of the *OSMP* are met.	• IMT logs • Final operational monitoring reports

Appendix D: Quick Reference Information

Appendix D-1 QRG – Production and plug and abandonment Marlin– Kipper condensate

The purpose of this document is to provide information specific to a WCDS for loss of well control of Kipper condensate from Marlin (Marlin) platform during production operations (Scenario 1), and WCDS for loss of well control during P&A activities (Scenario 2). This document is intended for use by incident responders and during stakeholder consultation activities. The scenarios represent the WCDSs modelled in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

For further details, refer to the *Bass Strait Oil Pollution Emergency Plan* (AUGO-EV-ELI-001).

D1.1 Field location/oil properties

This QRG applies to Esso's Gippsland Basin operations and project activities, the location of which is detailed in Figure D-1.

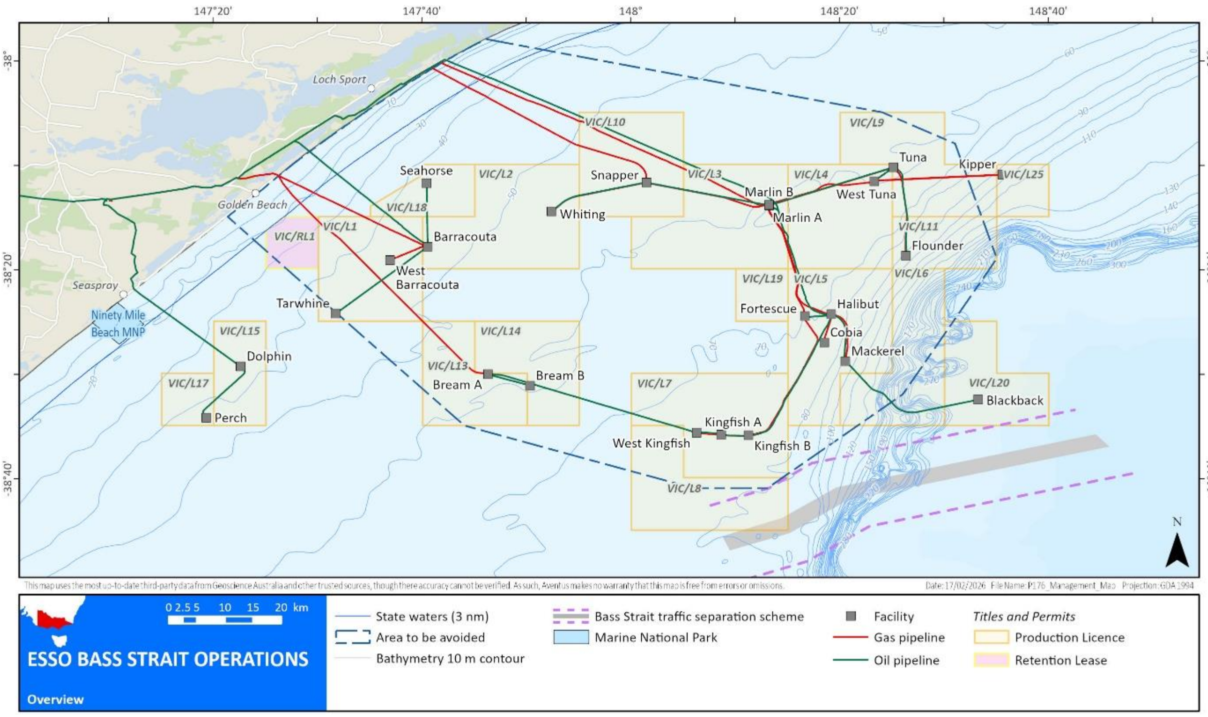


Figure D-1 Location of Bass Strait region and asset locations

Details of the facilities relevant to this QRG can be found in Table D-1. It should be noted that Marlin A and Marlin B are connected via a walkway and will henceforth be referred to collectively as Marlin platform.

The physical properties of Kipper condensate, which is handled at Marlin platform, can be referred to in Table D-2, and further details can be found in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-1 Details of facilities relevant to this QRG

Facility	Licence	Coordinates	
		Latitude	Longitude
Marlin A	VIC/L03	38° 13' 50" S	148° 13' 14" E

Facility	Licence	Coordinates	
		Latitude	Longitude
Marlin B	VIC/L03	38° 13' 46" S	148° 13' 16" E

Table D-2 Physical properties of Kipper condensate (RPS, 2025)

Oil type and name	Kipper condensate*
Density	760.0kg/m³ (@15⁰C)
API	54.5
Dynamic viscosity	0.64cP (@15°C)
Pour point	-39°C
Oil property category	Group 1 – non-persistent
Wax content	2.3%
Aromatic Content [1]	13.4%
Volatile (Boiling Point <180°C)	43.2%
Semi-volatile (Boiling Point 180 - 265°C)	30.8%
Low volatility (Boiling Point 265 - 380°C)	23.8%
Residual (BP> 380°C) [2]	2.2%

*Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

[1]Soluble, aromatic, hydrocarbons, (including BTEX), tend to evaporate into the atmosphere.

[2]Residual hydrocarbons will persist in the marine environment. Waxy components may solidify over the annual temperatures observed in the Gippsland Basin.

D1.2 What's the worst that could happen?

A summary of the WCDS for both production and P&A activities at Marlin platform is outlined in Table D-3.

Table D-3 A summary of the WCDS for Kipper condensate, for both production and P&A activities, based on the modelling report (RPS, 2025)

Modelled Oil Pollution Scenario* (WCDS)	Production (Scenario 1)	P&A (Scenario 2)
	Level 2 Spill: A surface release following a loss of well control (with production from current production tubing against zero wellhead pressure) resulting in a release of condensate over 98 days.	**Level 2 Spill: A surface release following a loss of well control (during a plug and abandonment on the well with all perforations open to flow against zero wellhead pressure) resulting in a release of condensate over 98 days.**
Oil type and name	Kipper condensate	
Spill volume	35,839m^3	144,054m^3
Dominant weathering process	Evaporation	
Approximate evaporation rate	(depending on temperature)	
...within the first 12 hours	65%	
...within the first 24 hours	75%	
...over several days	76%	
Probability of contact to a shoreline receptor at or above the low threshold (10g/m^2)	65% (at Bega Valley (NSW), and Bega Valley Shire Council (NSW))	88% (at East Gippsland)
Minimum time before shoreline accumulation at or above the low threshold (10g/m^2)	4.93 days (at East Gippsland and Croajingolong – West)	5.43 days (at Gabo Island (Vic))
Maximum volume ashore from a single spill simulation at or above the low threshold (10g/m^2)	5.0m^3 (at Bega Valley and Bega Valley Shire Council (NSW))	19.1m^3 (at East Gippsland)
Maximum length of the shoreline		
...at 10g/m^2	21.5km	72.3km
...at 100g/m^2	2.7km	6.3km
...at 1000g/m^2	N/A	N/A
Weathering after 7 days	Based on mass balance for condensate using constant 5kn wind speeds at 15°C water temperature	
Evaporation	76%	
Dissolved	0%	

Modelled Oil Pollution Scenario* (WCDS)	Production (Scenario 1)	P&A (Scenario 2)
	Level 2 Spill: A surface release following a loss of well control (with production from current production tubing against zero wellhead pressure) resulting in a release of condensate over 98 days.	**Level 2 Spill: A surface release following a loss of well control (during a plug and abandonment on the well with all perforations open to flow against zero wellhead pressure) resulting in a release of condensate over 98 days.**
Decay	0%	
Entrained in water column	0%	
Floating	24%	

*Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

D1.3 Exposure – Shoreline

Within this Section, the modelling results for maximum potential shoreline loading, and zones of potential floating oil exposure for both condensate scenarios are shown. Results from Scenario 1 are outlined in Figure D-2 and Figure D-4, while results from Scenario 2 are outlined in Figure D-3 and Figure D-5.

D1.4 Maximum potential shoreline loading

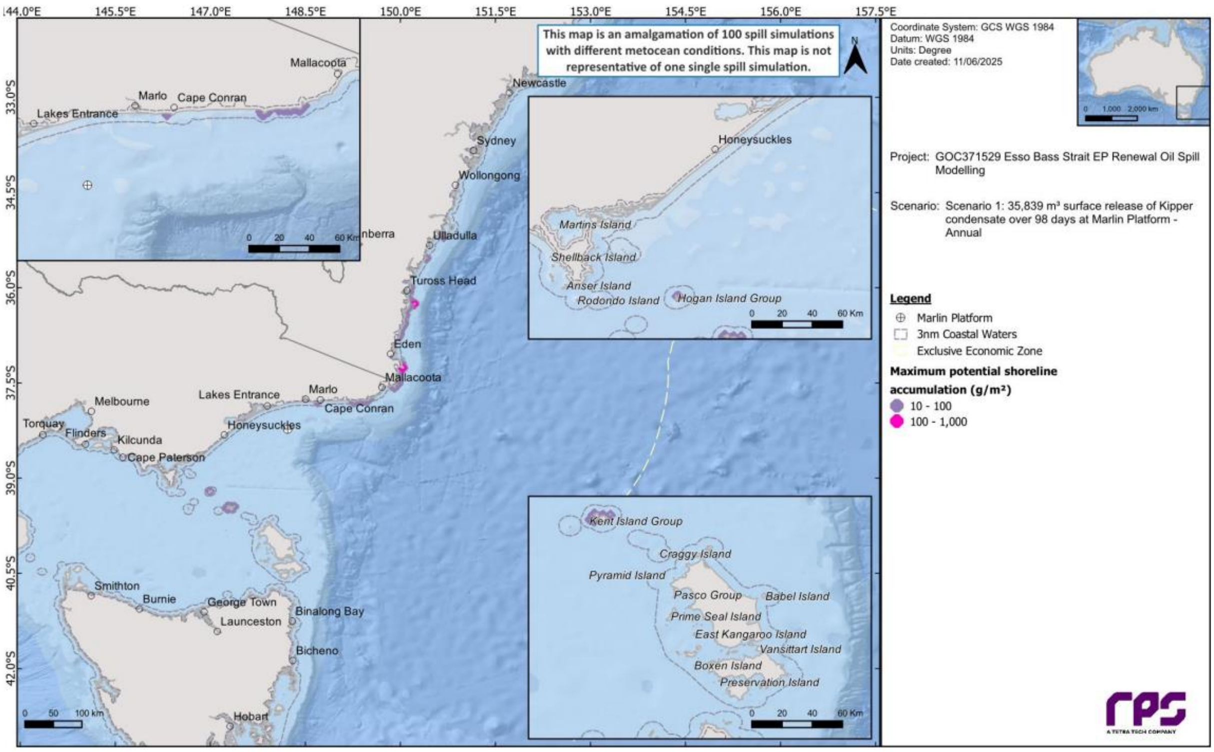


Figure D-2 **Scenario 1 - Maximum potential shoreline loading in the event of a 35,839m³ surface release of condensate over 98 days following an accidental release incident at the Marlin platform. The stochastic results were calculated from 100 spill trajectories (RPS, 2025)**

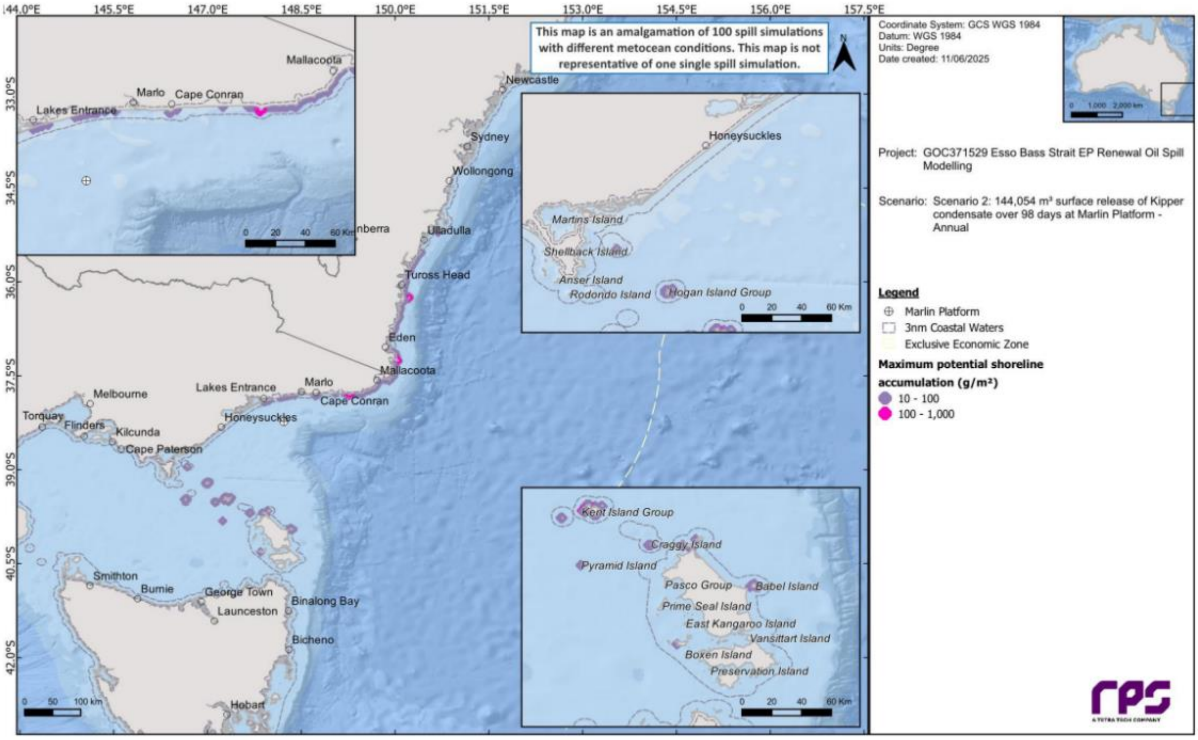


Figure D-3 **Scenario 2- Maximum potential shoreline loading in the event of a 144,054m³ surface release of condensate over 98 days following an accidental release incident at the Marlin platform. The stochastic results were calculated from 100 spill trajectories (RPS, 2025)**

D1.5 Zones of potential floating oil exposure

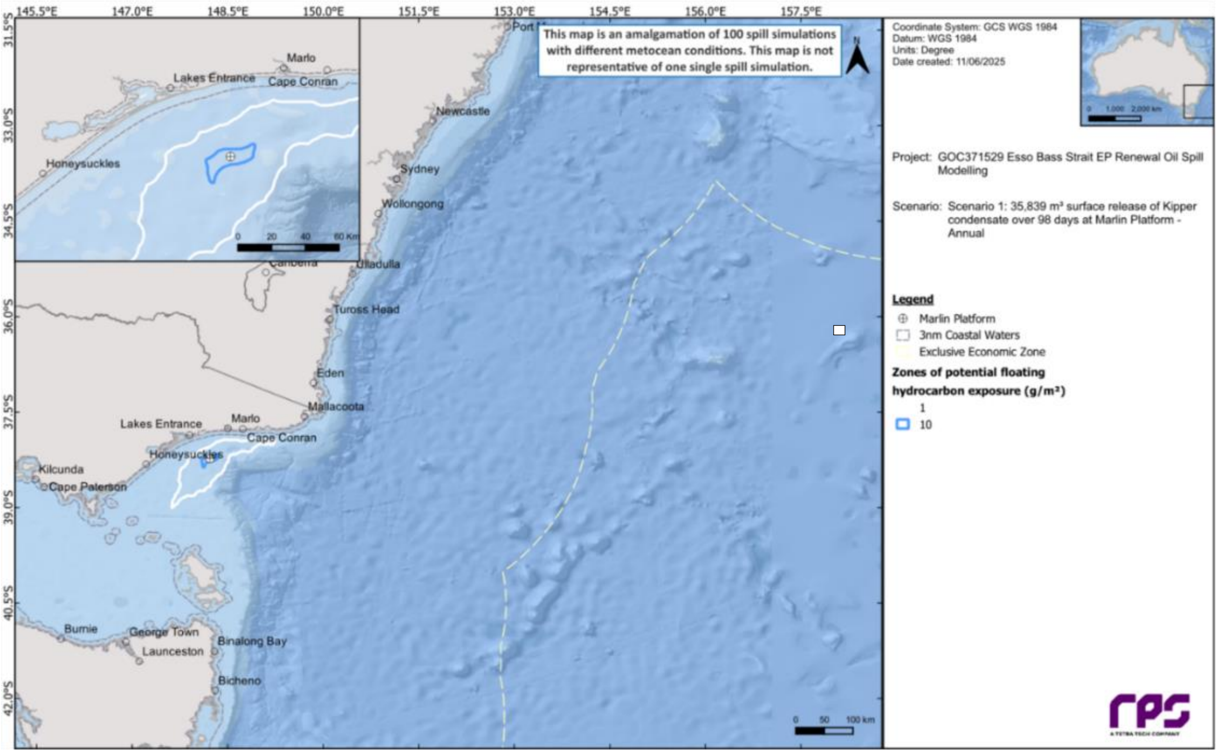


Figure D-4 **Scenario 1 - Zones of potential floating oil exposure in the event of a 35,839m³ surface release of condensate over 98 days following an accidental release incident at the**

Marlin platform. The results were calculated from 100 spill trajectories and represent annual conditions (RPS, 2025)

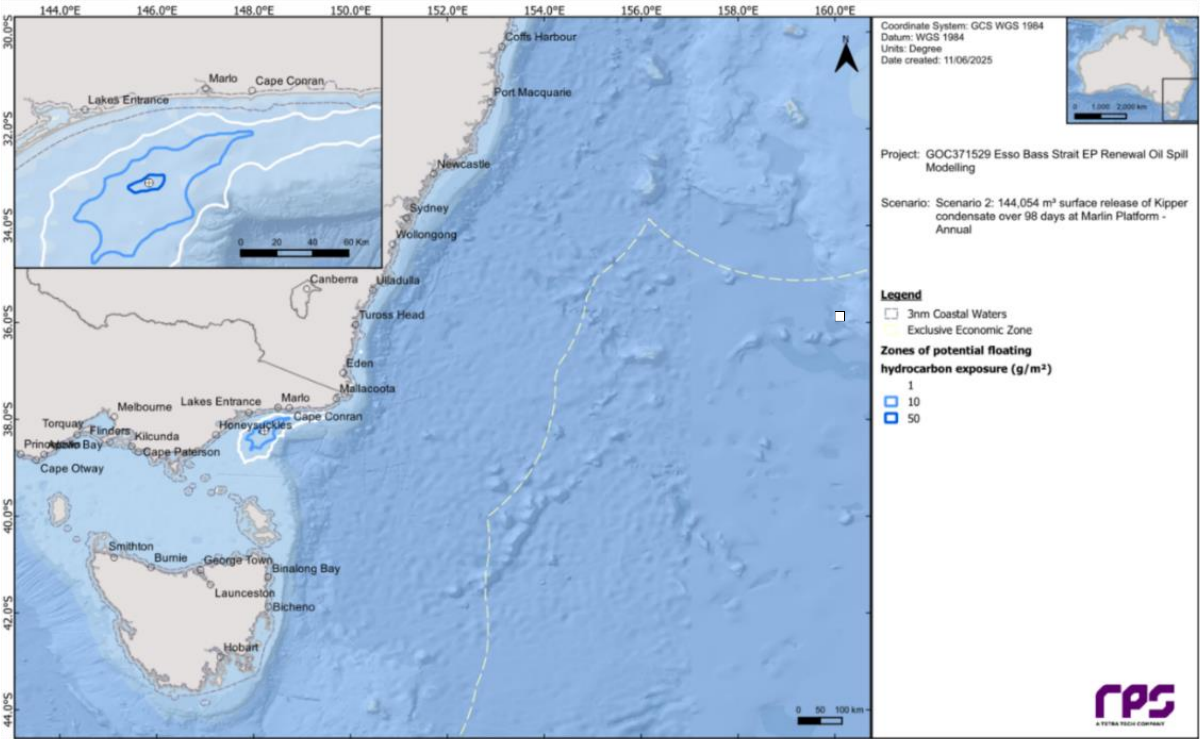


Figure D-5 **Scenario 2 - Zones of potential floating oil exposure in the event of a 144,054m³ surface release of condensate over 98 days following an accidental release incident at the Marlin platform. The results were calculated from 100 spill trajectories and represent annual conditions (RPS, 2025)**

D1.6 Impacted receptors

Table D-4 lists the identified receptors that have been predicted to be impacted by the hydrocarbon spill at the moderate threshold. The predicted timeframes until impact have been grouped. Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025) for more details.

Table D-4 **Summary of receptors that are predicted to be impacted at the moderate threshold in the modelled scenarios and the approximate timeframe until contact**

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
Marlin production* (Scenario 1)						
Minimum time to oil exposure on sea surface at moderate threshold	Biologically Important Area	Antipodean albatross - Foraging	-	-	-	-
		Black-browed albatross - Foraging**	✓	-	-	-
		Buller's albatross - Foraging**	✓	-	-	-
		Campbell albatross - Foraging**	✓	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Common diving-petrel - Foraging**	✓	-	-	-
		Indian yellow-nosed albatross - Foraging**	✓	-	-	-
		Pygmy blue shale - Foraging**	✓	-	-	-
		Short-tailed shearwater - Foraging	-	-	-	-
		Shy albatross - Foraging likely**	✓	-	-	-
		Wandering albatross - Foraging**	✓	-	-	-
		White shark - Foraging	-	-	-	-
		White-faced storm-petrel - Foraging	-	-	-	-
		Southern right whale - Migration**	✓	-	-	-
	Key Ecological Feature	Upwelling East of Eden**	✓	-	-	-
Minimum time to shoreline accumulation of oil at moderate threshold	Shore	Bega Valley (NSW)	-	-	-	✓(27 days)
		East Gippsland (Victoria)	-	-	-	-
		Eurobodalla (NSW)	-	-	-	-
		Gabo Island (Victoria)	-	-	-	-
		Hogan Island Group (Tasmania)	-	-	-	-
		Kent Island Group (Tasmania)	-	-	-	-
		Montague Island (NSW)	-	-	-	✓(18 days)
		Shoal Haven (NSW)	-	-	-	-
	Shore Local Government Area	Bega Valley Shire Council (NSW)	-	-	-	✓(27 days)

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Eurobodalla Shire Council (NSW)	-	-	-	-
		Flinders Council (Tasmania)	-	-	-	-
		Gabo Island (Unincorporated) (Victoria)	-	-	-	-
		Shoalhaven City Council (NSW)	-	-	-	-
	Shore Victoria - Marine Pollution Risk Assessment (MPRA)	Cape Howe/Mallacoota	-	-	-	-
		Croajingolong - West	-	-	-	-
		Marlo	-	-	-	-
		Point Hicks	-	-	-	-
Marlin P&A* (Scenario 2)						
Minimum time to oil exposure on sea surface at moderate threshold	Biologically Important Area	Antipodean albatross - Foraging	-	-	-	✓(34 days)
		Black-browed albatross - Foraging**	✓	-	-	-
		Bullers albatross - Foraging**	✓	-	-	-
		Campbell albatross - Foraging**	✓	-	-	-
		Common diving-petrel - Foraging**	✓	-	-	-
		Crested tern – Breeding and foraging	-	-	-	-
		Grey nurse shark – Foraging and migration	-	-	-	-
		Humpback whale - Migration (north and south)	-	-	-	-
		Indian yellow-nosed albatross - Foraging**	✓	-	-	-
		Indo-Pacific/spotted bottlenose dolphin - Breeding	-	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Little penguin - Breeding	-	-	-	-
		Pygmy blue whale - Foraging**	✓	-	-	-
		Short-tailed shearwater - Foraging	-	-	-	✓(15 days)
		Shy albatross - Foraging likely**	✓	-	-	-
		Sooty shearwater - Foraging	-	-	-	-
		Wandering albatross - Foraging**	✓	-	-	-
		Wedge-tailed shearwater - Foraging	-	-	-	-
		White shark - Breeding and foraging	-	-	-	-
		White-faced storm-petrel – Breeding and foraging	-	-	-	-
		Southern right whale - Migration** and reproduction	✓	-	-	-
	Key Ecological Feature	Upwelling East of Eden	✓	-	-	-
Minimum time to shoreline accumulation of oil at moderate threshold	Shore	Babel Island (Tasmania)	-	-	-	-
		Badger Island (Tasmania)	-	-	-	-
		Bega Valley (NSW)	-	-	-	✓(10 days)
		Craggy Island (Tasmania)	-	-	-	-
		Curtis Island (Tasmania)	-	-	-	-
		East Gippsland (Victoria)	-	-	-	✓(28 days)
		Eurobodalla (NSW)	-	-	-	-
		Flinders Island (Tasmania)	-	-	-	-
		Gabo Island (Victoria)	-	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Hogan Island Group (Tasmania)	-	-	-	-
		Kent Island Group (Tasmania)	-	-	-	✓(13 days)
		Montague Island (NSW)	-	-	-	✓(12 days)
		Outer Sister Island (Tasmania)	-	-	-	-
		Pyramid Island (Tasmania)	-	-	-	-
		Seal Islands (Victoria)	-	-	-	-
		Shoal Haven (NSW)	-	-	-	-
	Shore Local Government Area	Bega Valley Shire Council (NSW)	-	-	-	✓(10 days)
		Eurobodalla Shire Council (NSW)	-	-	-	-
		Flinders Council (Tasmania)	-	-	-	✓(13 days)
		Gabo Island (Unincorporated) (Victoria)	-	-	-	-
		Shoalhaven City Council (NSW)	-	-	-	-
	Shore Victoria MPRA	Cape Conran	-	-	-	-
		Cape Howe/Mallacoota	-	-	-	-
		Corringle	-	-	-	-
		Croajingolong - East	-	-	-	-
		Croajingolong - West	-	-	-	-
		Lake Tyers Beach	-	-	-	-
		Lakes Entrance	-	-	-	-
		Marlo	-	-	-	-
		Point Hicks	-	-	-	✓(28 days)

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Sydenham Inlet	-	-	-	-

* Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025) for more details.

**The release location resides within the receptor boundaries.

Protection priorities based on sensitivity and predicted consequence (refer to Section 5 of EP), protectable/actionable areas, and minimum time to exposure in this area are:

- North East River (Flinders Island) – sheltered intertidal flats, intertidal rocky shores, marshes and estuarine fish habitats. The other potentially contacted areas are primarily sandy beaches or river mouths that are not permanently open.

D1.7 Strategic Net Environmental Benefit Analysis and selection of response options

For each given response strategy, the benefits and relative effectiveness have been considered for the scenario, determining the viability of the strategy based on a net environmental benefit.

Table D-5 Assessment of viability for response strategies, considering the benefits and their effectiveness on the oil type

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
Source control	Stops/minimises the flow of hydrocarbons into to environment.	Only viable option to stop flow of oil to the marine environment.	Yes	✓
Surveillance and monitoring	Although surveillance is not an active intervention to treat or remove oil pollution, it is critical to effective response both in the initial stages of an incident and during ongoing response operations. Outputs can be used to guide decision making on the need for other response strategies.	Surveillance and monitoring can be used to observe the natural break-up and dissipation of a Kipper condensate spill from the Marlin platform without the need for active intervention. Can be used to inform the effectiveness of current response strategies.	Yes	✓
Dispersant application	Dispersants act by allowing hydrocarbons to be mixed into the upper layers of the water column, which accelerates the biodegradation process. This removes oil from the water surface, protecting leeward shorelines and	Kipper condensate is a Group 1 hydrocarbon. Group 1 oils are likely to be ≤50µm thick, and spraying dispersant on slicks below this thickness is not recommended. Additionally, condensate is likely to naturally evaporate and disperse readily. Therefore, surface dispersant	No	×

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
	providing benefit to sea-surface air breathing fauna. Use of dispersants may eliminate or minimise oil impacting sensitive resources.	application would not generally be recommended as a strategy, as application of dispersant to condensate is likely to lead to over-treatment and increase toxicity in the water column. This could also affect or interrupt the natural dispersion processes.		
Containment and recovery	Booms and skimmers contain surface oil where there is a potential threat to environmental sensitivities. This relies on calm sea conditions (<1.8m wave height, <0.75kn current speed and <20kn wind speed) to collect and adequate deployment timeframes. Targeted containment and recovery can be utilised to reduce impact to sensitive areas such as Lake's Entrance, and Gabo Island where access for shoreline protection is limited (see below: protection of sensitive shoreline resources).	Condensate from the Marlin platform will be largely removed from the surface through evaporation (75% within the first 24 hours) and is likely to naturally evaporate and disperse readily. Therefore, containment and recovery would collect minimal oil and would not generally be recommended as a strategy for condensate due to minimised efficiency. Additionally, in the Bass Strait Region, sea conditions are likely to be suitable for containment and recovery operations only 50% of the time. As a secondary response option, targeted containment and recovery maybe viable for near shore locations where there is natural collection and/or where shoreline response options are limited.	No	×
Shoreline protection and deflection	Booms and skimmers will be deployed to protect environmental sensitivities. Environmental conditions (e.g. strong current, high wave action) limit application.	Condensate released at the Marlin platform may contact the shoreline along the Gippsland coast and the southern coast of NSW, with modelling predicting shortest time of moderate levels to shore as approximately 10 days.	Yes	✓

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
		TRPs have been developed to guide the protection of sensitive estuary openings and sensitivities along this section of coastline.		
Shoreline clean-up	Last response strategy to remove oil from the environment due to shoreline impact.	Condensate released from the Marlin platform may contact the shoreline along the Gippsland Coast, the southern coast of NSW and Flinders Island (Tasmania), with modelling predicting shortest time of moderate levels to shore as approximately 10 days. There are various shoreline techniques that are appropriate for this type of hydrocarbon, a shoreline clean-up may be effective for reducing shoreline loadings where access is possible, to be assessed on a case-by-case basis.	Yes	✓
OWR	Consists of hazing/deterrence, relocation, capture, cleaning and rehabilitation of oiled wildlife. May include pre-emptive captive management.	OWR is likely to be required as a result of extensive shoreline oiling. Operational monitoring will be used to inform the need for OWR to be implemented.	Yes	✓

D1.8 Response resources required

The resources required for the scenarios outlined in this QRG for each relevant response strategy are listed in Table D-6.

Table D-6 Resources required for the scenarios outlined in this QRG, for each relevant response strategy, based on the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025)

Response strategy[1]	Resource type	Quantity	Timeframe
Source control	Remotely operated vehicle debris	1 x remotely operated vehicle and 1 x vessel	Estimated 14 days (from call out request to arrival in Victoria)

Response strategy[1]	Resource type	Quantity	Timeframe
	clearing/subsea intervention	Subsea first response toolkit and 1 x vessel	Deployment timing will depend on equipment availability and transit time. Estimated 7 days (from Perth to BBMT via road transport).
		1 x contract well control specialists (Wild Well Control/OSRL)	Deployment timing will depend on vessel availability and transit time. Estimated 2 days (from Singapore)
	Relief well	1 x mobile offshore drilling unit (via AEP Mutual Aid Agreement) 1 x contract engineering support specialists (Wild Well Control/OSRL) Well construction material	Estimated 98 days (via heavy lift vessel)
SMV	OSMP O1.1 Weather and sea state	N/A	N/A
	OSMP O1.2 Trajectory estimation	1 x contracted modeller	N/A
	OSMP Module O1.3 and O4.1 Aerial surveillance	1x observer per aircraft Aircraft to have 100nm range and 3-hour duration	Initial overflight <4 hours service requested. Trained observer <12 hours of spill occurring
	OSMP Module O1.4 Tracking buoy	2 x STBs available	Deployed <12 hours of spill occurring (dependent on weather conditions) (Level 2 and 3 spill)
	OSMP O1.5 Satellite imagery	1 x contract	<24 hours
	OSMP Module O2.1 and O2.3 Water and oil sampling	1 x vessel 1 x initial sampling kit 1 x contract with laboratory	Samples obtained <24 hours of spill occurring Analysis initiated <24 hours of receipt in laboratory

Response strategy[1]	Resource type	Quantity	Timeframe
Protection of sensitive shoreline resources[2]	Boom	4 x shore seal boom (25m) 20 x near shore boom (25m)	1 strike team required within 4 days
	Shoreline ancillaries kit	3	
	Shoreline/nearshore anchor kit	30	
	Shore based skimming system	1	
	Sandbag kits (20m)	5	
	Temporary waste storage	1	
	Personnel	41 (4 x site supervisors, 7 x trained responders, 32 x general labours)	
Shoreline clean-up[3]	Shovels	20	2 strike teams required within 5 days
	Rakes	20	
	Flushing systems	4	
	Skimmer systems	2	
	Shoreline booming/ancillaries	Various	
	Personnel	22 (2 x team leaders, 20 x responders)	
OWR[4]	Personnel	Up to 93 personnel (4 IMT, 19 Team leaders/specialist staff, 70 team members)	4 x specialised operators within 5 days
	OWR first strike Kit	1	DEECA will make the decision to stand up additional resources which are based in Victoria. Available <24 hours from request for services.
	Intermediate bulk container	2	
	Response tool	1	
	Utility task vehicle/all-terrain vehicle	2	

Response strategy[1]	Resource type	Quantity	Timeframe
	1 x vessel – personnel/equipment	1	

[1] Calculated resources requirement are for planning purposes only. Actual response strategies and resource needs to be determined in consultation with the State Control Agency.

[2] Resources for shoreline protection and deflection are based on the relevant TRP with the highest number of resources required. In this QRG, this is North East River TRP, in Tasmania. Based on maximum length of shoreline impacted at 100g/m^3 or greater.

[3] Resources for shoreline clean-up are based on the assumption of a manual clean-up rate of 1m^3 per person/day. Therefore, a strike team of 10 people (excluding team leaders) would recover approximately 10m^3 of oiled waste per day. Based on peak volume of shoreline accumulation of 10g/m^3 or greater.

[4] The list of OWR resources required considers that the magnitude, and therefore resources required, of a potential wildlife impact can be determined through the use of the evaluation tool in the WAOWRP.

D1.9 Relevant Tactical Response Plans

In the event of an incident, the IMT can refer to TRPs which have been developed for selected areas of shoreline along Victorian, NSW, and Tasmanian coastlines. These outline information about the specific locations, including site description, access, main sensitivities, and other response-relevant details. The TRPs that are relevant to this QRG can be found in Table D-7.

Table D-7 List of relevant TRPs produced for the coastal areas predicted to be impacted at moderate threshold or above (RPS, 2025)

Victoria	NSW	Tasmania
• Tamboon Inlet – Bemm River/Point Hicks • Wingan Inlet – Point Hicks • Thurra River – Point Hicks • Mueller River – Point Hicks • Gabo Island -Mallacoota • Shipwreck Creek – Mallacoota • Davis Creek – Mallacoota • Betka River – Mallacoota • Mallacoota • Yeerung river – Cape Conran	• Woodburn and Saltwater creeks – Ben Boyd National Park • Wonboyn River • Towamba River – Eden • Nullica River – Eden • Bittangabee Bay – Eden • Fisheries Creek – Twofold Bay • Boydtown Creek – Cape Howe	• Samphire River • Pats River • Reddins Creek Inlet • North east River • Patriach Inlet • Edens Creek • Nalinga Creek • Mines Creek • Melrose Road Inlet • Lughrata Salt Marsh • Killiecrankie creek • Foochew Inlet • Fotheringale Creek • Cronley Creek • Cameron Inlet • Boat Harbour • Arthur Bay Conservation Area

D1.10 Oil spill monitoring

Table D-8 and Table D-9 summarise the probability of receptors coming into contact with both dissolved oil and entrained oil during production and P&A activities (Scenario 1 and Scenario 2). Additional information can be found in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-8 Probability of receptors coming into contact with dissolved hydrocarbons in the 0 - 10m depth layer below the sea surface at a moderate threshold (50 - 400ppb), for both production and P&A activities (RPS, 2025)

Probability	Production (Scenario 1)	P&A (Scenario 2)
>90%	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Buller's albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross - Foraging • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • White-faced storm-petrel – Foraging • Southern right whale – Migration Integrated Marine and Coastal Regionalisation of Australia (IMCRA) • Twofold Shelf • Southeast Shelf Transition Key Ecological Feature: • Upwelling East of Eden Marine Reserve: • South-east (Marine)	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Buller's albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • White shark – Foraging • White-faced storm-petrel – Foraging • Southern right whale – Migration Key Ecological Feature: • Upwelling East of Eden Marine reserve: • South-east (Marine)
75-90%	Biologically Important Area: • White shark - Foraging	Biologically Important Area: • Wedge-tailed shearwater – Foraging IMCRA: • Twofold Shelf • Southeast Shelf Transition National Resource Management Regions: • East Gippsland Reefs, Shoals and Banks: • New Zealand Star Bank State waters: • Victoria
50-75%	IMCRA:	Biologically Important Area:

Probability	Production (Scenario 1)	P&A (Scenario 2)
	• Southeast Transition	• Grey nurse shark – Foraging • Grey nurse shark – Migration • Humpback whale - Migration (north and south) • Indo-Pacific/spotted bottlenose dolphin – Breeding • Little penguin – Foraging • Sooty shearwater – Foraging • Southern right whale – Reproduction IMCRA: • Southeast Transition Marine National Park: • Cape Howe • Point Hicks National Resource Management Regions: • South East NSW Special Purpose Zone: • *SS Federal* (1901) State waters: • NSW
25-50%	Biologically Important Area: • Wedge-tailed shearwater – Foraging • Southern right whale – Reproduction National Resource Management Regions: • East Gippsland Special Purpose Zone: • *SS Federal* (1901) State waters: • Victoria	Biologically Important Area: • Black petrel – Foraging • Flesh-footed shearwater – Foraging • White-faced storm-petrel – Breeding Interim Biogeographic Regionalisation for Australia (IBRA): • South East Corner IMCRA: • Batemans Shelf Marine Reserves: • Temperate East (Marine) Shore: • Bega Valley • East Gippsland • Gabo Island Shore Local Government Area: • Bega Valley Shire Council

Probability	Production (Scenario 1)	P&A (Scenario 2)
		Shore Victoria MPRA: • Cape Howe/Mallacoota
10-25%	Biologically Important Area: • Grey nurse shark – Foraging • Humpback whale - Migration (north and south) • Indo-Pacific/spotted bottlenose dolphin – Breeding • Little penguin – Foraging • White shark - Breeding (nursery area) Marine National Park: • Point Hicks National Resource Management Regions: • South East NSW Reefs, Shoals and Banks: • New Zealand Star Bank Shore: • Bega Valley • East Gippsland Shore Local Government Area: • Bega Valley Shire Council Shore Victoria - MPRA: • Marlo State waters: • NSW	Biologically Important Area: • Crested tern – Breeding • Crested tern – Foraging • Little penguin – Breeding • White shark - Breeding (nursery area) Key Ecological Feature: • Big Horseshoe Canyon Marine Park: • Batemans National Park: • Ben Boyd Shore: • Montague Island Shore Local Government Area: • Gabo Island Shore Victoria - MPRA: • Croajingolong – West • Marlo • Point Hicks
<10%	Australian Marine Parks: • Beagle Biologically Important Area: • Crested tern – Breeding • Crested tern – Foraging • Grey nurse shark – Migration • Little penguin – Breeding • Sooty shearwater – Foraging • White-faced storm-petrel – Breeding IBRA: • Furneaux • South East Corner	Australian Marine Parks: • Beagle • East Gippsland Biologically Important Area: • Great-winged petrel – Foraging • Northern giant petrel – Foraging • Southern giant petrel – Foraging • White-capped albatross – Foraging • Wilsons storm petrel – Migration IBRA: • Furneaux IMCRA:

Probability	Production (Scenario 1)	P&A (Scenario 2)
	IMCRA: • Batemans Shelf Key Ecological Feature: • Big Horseshoe Canyon Marine National Park: • Cape Howe Marine Park: • Batemans Marine Sanctuary: • Beware Reef National Park: • Ben Boyd • Kent Group National Resource Management Regions: • North National Resource Management Region Reefs, Shoals and Banks: • Beware Reef Shore: • Eurobodalla • Gabo Island • Kent Island Group • Montague Island Shore Local Government Area: • Flinders Council • Gabo Island Shore Victoria - MPRA: • Cape Conran • Cape Howe/Mallacoota • Corringle • Point Hicks • Sydenham Inlet State waters: • Tasmania	• Flinders Key Ecological Feature: • Canyons on the Eastern Continental Slope • Shelf Rock Reefs Marine Sanctuary: • Beware Reef National Park: • Eurobodalla • Kent Group • Mimosa Rocks Nature Reserve: • Nadgee National Resource Management Regions: • North National Resource Management Region • West Gippsland Reefs, Shoals and Banks: • Beware Reef Shore: • Eurobodalla • Hogan Island Group • Kent Island Group Shore Local Government Area: • Eurobodalla Shire Council • Flinders Council Shore Victoria - MPRA: • Cape Conran • Corringle • Croajingolong – East • Lake Tyers Beach • Lakes Entrance • Sydenham Inlet State waters: • Tasmania

Table D-9 Probability of receptors coming into contact with entrained oil at a low threshold (≤10ppb), for both production and P&A activities (RPS, 2025)

Probability	Production (Scenario 1)	P&A (Scenario 2)
>90%	Biologically Important Area:	Australian Marine Park:

Probability	Production (Scenario 1)	P&A (Scenario 2)
	• Antipodean albatross – Foraging • Black-browed albatross – Foraging • Buller's albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Grey nurse shark – Foraging • Grey nurse shark – Migration • Humpback whale - Migration (north and south) • Indian yellow-nosed albatross – Foraging • Indo-Pacific/spotted bottlenose dolphin – Breeding • Little penguin – Breeding • Little penguin – Foraging • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross - Foraging likely • Sooty shearwater – Foraging • Wandering albatross – Foraging • Wedge-tailed shearwater – Foraging • White shark – Foraging • White-faced storm-petrel – Breeding • White-faced storm-petrel – Foraging • Southern right whale – Migration • Southern right whale – Reproduction IBRA: • South East Corner IMCRA: • Twofold Shelf • Southeast Shelf Transition • Southeast Transition Key Ecological Feature: • Big Horseshoe Canyon • Upwelling East of Eden Marine National Park: • Cape Howe • Point Hicks Marine Reserves: • South-east (Marine)	• East Gippsland • Flinders Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Buller's albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Grey nurse shark – Foraging • Grey nurse shark – Migration • Humpback whale - Migration (north and south) • Indian yellow-nosed albatross – Foraging • Indo-Pacific/spotted bottlenose dolphin – Breeding • Little penguin – Breeding • Little penguin – Foraging • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross - Foraging likely • Sooty shearwater – Foraging • Wandering albatross – Foraging • Wedge-tailed shearwater – Foraging • White shark – Foraging • White-faced storm-petrel – Breeding • White-faced storm-petrel – Foraging • Southern right whale – Migration • Southern right whale – Reproduction IBRA: • South East Corner IMCRA: • Southeast Shelf Transition • Southeast Transition Key Ecological Feature: • Big Horseshoe Canyon • Upwelling East of Eden Marine National Park: • Cape Howe • Point Hicks Marine Reserves: • South-east (Marine)

Probability	Production (Scenario 1)	P&A (Scenario 2)
	National Park: • Ben Boyd National Resource Management Regions: • East Gippsland • South East NSW Reefs, Shoals and Banks: • New Zealand Star Bank Shore: • Bega Valley • East Gippsland • Gabo Island Shore Local Government Area: • Bega Valley Shire Council • Gabo Island Shore Victoria - MPRA: • Cape Howe/Mallacoota • Croajingolong – West • Point Hicks Special Purpose Zone: • *SS Federal* (1901) State waters: • NSW • Victoria	National Resource Management Regions: • East Gippsland • South East NSW Reefs, Shoals and Banks: • New Zealand Star Ban Shore: • Bega Valley • East Gippsland • Gabo Island Shore Local Government Area: • Bega Valley Shire Council • Gabo Island Shore Victoria - MPRA: • Cape Howe/Mallacoota • Croajingolong – East • Croajingolong – West • Point Hicks Special Purpose Zone: • *SS Federal* (1901) State waters: • NSW • Victoria
75-90%	Australian Marine Park: • East Gippsland Biologically Important Area: • Black petrel – Foraging • Flesh-footed shearwater – Foraging IMCRA: • Batemans Shelf Marine Reserves: • Temperate East (Marine) Nature Reserve: • Nadgee Shore Victoria - MPRA: • Croajingolong - East	Biologically Important Area: • Black petrel – Foraging • Crested tern – Foraging • Flesh-footed shearwater – Foraging • Great-winged petrel – Foraging • Northern giant petrel – Foraging • White shark - Breeding (nursery area) IMCRA: • Batemans Shelf • Flinders • Twofold Shelf • Central Eastern Province Marine Reserves: • Temperate East (Marine) Natural catchment area:

Probability	Production (Scenario 1)	P&A (Scenario 2)
		• East Gippsland Coastal streams National Park: • Ben Boyd • Croajingolong Nature Reserve: • Nadgee Shore Victoria - MPRA: • Sydenham Inlet Wilderness Zone: • Sandpatch
50-75%	Biologically Important Area: • Crested tern – Breeding • Crested tern – Foraging • Great-winged petrel – Foraging • Northern giant petrel – Foraging • Southern giant petrel – Foraging • White-capped albatross – Foraging • Wilsons storm petrel – Migration IMCRA: • Flinders • Central Eastern Province Key Ecological Feature: • Canyons on the Eastern Continental Slope • Shelf Rock Reefs Marine Park: • Batemans National Park: • Croajingolong Shore: • Montague Island Shore Victoria - MPRA: • Sydenham Inlet	Australian Marine Park: • Beagle Biologically Important Area: • Crested tern - Breeding • Southern giant petrel – Foraging • White-capped albatross – Foraging • Wilsons storm petrel – Migration IBRA: • Furneaux Key Ecological Feature: • Canyons on the Eastern Continental Slope • Shelf Rock Reefs Marine Park: • Batemans Marine Sanctuary: • Beware Reef National Park: • Mimosa Rocks National Resource Management Regions: • North National Resource Management Region Reefs, Shoals and Banks: • Beware Reef Shore: • Eurobodalla • Montague Island Shore Local Government Area:

Probability	Production (Scenario 1)	P&A (Scenario 2)
		• Eurobodalla Shire Council • Flinders Council Shore Victoria - MPRA: • Cape Conran • Marlo State waters: • Tasmania
25-50%	Australian Marine Parks: • Beagle • Flinders Biologically Important Area: • White shark - Breeding (nursery area) IBRA: • Furneaux Natural Catchment Areas: • East Gippsland Coastal streams National Park: • Kent Group • Mimosa Rocks National Resource Management Regions: • North National Resource Management Region Shore: • Eurobodalla • Hogan Island Group • Kent Island Group Shore Local Government Area: • Eurobodalla Shire Council • Flinders Council State waters: • Tasmania Wilderness Zone: • Sandpatch	Australian Marine Parks: • Freycinet • Jervis Biologically Important Area: • Black-faced cormorant – Foraging • Humpback whale – Migration • Short-tailed shearwater – Breeding • White-fronted tern – Foraging Conservation Area: • Hogan Group IMCRA: • Central Bass Strait • Freycinet • Bass Strait Shelf Province • Tasmania Province • Tasmanian Shelf Province Key Ecological Feature: • Seamounts South and east of Tasmania • Tasman Front and eddy field National Park: • Biamanga • Bournda • Eurobodalla • Kent Group Reefs, shoals and banks: • Endeavour Reef • Wakitipu Roc • Wright Rock Shore: • Craggy Island • Flinders Island • Hogan Island Group • Inner Sister Island • Kent Island Group

Probability	Production (Scenario 1)	P&A (Scenario 2)
		• Outer Sister Island • Pyramid Island • Shoal Haven Shore Victoria - MPRA: • Corringle World Heritage Place: • Lord Howe Island Group
10-25%	Australian Marine Parks: • Jervis • Lord Howe Bioregional Assessments: • Sydney Basin Biologically Important Area: • Black noddy – Breeding • Black noddy – Foraging • Black-faced cormorant – Foraging • Black-winged petrel – Breeding • Black-winged tetrel – Foraging • Common noddy – Breeding • Common noddy – Foraging • Flesh-footed shearwater – Breeding • Grey ternlet – Breeding • Grey ternlet – Foraging • Humpback whale – Migration • Kermadec petrel – Foraging • Little shearwater – Breeding • Little shearwater – Foraging • Masked booby – Breeding • Masked booby – Foraging • Providence petrel – Breeding • Providence petrel – Foraging • Red-tailed tropicbird – Breeding • Red-tailed tropicbird – Foraging • Short-tailed shearwater – Breeding • Sooty tern – Foraging • White tern – Foraging • White-bellied storm petrel – Foraging • White-fronted tern – Foraging Conservation Park: • Goose Island IBRA:	Australian Marine Parks: • Central Eastern • Lord Howe Bioregional Assessments: • Sydney Basin Biologically Important Area: • Black noddy – Breeding • Black noddy – Foraging • Black-winged petrel – Breeding • Black-winged petrel – Foraging • Common noddy – Breeding • Common noddy – Foraging • Flesh-footed shearwater – Breeding • Grey ternlet – Breeding • Grey ternlet – Foraging • Kermadec petrel – Foraging • Little shearwater – Breeding • Little shearwater – Foraging • Masked booby – Breeding • Masked booby – Foraging • Providence petrel – Breeding • Providence petrel – Foraging • Red-tailed tropicbird – Breeding • Red-tailed tropicbird – Foraging • Sooty tern – Foraging • White tern – Foraging • White-bellied storm petrel – Foraging Conservation Area: • Blyth Point • Jacksons Cove • Pasco Group • Patriarchs • Settlement Point • Sister Islands • St Helens • Storehouse Island

Probability	Production (Scenario 1)	P&A (Scenario 2)
	• Sydney Basin IMCRA: • Central Bass Strait • Bass Strait Shelf Province • Lord Howe Province Key Ecological Feature: • Lord Howe seamount chain • Tasman Front and eddy field Marine Park: • Jervis Bay • Lord Howe Island National Heritage Place Historic: • Lord Howe Island Group National Park: • Biamanga • Eurobodalla • Meroo Nature Reserve: • Brush Island National Resource Management Regions: • North Coast - Lord Howe Island Reefs, Shoals and Banks: • Endeavour Reef • Wakitipu Rock • Wright Rock Shore: • Badger Island • Clarke Island • Craggy Island • Flinders Island • Goose Island • Inner Sister Island • Pyramid Island • Shoal Haven Shore Local Government Area: • Shoalhaven City Council • Lord Howe Island Shore Victoria - MPRA: • Cape Conran • Marlo World Heritage Place:	Conservation Park: • Curtis Island • Goose Island IBRA: • Sydney Basin IMCRA: • Boags • Lord Howe Province • Tasman Basin Province Indigenous Protected Area: • Babel Island • Great Dog Island Key Ecological Feature: • Lord Howe seamount chain Marine Park: • Jervis Bay • Lord Howe Island National Heritage Place Historic: • Lord Howe Island Group Nationally Important Wetland: • Clyde River Estuary National Park: • Murramarang Nature Reserve: • Brush Island • Isabella Island Nature Recreation Area: • Humbug Point National Resource Management Regions: • North Coast - Lord Howe Island • West Gippsland Reefs, shoals and banks: • Cutter Rock • Warrego Rock Shore: • Babel Island • Badger Island • Big green Island • Boxen Island

Probability	Production (Scenario 1)	P&A (Scenario 2)
	• Lord Howe Island Group	• Break O'Day • Cape Barren Osland • Chalky Island • Clarke Island • Curtis Island • East Kangaroo Island • Goose Island • Pasco Group • Preservation Island • Prime Seal Island • Reef Island • Vansittart Island Shore Local Government Area: • Break O'Day Council • Shoalhaven City Council • Unincorporated - Lord Howe Island Shore Victoria - MPRA: • Lake Tyers Beach
<10%	Australian Marine Parks: • Freycinet • Hunter Biologically Important Area: • Grey nurse shark – Reproduction Conservation Area: • Hogan Group • Pasco Group • Settlement Point • St Helens Commonwealth Heritage Place Indigenous: • Jervis Bay Territory Commonwealth Heritage Place Natural: • Beecroft Peninsula Conservation Park: • Curtis Island IMCRA: • Boags • Freycinet • Hawkesbury Shelf • Central Eastern Shelf Province • Tasmania Province • Tasmanian Shelf Province	Australian Marine Parks: • Hunter Biologically Important Area: • Australasian gannet – Foraging • Black-faced cormorant – Breeding • Grey nurse shark – Reproduction • Pygmy blue whale - Known foraging area • Soft-plumaged petrel – Foraging Conservation Area: • Anderson Islands • Arthur Bay • Foochow • Prime Seal Island • Vansittart Island Commonwealth Heritage Place Indigenous: • Jervis Bay Territory Commonwealth Heritage Place Natural: • Beecroft Peninsula Game Reserve: • Little Dog Island • North east River • Sellars Lagoon IMCRA:

Probability	Production (Scenario 1)	P&A (Scenario 2)
	Indigenous Protected Area: • Great Dog Island Key Ecological Feature: • Seamounts South and east of Tasmania Marine Sanctuary: • Beware Reef National Heritage Place Indigenous: • Sydney Cultural Crescent Rock Art National Heritage Place Natural: • Royal National Park and Garawarra State Conservation Area Nationally Important Wetland: • Beecroft Peninsula • Clyde River Estuary • Jervis Bay Sea Cliffs National Park: • Bournda • Murramarang • Royal Nature Reserve: • Isabella Island • Long Island Nature Recreation Area: • Humbug Point National Resource Management Regions: • Greater Sydney Reefs, Shoals and Banks: • Beware Reef • Warrego Rock Shore: • Big green Island • Boxen Island • Break O'Day • Cape Barren Osland • Chalky Island • Curtis Island • Dorset • East Kangaroo Island	• Bruny • Central Victoria • Franklin • Hawkesbury Shelf • Manning Shelf • Otway • Central Eastern Shelf Province • Western Bass Strait Shelf Transition Indigenous Protected Area: • Badger Island • Mount Chappell Island • Lungatalanana Key Ecological Feature: • Elizabeth and Middleton reefs • Tasmantid seamount chain Marine National Park: • Ninety Mile Beach • Wilsons Promontory National Heritage Place Historic: • Kamay Botany Bay: botanical collection sites • Kurnell Peninsula Headland National Heritage Place Indigenous: • Sydney Cultural Crescent Rock Art National Heritage Place Historic: • Royal National Park and Garawarra State Conservation Area Nationally Important Wetland: • Beecroft Peninsula • Jervis Bay Sea Cliffs National Park: • Kamay Botany Bay • Meroo • Royal • Strzelecki Nature Reserve: • Chappell Islands • East Kangaroo Island • Long Island • Rodondo Island Nature Recreation Area: • Killiecrankie

Probability	Production (Scenario 1)	P&A (Scenario 2)
	• Kiama • Outer Sister Island • Pasco Group • Preservation Island • Prime Seal Island • Reef Island • Shell Harbour • Sutherland Shire • Vansittart Island • Wollongong Shore Local Government Area: • Break O'Day Council • Shellharbour City Council • Sutherland Shire Council • The Council of the Municipality of Kiama • Wollongong City Council • Corringle	• Mount Tanner • Palana Beach National Resource Management Regions: • Greater Sydney • North West National Resource Management Region • South National Resource Management Region Ramsar Wetlands: • East Coast Cape Barren Island Lagoons • Elizabeth and Middleton Reefs Marine National Nature Reserve • Logan Lagoon Shore: • Circular Head • Dorset • George Town • Hunter Island • Kanowna Island • Kiama • Moncoeur Islands • Mount Chappell Island • Ninth Island • Randwick • Rodondo Island • Seal Islands • Shell Harbour • Skull Rock • South Gippsland • Sutherland Shire • Tasman • Wollongong Shore Local Government Area: • Circular Head Council • Dorset Council • Shellharbour City Council • Sutherland Shire Council • Tasman Council • The Council of the Municipality of Kiama • Unincorporated - Sydney Harbour Area • Wollongong City Council Shore Victoria - MPRA: • Lakes Entrance • Wilsons Promontory – East

Probability	Production (Scenario 1)	P&A (Scenario 2)
		• Wilsons Promontory – West State Reserve: • Logan Lagoon

Sufficient resources are available to undertake monitoring, and these are detailed in the Operational and Scientific Monitoring Program. Modelling for the two Scenarios considered in this QRG indicates that the spill intersects the coastline within 5.4 days. In the unlikely event of a spill, should trajectory modelling predict shoreline contact, sufficient resources are available to be initiated within this time. Modules in addition to those required to monitor the spill may be initiated and resources mobilised to priority monitoring locations as determined at the time.

Appendix D-2 Quick Reference Guide – Plug and abandonment Tuna and Snapper – Moonfish crude

The purpose of this document is to provide information specific to a WCDS for loss of well control of heavy crude from both Tuna (Scenario 3) and Snapper (Scenario 6) platforms during P&A activities. This document is intended for use by incident responders and during stakeholder consultation activities. The scenarios represent the WCDSs modelled in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

For further details, refer to the *Bass Strait Oil Pollution Emergency Plan* (AUGO-EV-ELI-001).

D2.1 Field location/oil properties

This QRG applies to Esso's Gippsland Basin operations and project activities, the location of which is detailed in Figure D-6.

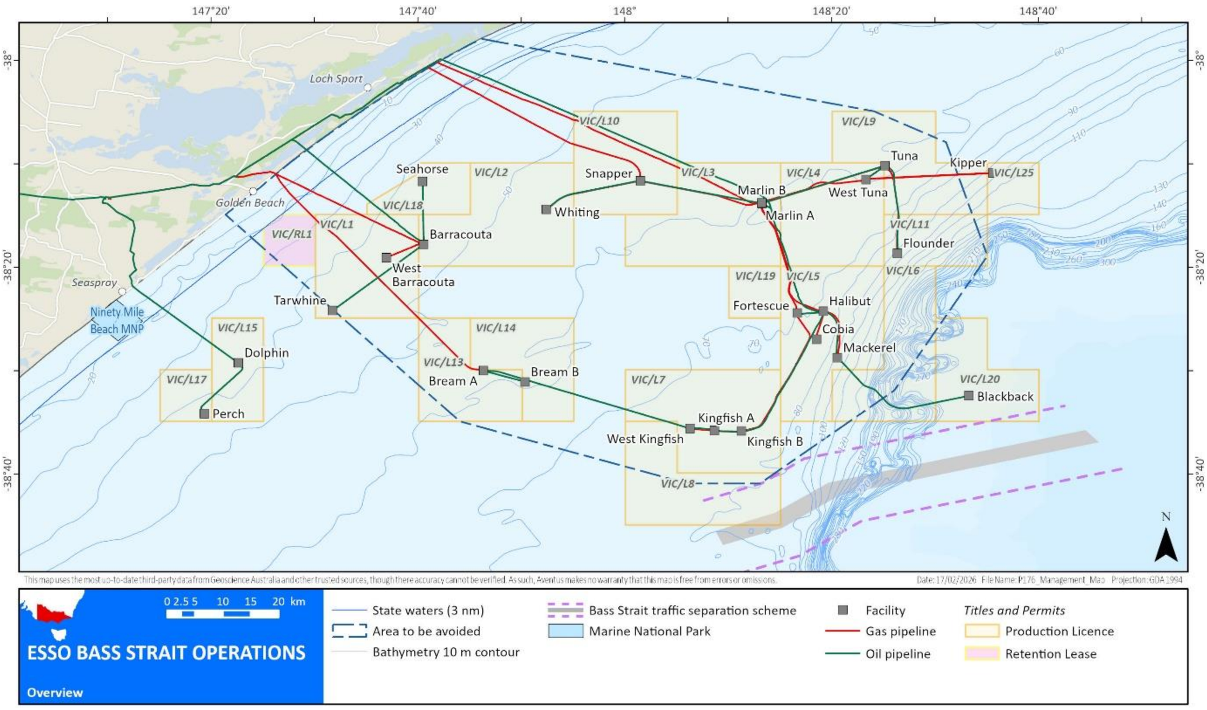


Figure D-6 Location of Bass Strait region and asset locations

Details of the facilities relevant to this QRG can be found in Table D-10.

Moonfish crude was selected as an analogue for oils that may be encountered from TUNA and Snapper during P&A activities. Note that there is no crude production from these facilities. The physical properties of Moonfish crude can be referred to in Table D-11, and further details can be found in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-10 Details of facilities relevant to this QRG

Facility	Licence	Coordinates	
		Latitude	Longitude
Tuna	VIC/L09	38° 10′ 16″ S	148° 25′ 05″ E

Facility	Licence	Coordinates	
		Latitude	Longitude
Snapper	VIC/L10	38° 11′ 42″ S	148° 01′ 26″ E

Table D-11 Physical properties of Moonfish crude (RPS, 2025)

Oil type and name	Moonfish crude*
Density	887.0 kg/m3 (@15⁰C)
API	27.8
Dynamic viscosity	4.5cP (@40°C)
Pour point	33°C
Oil property category	Group 4 – persistent
Wax content	38.5%
Aromatic Content 1	17.3%
Volatile (Boiling Point <180°C)	7.15%
Semi-volatile (Boiling Point 180 - 265°C)	28.7%
Low volatility (Boiling Point 265 - 380°C)	46.9%
Residual (BP> 380°C) 2	17.2%

* Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

[1]Soluble, aromatic, hydrocarbons, (including BTEX), tend to evaporate into the atmosphere.

[2]Residual hydrocarbons will persist in the marine environment. Waxy components may solidify over the annual temperatures observed in the Gippsland Basin.

D2.2 What's the worst that could happen?

A summary of the WCDS for P&A activities at both Tuna and Snapper platforms are outlined in Table D-12.

Table D-12 A summary of the WCDS for Moonfish crude, for P&A activities, based on the modelling report (RPS, 2025)

	Tuna P&A (Scenario 3)	Snapper P&A (Scenario 6)
Modelled oil pollution scenario* (WCDS)	Level 3 spill: A surface release following a loss of well control resulting in a release of crude over 98 days.	
Oil type and name	Moonfish crude (analogue)	
Spill volume	1324m^3	779m^3

	Tuna P&A (Scenario 3)	Snapper P&A (Scenario 6)
Dominant weathering process		
Approximate evaporation rate	(depending on temperature)	
...within the first 12 hours	20%	
...within the first 24 hours	32%	
...over several days	39%	
Probability of contact to a shoreline receptor at or above the low threshold (10 g/m2)	95% (at East Gippsland)	100% (at East Gippsland)
Minimum time before shoreline accumulation at or above the low threshold (10 g/m2)	5.36 days (at East Gippsland and Croajingolong – West)	2.57 days (at East Gippsland and Lakes Entrance)
Maximum volume ashore from a single spill simulation at or above the low threshold (10 g/m2)	12.4m^3 (at Bega Valley and Bega Valley Shire Council (NSW))	47.3m^3 (at Wellington)
Maximum length of the shoreline		
...at 10g/m^2	70.7km	145.7km
...at 100g/m^2	2.7km	9.8km
...at 1000g/m^2	N/A	N/A
Weathering after 7 days	Based on mass balance for crude using constant 5kn wind speeds at 15°C water temperature	
Evaporation	39%	
Dissolved	2%	
Decay	0%	
Entrained in water column	0%	
Floating	59%	

* Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

D2.3 Exposure – Shoreline

Within this Section, the modelling results for maximum potential shoreline loading, and zones of potential floating oil exposure for both crude scenarios are shown. Results from Scenario 3 are outlined in Figure D-7 and Figure D-9, while results from Scenario 6 are outlined in Figure D-8 and Figure D-10.

D2.4 Maximum potential shoreline loading

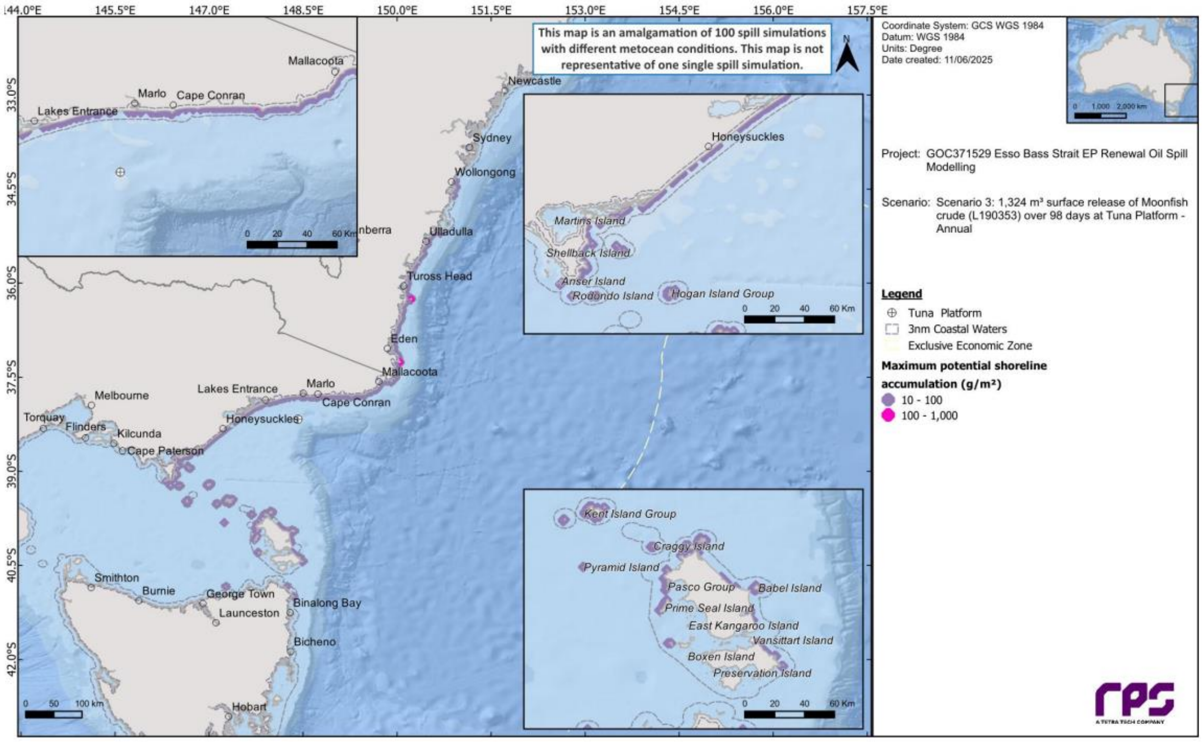


Figure D-7 **Scenario 3 - Maximum potential shoreline loading in the event of a 1324m³ surface release of crude over 98 days following an accidental release incident at the Tuna platform. The stochastic results were calculated from 100 spill trajectories (RPS, 2025)**

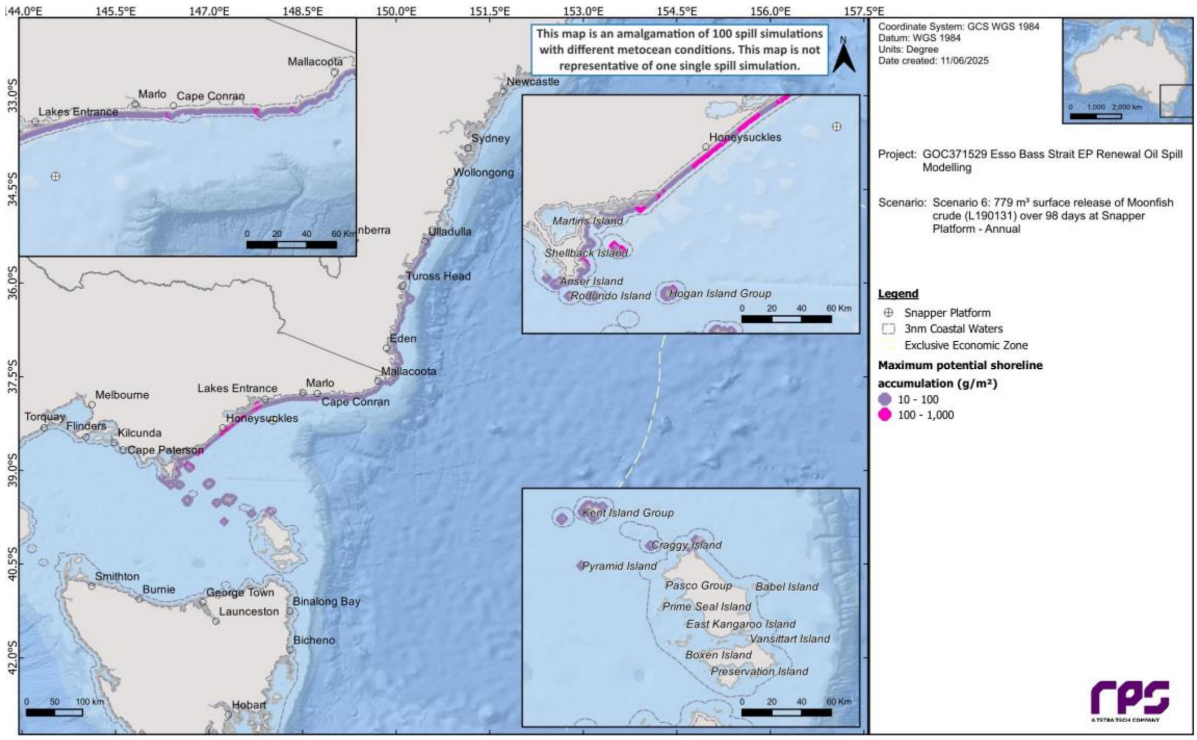


Figure D-8 **Scenario 6- Maximum potential shoreline loading in the event of a 779m³ surface release of crude over 98 days following an accidental release incident at the Snapper platform. The stochastic results were calculated from 100 spill trajectories (RPS, 2025)**

D2.5 Zones of potential floating oil exposure

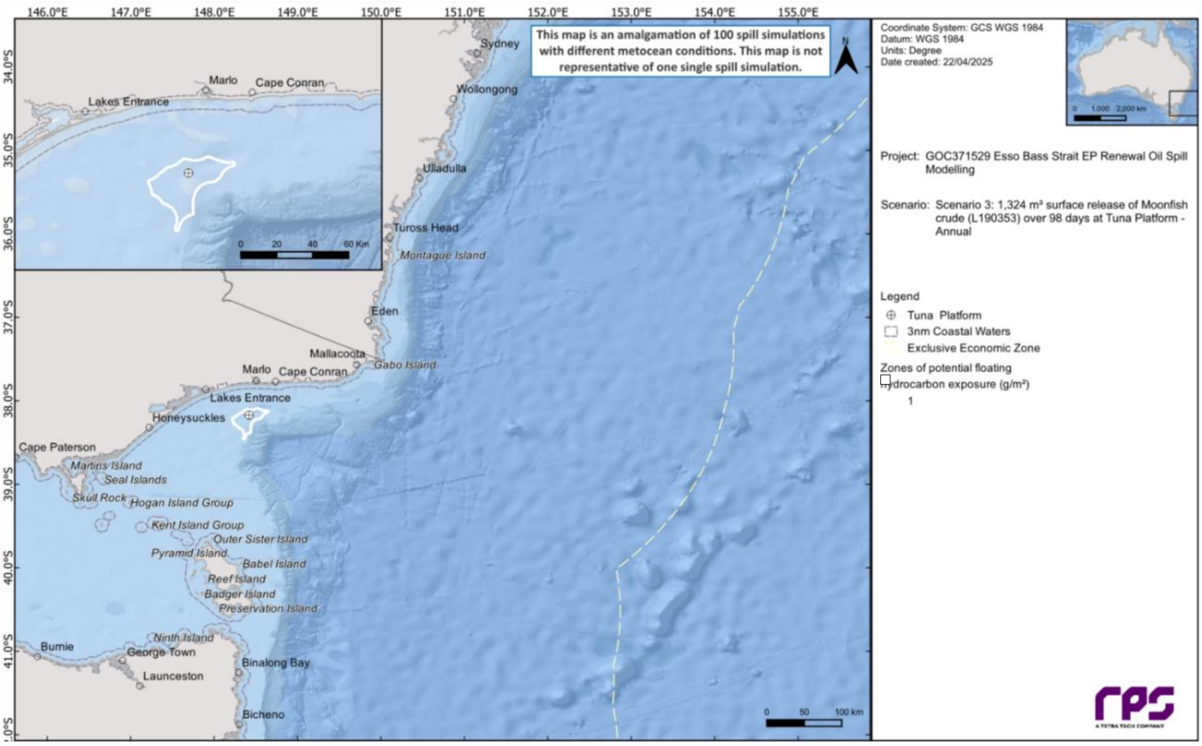


Figure D-9 Scenario 3 - Zones of potential floating oil exposure in the event of a 1324m³ surface release of crude over 98 days following an accidental release incident at the Tuna platform. The results were calculated from 100 spill trajectories and represent annual conditions (RPS, 2025)

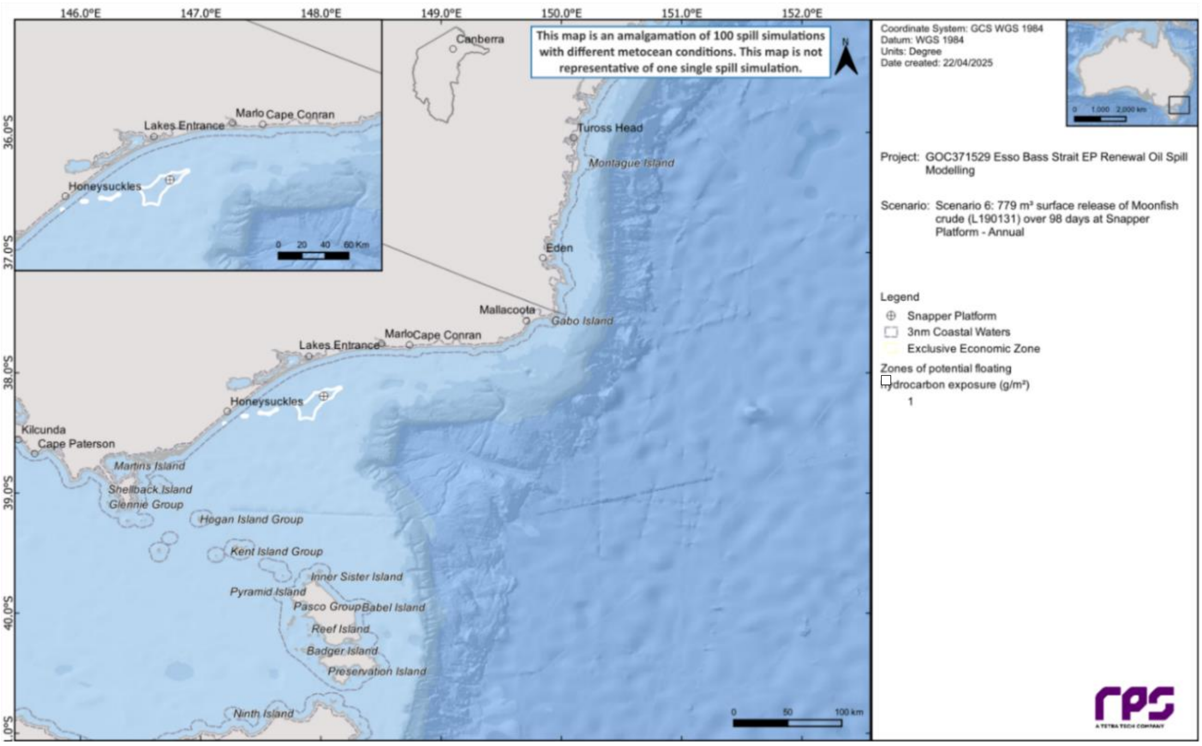


Figure D-10 Scenario 6 - Zones of potential floating oil exposure in the event of a 779m³ surface release of crude over 98 days following an accidental release incident at the Snapper

platform. The results were calculated from 100 spill trajectories and represent annual conditions (RPS, 2025)

D2.6 Impacted receptors

Table D-13 lists the identified receptors that have been predicted to be impacted by the hydrocarbon spill. The predicted timeframes until impact have been grouped. Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025) for more details.

Table D-13 Summary of receptors that are predicted to be impacted in the modelled scenarios and the approximate timeframe until contact

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
Tuna (Scenario 3)						
Minimum time to oil exposure on sea surface at moderate threshold	Biologically Important Area	Antipodean albatross - Foraging	-	-	-	-
		Black-browed albatross - Foraging**	-	-	-	-
		Bullers albatross - Foraging**	-	-	-	-
		Campbell albatross - Foraging**	-	-	-	-
		Common diving-petrel - Foraging**	-	-	-	-
		Indian yellow-nosed albatross - Foraging**	-	-	-	-
		Pygmy blue whale - Foraging**	-	-	-	-
		Shy albatross - Foraging likely**	-	-	-	-
		Wandering albatross - Foraging**	-	-	-	-
		Southern right whale - Migration**	-	-	-	-
	Key Ecological Feature	Upwelling East of Eden**	-	-	-	-
Minimum time to shoreline accumulation of oil at moderate threshold	Shore	Anser Island (Victoria)	-	-	-	-
		Babel Island (Tas)	-	-	-	-
		Bega Valley (NSW)	-	-	-	✓(88 days)
		Break O'Day (Tasmania)	-	-	-	-
		Cape Barren Osland (Tasmania)	-	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Craggy Island (Tasmania)	-	-	-	-
		Curtis Island (Tasmania)	-	-	-	-
		Dorset (Tasmania)	-	-	-	-
		East Gippsland (Victoria)	-	-	-	✓(88 days)
		Eurobodalla (NSW)	-	-	-	-
		Flinders Island (Tasmania)	-	-	-	-
		Gabo Island (Victoria)	-	-	-	-
		Goose Island (Tasmania)	-	-	-	-
		Hogan Island Group (Tasmania)	-	-	-	-
		Inner Sister Island (Tasmania)	-	-	-	-
		Kanowna Island (Victoria)	-	-	-	-
		Kent Island Group (Tasmania)	-	-	-	-
		Moncoeur Islands (Tasmania)	-	-	-	-
		Montague Island/ Barunguba (NSW)	-	-	-	✓(24 days)
		Ninth Island (Tasmania)	-	-	-	-
		Outer Sister Island (Tasmania)	-	-	-	-
		Pasco Group (Tasmania)	-	-	-	-
		Prime Seal Island (Tasmania)	-	-	-	-
		Pyramid Island (Tasmania)	-	-	-	-
		Rodondo Island (Tasmania)	-	-	-	-
		Seal Islands (Victoria)	-	-	-	-
		Shell Harbour (NSW)	-	-	-	-
		Shoal Haven (NSW)	-	-	-	-
		South Gippsland (Victoria)	-	-	-	-
		Vansittart Island (Tasmania)	-	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Wellington (Victoria)	-	-	-	-
		Wollongong (NSW)	-	-	-	-
	Shore Local Government Area	Bega Valley Shire Council (NSW)	-	-	-	✓(88 days)
		Break O'Day Council (Tasmania)	-	-	-	-
		Eurobodalla Shire Council (NSW)	-	-	-	-
		Flinders Council (Tasmania)	-	-	-	-
		Gabo Island (Unincorporated) (Victoria)	-	-	-	-
		Shellharbour City Council (NSW)	-	-	-	-
		Shoalhaven City Council (NSW)	-	-	-	-
		Wollongong City Council (NSW)	-	-	-	-
	Shore Victoria - MPRA	Cape Conran	-	-	-	-
		Cape Howe/Mallacoota	-	-	-	-
		Clonmel Island	-	-	-	-
		Corner Inlet	-	-	-	-
		Corringle	-	-	-	-
		Croajingolong - East	-	-	-	-
		Croajingolong - West	-	-	-	-
		Golden Beach	-	-	-	-
		Lake Tyers Beach	-	-	-	-
		Lakes Entrance	-	-	-	-
		Lakes Entrance - West	-	-	-	-
		Marlo	-	-	-	-
		McLoughlins Beach	-	-	-	-
		Ocean Grange	-	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Point Hicks	-	-	-	✓(88 days)
		Seaspray	-	-	-	-
		Snake Island	-	-	-	-
		Sydenham Inlet	-	-	-	-
		Wilsons Promontory - East	-	-	-	-
		Wilsons Promontory - Northeast	-	-	-	-
		Woodside Beach	-	-	-	-
Snapper (Scenario 6)						
Minimum time to oil exposure on sea surface at moderate threshold	Biologically Important Area	Black-browed albatross - Foraging**	-	-	-	-
		Bullers albatross - Foraging**	-	-	-	-
		Campbell albatross - Foraging**	-	-	-	-
		Common diving-petrel - Foraging**	-	-	-	-
		Indian yellow-nosed albatross - Foraging**	-	-	-	-
		Pygmy blue whale - Foraging**	-	-	-	-
		Short-tailed shearwater - Foraging	-	-	-	-
		Shy albatross - Foraging likely**	-	-	-	-
		Wandering albatross - Foraging**	-	-	-	-
		White shark - Breeding	-	-	-	-
		Southern right whale - Migration**	-	-	-	-
	Key Ecological Feature	Upwelling East of Eden	-	-	-	-
	Shore	Anser Island (Victoria)	-	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
Minimum time to shoreline accumulation of oil at moderate threshold		Bega Valley (NSW)	-	-	-	✓(94 days)
		Craggy Island (Tasmania)	-	-	-	-
		Curtis Island (Tasmania)	-	-	-	-
		East Gippsland (Victoria)	-	-	-	✓(25 days)
		Eurobodalla (NSW)	-	-	-	-
		Flinders Island (Tasmania)	-	-	-	-
		Gabo Island (Victoria)	-	-	-	-
		Glennie Group (Victoria)	-	-	-	-
		Hogan Island Group (Tasmania)	-	-	-	✓(62 days)
		Inner Sister Island (Tasmania)	-	-	-	-
		Kanowna Island (Victoria)	-	-	-	-
		Kent Island Group (Tasmania)	-	-	-	-
		Moncoeur Islands (Tasmania)	-	-	-	-
		Montague Island (NSW)	-	-	-	-
		Outer Sister Island (Tasmania)	-	-	-	-
		Pyramid Island (Tasmania)	-	-	-	-
		Rodondo Island (Tasmania)	-	-	-	-
		Seal Islands (Victoria)	-	-	-	✓(28 days)
		Shoal Haven (NSW)	-	-	-	-
		Skull Rock (Victoria)	-	-	-	-
		South Gippsland (Victoria)	-	-	-	✓(30 days)
		Wellington (Victoria)	-	-	-	✓(16 days)

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
	Shore Local Government Area	Bega Valley Shire Council (NSW)	-	-	-	✓(94 days)
		Eurobodalla Shire Council (NSW)	-	-	-	-
		Flinders Council (Tasmania)	-	-	-	-
		Gabo Island (Unincorporated) (Victoria)	-	-	-	-
		Shoalhaven City Council (NSW)	-	-	-	-
	Shore Victoria - MPRA	Cape Conran	-	-	-	✓(44 days)
		Cape Howe/Mallacoota	-	-	-	-
		Clonmel Island	-	-	-	✓(35 days)
		Corner Inlet	-	-	-	-
		Corringle	-	-	-	-
		Croajingolong - East	-	-	-	-
		Croajingolong - West	-	-	-	✓(76 days)
		Golden Beach	-	-	-	✓(16 days)
		Lake Tyers Beach	-	-	-	-
		Lakes Entrance	-	-	-	-
		Lakes Entrance - West	-	-	-	✓(27 days)
		Marlo	-	-	-	✓(44 days)
		McLoughlins Beach	-	-	-	✓(26 days)
		Ocean Grange	-	-	-	✓(16 days)
		Point Hicks	-	-	-	✓(25 days)

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Seaspray	-	-	-	✓(16 days)
		Snake Island	-	-	-	-
		Sydenham Inlet	-	-	-	-
		Wilsons Promontory - East	-	-	-	✓(30 days)
		Wilsons Promontory - Northeast	-	-	-	-
		Wilsons Promontory - West	-	-	-	-
		Woodside Beach	-	-	-	✓(21 days)

**The release location resides within the receptor boundaries.

Protection priorities based on sensitivity and predicted consequence (refer to Section 5 of EP), protectable/actionable areas, and minimum time to exposure in this area are:

- Lakes Entrance permanently open river mouth to the Gippsland Lakes being a recognised Ramsar site, marine flora and fauna, marshes, wetlands, estuarine habitat, shorebird/seabird colonies, amenity beaches, surf club, commercial fishing, tourism, dive sites, recreational aquatic activities, waterway amenity access.
- Mallacoota – Betka River: due to sensitivity of estuary mouth, Hooded plover habitat. The Betka River catchment area is within the Croajingolong National Park.
- Snowy River: permanently open river mouth to the Snowy inlet. Main sensitivities include dunes, marshes, wetlands, shorebird and seabird colonies, estuarine habitats, amenity beach, commercial and recreational fishing/boating, and tourism.

The other potentially contacted areas are primarily sandy beaches or river mouths that are not permanently open.

D2.7 Strategic Net Environmental Benefit Analysis and selection of response options

For each given response strategy, the benefits and relative effectiveness have been considered for the scenario, determining the viability of the strategy based on a net environmental benefit, as found in Table D-14.

Table D-14 Assessment of viability for response strategies, considering the benefits and their effectiveness on the oil type

Response option	Benefits	Effectiveness on crude oil spill	Viable response?	Net benefit?
Source control	Stops/minimises the flow of hydrocarbons into to environment.	Only viable option to stop flow of oil to the marine environment.	Yes	✓

Response option	Benefits	Effectiveness on crude oil spill	Viable response?	Net benefit?
Surveillance and monitoring	Although surveillance is not an active intervention to treat or remove oil pollution, it is critical to effective response both in the initial stages of an incident and during ongoing response operations. Outputs can be used to guide decision making on the need for other response strategies.	Surveillance and monitoring can be used to observe the natural break-up and dissipation of a Moonfish crude spill from the Tuna or Snapper platforms without the need for active intervention. Can be used to inform the effectiveness of current response strategies.	Yes	✓
Dispersant application	Dispersants act by allowing hydrocarbons to be mixed into the upper layers of the water column, which accelerates the biodegradation process. This removes oil from the water surface, protecting leeward shorelines and providing benefit to sea-surface air breathing fauna. Use of dispersants may eliminate or minimise oil impacting sensitive resources.	Moonfish crude is a Group 4 hydrocarbon, and while it is likely this thicker oil is not amenable to dispersant, further in-field testing could be carried out to test for effectiveness. Additionally, it is recommended that dispersant should only be applied to spills of a minimum volume of 50 g/m^2. The modelling report for crude spill scenarios does not predict any volumes exceeding 50g/m^2. While the recommended thresholds were not exceeded, it is recommended that dispersant be retained as a response option in case suitable thicknesses of crude oil are observed on the sea surface in the unlikely event of a spill.	Yes*	✓*
Containment and recovery	Booms and skimmers contain surface oil where there is a potential threat to environmental sensitivities. This relies on calm sea conditions (<1.8m wave height, <0.75kn current speed and <20kn wind speed) to collect and	While containment and recovery maybe suitable for heavy crude, the volumes predicted in the RPS modelling during WCDS from the Tuna and Snapper platforms were ≥ 50g/m^2, which is below the recommended minimum surface thickness criteria for	Yes*	✓*

Response option	Benefits	Effectiveness on crude oil spill	Viable response?	Net benefit?
	adequate deployment timeframes. Targeted containment and recovery can be utilised to reduce impact to sensitive areas such as Lake's Entrance, where access for shoreline protection is limited (see below: protection of sensitive shoreline resources).	containment and recovery (IPIECA-IOGP, 2015b). Therefore, containment and recovery would not generally be recommended as a strategy due to minimal quantities expected. It should also be noted that in the Bass Strait Region, sea conditions are likely to be suitable for containment and recovery operations only 50% of the time. As a secondary response option, targeted containment and recovery maybe viable for near shore locations where there is natural collection and/or where shoreline response options are limited.		
Shoreline protection and deflection	Booms and skimmers will be deployed to protect environmental sensitivities. Environmental conditions (e.g. strong current, high wave action) limit application.	Heavy crude released at the Tuna and Snapper platforms may contact the shoreline along the Gippsland Coast, the southern coast of NSW, and some island coastlines off Tasmania with modelling predicting shortest time of moderate levels to shore as approximately 16 days. TRPs have been developed to guide the protection of sensitive estuary openings and sensitivities along this section of coastline.	Yes	✓
Shoreline clean-up	Last response strategy to remove oil from the environment due to shoreline impact.	Heavy crude released at the Tuna and Snapper platforms may contact the shoreline along the Gippsland Coast, the southern coast of NSW, and some island coastlines off Tasmania with modelling predicting shortest time of moderate levels to shore as approximately 16 days. There are various shoreline techniques that are	Yes	✓

Response option	Benefits	Effectiveness on crude oil spill	Viable response?	Net benefit?
		appropriate for this type of hydrocarbon, a shoreline clean-up may be effective for reducing shoreline loadings where access is possible, to be assessed on a case-by-case basis.		
OWR	Consists of hazing/deterrence, relocation, capture, cleaning and rehabilitation of oiled wildlife. May include pre-emptive captive management.	OWR is likely to be required as a result of extensive shoreline oiling. Operational monitoring will be used to inform the need for OWR to be implemented.	Yes	✓

*Not recommended as a primary strategy, however, is retained as a secondary strategy.

D2.8 Response resources required

The resources required for the scenarios outlined in this QRG for each relevant response strategy are listed in Table D-15.

Table D-15 Resources required for the scenarios outlined in this QRG, for each relevant response strategy, based on the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025)

Response strategy[1]	Resource type	Quantity	Timeframe
Source control	Remotely operated vehicle debris clearing/subsea intervention	1 x remotely operated vehicle and 1 x vessel	Estimated 14 days (from call out request to arrival in Victoria)
		Subsea first response toolkit and 1 x vessel	Deployment timing will depend on equipment availability and transit time. Estimated 7 days (from Perth to BBMT via road transport).
		1 x contract well control specialists (Wild Well Control/OSRL)	Deployment timing will depend on vessel availability and transit time. Estimated 2 days (from Singapore)
	Relief well	1 x mobile offshore drilling unit (via AEP Mutual Aid Agreement) 1 x contract engineering support	Estimated 98 days (via heavy lift vessel)

Response strategy[1]	Resource type	Quantity	Timeframe
		specialists (Wild Well Control/OSRL) Well construction material	
SMR	OSMP O1.1 Weather and sea state	N/A	N/A
	OSMP O1.2 Trajectory estimation	1 x contracted modeller	Within 4 hours
	OSMP Module O1.3 and O4.1 Aerial surveillance	1x observer per aircraft Aircraft to have 100nm range and 3-hour duration	Initial overflight <4 hours service requested. Trained observer <12 hours of spill occurring
	OSMP Module O1.4 Tracking buoy	2 x STBs available	Deployed <12 hours of spill occurring (dependent on weather conditions) (Level 2 and 3 spill)
	OSMP O1.5 Satellite imagery	1 x contract	<24 hours
	OSMP Module O2.1 and O2.3 Water and oil sampling	1 x vessel 1 x initial sampling kit 1 x contract with laboratory	Samples obtained <24 hours of spill occurring Analysis initiated <24 hours of receipt in laboratory
Dispersant	Dispersant	Maximum 5m^3/day	5m^3 within 24 hours
	Vessel	1 x vessel (may also support other activities) 1 x dispersant spray system	1 x strike team within 24 hours. While dispersant is not a recommended primary strategy, it has been retained as a secondary strategy under the notion that a single strike team would be enough to cover WCDS.
Containment and recovery	Boom	1 x 200m reel	1 x strike team required within 24 hours. While containment and
	Skimming systems	1	

Response strategy[1]	Resource type	Quantity	Timeframe
	Vessels	1 x deployment vessel 1 x towing vessel	recovery is not a recommended primary strategy, it has been retained as a secondary strategy under the notion that a single strike team would be enough to cover WCDS.
Protection of sensitive shoreline resources[2]	Boom	14 x shore seal boom (25m) 26 x near shore boom (25m)	One initial strike team to arrive within 3 days.
	Anchor kits	34	
	Skimming systems	2	
	Shoreline deployment kits	2	
	Temporary waste Storage	2	
	Vessels	1 x shallow draft	
	Vehicle	1 x utility task vehicle/all-terrain vehicle (ATV)	
	Personnel	37 (3 x site supervisors, 6 x trained responders, 28 x general labourers)	
Shoreline clean-up[3]	Shovels	50	One initial strike team to arrive within 3 days. 5 strike teams in total.
	Rakes	50	
	Flushing systems	10	
	Skimmer systems	5	
	Shoreline booming/ancillaries	Various	
	Personnel	55 (5 x team leaders, 50 x responders)	
OWR[4]	Personnel	Up to 93 personnel (4 IMT, 19 team	4 x specialised operators within 5 days

Response strategy[1]	Resource type	Quantity	Timeframe
		leaders/specialist staff, 70 team members)	
	OWR first strike kit	1	DEECA will make the decision to stand up additional resources which are based in Victoria. Available <24 hours from request for services.
	Intermediate bulk container	2	
	Response tool	1	
	Utility task vehicle/all-terrain vehicle	2	
	1 x vessel – personnel/equipment	1	

[1] Calculated resources requirement are for planning purposes only. Actual response strategies and resource need to be determined in consultation with the State Control Agency.

[2] Resources for shoreline protection and deflection are based on the relevant TRP with the highest number of resources required. In this QRG, this is Snowy River TRP, in Victoria. Based on maximum length of shoreline impacted at $100 g/m^3$ or greater.

[3] Resources for shoreline clean-up are based on the assumption of a manual clean-up rate of $1 m^3$ per person, per day. Therefore, a strike team of 10 people (excluding team leaders) would recover approximately $10 m^3$ of oiled waste per day. Based on peak volume of shoreline accumulation of $10 g/m^3$ or greater.

[4] The list of OWR resources required considers that the magnitude, and therefore resources required, of a potential wildlife impact can be determined through the use of the evaluation tool in the WAOWRP.

D2.9 Relevant Tactical Response Plans

In the event of an incident, the IMT can refer to TRPs which have been developed for selected areas of shoreline along Victorian, NSW, and Tasmanian coastlines. These outline information about the specific locations, including site description, access, main sensitivities, and other response-relevant details. The TRPs that are relevant to this QRG can be found in Table D-16.

Table D-16 List of relevant TRPs for the coastal areas predicted to be impacted at moderate threshold or above (RPS, 2025)

Victoria	NSW	Tasmania
• Yeerung river – Cape Conran • Tamboon Inlet – Bemm River/Point Hicks • Wingan Inlet – Point Hicks • Thurra River – Point Hicks • Mueller River – Point Hicks • Gabo Island - Mallacoota • Shipwreck Creek – Mallacoota • Davis Creek – Mallacoota	• Woodburn and Saltwater creeks – Ben Boyd National Park • Wonboyn River • Towamba River – Eden • Nullica River – Eden • Bittangabee Bay – Eden • Fisheries Creek - Twofold Bay • Boydtown Creek – Cape Howe	• Samphire River • Pats River • Reddins Creek Inlet • North East River • Patriach Inlet • Edens Creek • Nalinga Creek • Mines Creek • Melrose Road Inlet • Lughrata Salt Marsh • Killiecrankie creek • Foochew Inlet • Fotheringale Creek • Cronley Creek • Cameron Inlet • Boat Harbour

Victoria	NSW	Tasmania
• Betka River – Mallacoota • Mallacoota • Snowy River – Marlo • Merriman Creek – Seaspray • Lakes Entrance • Lake Bunga – Lakes Entrance • Lake Tyers • Corner Inlet		• Arthur Bay Conservation Area

D2.10 Oil spill monitoring

Table D-17 and Table D-18 summarise the probability of receptors coming into contact with both dissolved oil and entrained oil during P&A activities at both Tuna and Snapper platforms. Additional information can be found in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-17 Probability of receptors coming into contact with dissolved hydrocarbons in the 0-10m depth layer below the sea surface at a moderate threshold (50 - 400ppb), for both Tuna and Snapper P&A activities (RPS, 2025)

Probability	Tuna (Scenario 3)	Snapper (Scenario 6)
>90%	N/A	N/A
75-90%	N/A	N/A
50-75%	N/A	N/A
25-50%	N/A	N/A
10-25%	N/A	N/A
<10%	Biologically Important Area: • Common diving-petrel – Foraging • Pygmy blue whale – Foraging • Shy albatross - Foraging likely • White shark – Foraging • White-faced storm-petrel – Foraging • Southern right whale – Migration • Southern right whale – Reproduction IMCRA: • Twofold Shelf • Southeast Shelf Transition Key Ecological Feature: • Upwelling East of Eden	Biologically Important Area: • Common diving-petrel – Foraging • Pygmy blue whale – Foraging • Shy albatross - Foraging likely • White shark – Foraging • White-faced storm-petrel – Foraging • Southern right whale – Migration • Southern right whale – Reproduction IMCRA: • Twofold Shelf • Southeast Shelf Transition Key Ecological Feature: • Upwelling East of Eden

Probability	Tuna (Scenario 3)	Snapper (Scenario 6)
	Marine National Park: • Point Hicks Natural Resource Management Regions: • East Gippsland Shore: • East Gippsland Shore Victoria - Marine Pollution Risk Assessment (MPRA): • Corringle • Point Hicks • Sydenham Inlet State waters: • Victoria	Marine National Park: • Point Hicks National Resource Management Regions: • East Gippsland Shore: • East Gippsland Shore Victoria - MPRA: • Corringle • Lake Tyers Beach • Marlo • Point Hicks State waters: • Victoria

Table D-18 Probability of receptors coming into contact with entrained oil at a low threshold (≤10ppb), for both Tuna and Snapper during P&A activities (RPS, 2025)

Probability	Tuna (Scenario 3)	Snapper (Scenario 6)
>90%	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • White shark – Foraging • White-faced storm-petrel – Foraging • Southern right whale – Migration IMCRA: • Twofold Shelf • Southeast Shelf Transition • Southeast Transition Key Ecological Feature: • Upwelling East of Eden Marine Reserve:	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • White shark – Foraging • White-faced storm-petrel – Foraging • Southern right whale – Migration IMCRA: • Twofold Shelf • Southeast Shelf Transition Key Ecological Feature: • Upwelling East of Eden Marine Reserve: • South-east (Marine)

Probability	Tuna (Scenario 3)	Snapper (Scenario 6)
	• South-east (Marine) Special Purpose Zone: • *SS Federal* (1901)	
75-90%	Biologically Important Area: • Humpback whale - Migration (north and south) • Little penguin – Foraging • Wedge-tailed shearwater – Foraging National Resource Management Regions: • East Gippsland Reefs, Shoals and Banks: • New Zealand Star Bank State waters: • Victoria	Biologically Important Area: • Southern right whale – Reproduction National Resource Management Regions: • East Gippsland State waters: • Victoria
50-75%	Biologically Important Area: • Grey nurse shark – Foraging • Grey nurse shark – Migration • Indo-Pacific/spotted bottlenose dolphin – Breeding • Southern right whale – Reproduction Marine national park: • Cape Howe • Point Hicks National Resource Management Regions: • South East NSW Shore: • East Gippsland • Gabo Island Shore Local Government Area: • Gabo Island Shore Victoria - MPRA: • Cape Howe/Mallacoota State waters: • NSW	Biologically Important Area: • Little penguin – Foraging • Wedge-tailed shearwater – Foraging • White shark - Breeding (nursery area) Marine national park: • Point Hicks Shore: • East Gippsland Shore Victoria - MPRA: • Cape Howe/Mallacoota • Point Hicks
25-50%	Biologically Important Area: • Sooty shearwater – Foraging	Biologically Important Area: • Grey nurse shark – Foraging

Probability	Tuna (Scenario 3)	Snapper (Scenario 6)
	IBRA: • Furneaux National Resource Management Regions: • North National Resource Management Region Shore: • Bega Valley Shore Local Government Area: • Bega Valley Shire Council • Flinders Council State waters: • Tasmania	• Humpback whale - Migration (north and south) • Indo-Pacific/spotted bottlenose dolphin – Breeding Marine National Park: • Cape Howe National Resource Management Regions: • South East NSW Reefs, Shoals and Banks: • New Zealand Star Bank Shore: • Bega Valley • Gabo Island Shore Local Government Area: • Bega Valley Shire Council • Gabo Island Shore Victoria - MPRA: • Croajingolong – West State waters: • NSW
10-25%	Australian Marine Parks: • Beagle • East Gippsland Biologically Important Area: • Black-faced cormorant – Foraging • White-faced storm-petrel – Breeding IBRA: • South East Corner IMCRA: • Batemans Shelf • Flinders Key Ecological Feature: • Big Horseshoe Canyon National Park: • Kent Group Shore: • Badger Island	Biologically Important Area: • Grey nurse shark – Migration • Sooty shearwater – Foraging IMCRA: • Central Bass Strait • Bass Strait Shelf Province • Southeast Transition Shore Victoria - MPRA: • Marlo

Probability	Tuna (Scenario 3)	Snapper (Scenario 6)
	• Kent Island Group Shore Victoria - MPRA: • Croajingolong – West • Point Hicks	
<10%	Bioregional Assessments: • Sydney Basin Biologically Important Area: • Black petrel – Foraging • Crested tern – Breeding • Crested tern – Foraging • Flesh-footed shearwater – Foraging • Little penguin – Breeding • White-fronted tern – Foraging Conservation Area: • Settlement Point • St Helens IBRA: • Sydney IMCRA: • Freycinet • Tasmanian Shelf Province Marine Park: • Batemans • Jervis Bay Marine Reserve: • Temperate East (Marine) National Park: • Ben Boyd • Murramarang Nature Reserve: • Nadgee Nature Recreation Area: • Humbug Point Shore: • Break O'Day • Clarke Island • Flinders Island • Inner Sister Island • Montague Island	Australian Marine Parks: • Beagle Biologically Important Area: • Black-faced cormorant – Foraging • Crested tern – Breeding • Crested tern – Foraging • Little penguin – Breeding • White-faced storm-petrel – Breeding • White-fronted tern – Foraging Conservation Area: • Settlement Point IBRA: • Furneaux • South East Corner IMCRA: • Batemans Shelf • Flinders Marine Park: • Batemans National Park: • Kent Group National Resource Management Regions: • North National Resource Management Region Shore: • Badger Island • Clarke Island • Flinders Island • Hogan Island Group • Kent Island Group • Montague Island Shore Local Government Area: • Flinders Council Shore Victoria - MPRA: • Cape Conran

Probability	Tuna (Scenario 3)	Snapper (Scenario 6)
	• Shoal Haven Shore Local Government Area: • Break O'Day Council • Shoalhaven City Council Shore Victoria - MPRA: • Sydenham Inlet	• Corringle • Croajingolong – East • Lake Tyers Beach • Sydenham Inlet Special Purpose Zone: • *SS Federal* (1901) State waters: • Tasmania

Sufficient resources are available to undertake monitoring, and these are detailed in the Operational and Scientific Monitoring Program. Modelling indicates that the spill does intersects the coastline within 3 days. In the unlikely event of a spill, should trajectory modelling predict shoreline contact, sufficient resources are available to be initiated within this time. Modules in addition to those required to monitor the spill may be initiated and resources mobilised to priority monitoring locations as determined at the time.

Appendix D-3 Quick Reference Guide – Production West Tuna and Snapper – Barracouta condensate

The purpose of this document is to provide information specific to a WCDS of Barracouta condensate from West Tuna (Scenario 4) and Snapper (Scenario 5) platforms during production. This document is intended for use by incident responders and during stakeholder consultation activities. The scenarios represent the WCDSs modelled in *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

For further details, refer to the *Bass Strait Oil Pollution Emergency Plan* (AUGO-EV-ELI-001).

D3.1 Field location/oil properties

This QRG applies to Esso's Gippsland Basin operations and project activities, the location of which is detailed in Figure D-11.

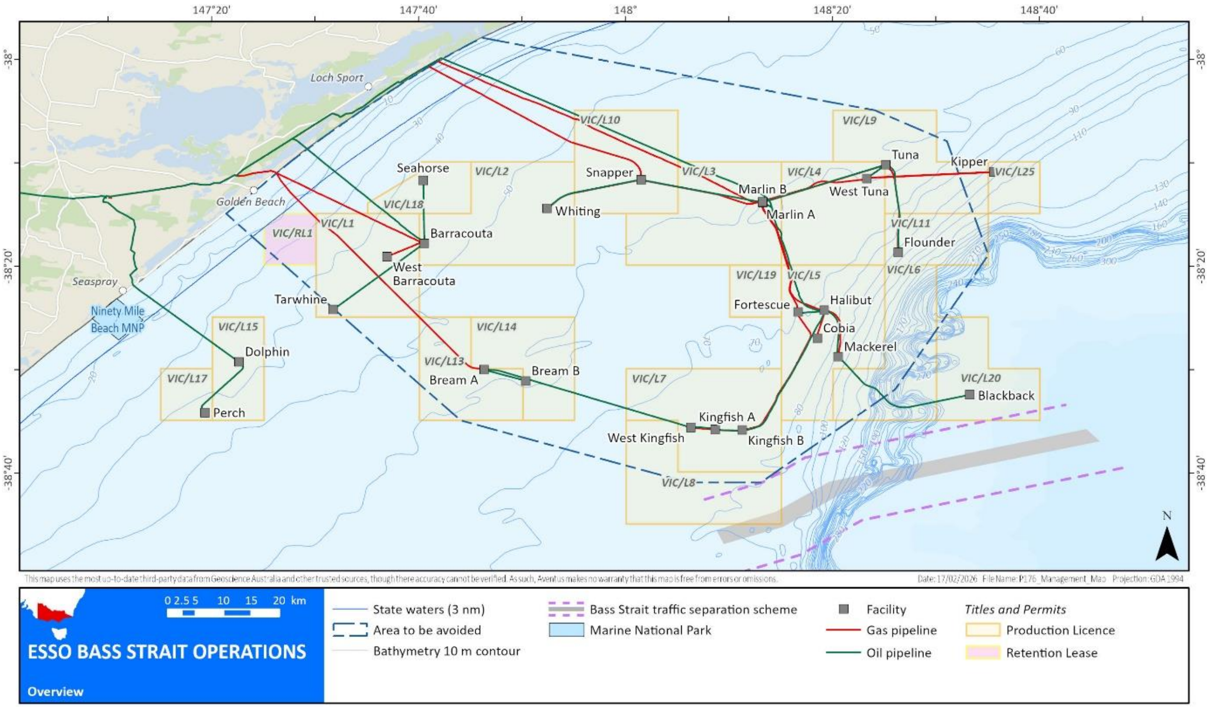


Figure D-11 Location of Bass Strait region and asset locations

Details of the facilities relevant to this QRG can be found in Table D-19.

The physical properties of Barracouta condensate, which is handled at West Tuna and Snapper platforms, can be referred to in Table D-20, and further details can be found in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-19 Details of facilities relevant to this QRG

Facility	Licence	Coordinates	
		Latitude	Longitude
West Tuna platform	VIC/L04	38° 11' 37" S	148° 23' 15" E
Snapper platform	VIC/L10	38° 11' 42" S	148° 01' 26" E

Table D-20 Physical properties of Barracouta condensate (RPS, 2025)

Barracouta condensate*	
Density	772.3kg/m^3 (@15^{0}C)
API	51.6
Dynamic viscosity	0.99cP (@15°C)
Pour point	-39°C
Oil property category	Group 1 – non-persistent
Wax content	1.8%
Aromatic content[1]	16.6%
Volatile (Boiling Point <180°C)	55%
Semi-volatile (Boiling Point 180 - 265°C)	34.8%
Low volatility (Boiling Point 265 - 380°C)	9.6%
Residual (BP> 380°C)[2]	0.5%

*Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

[1]Soluble, aromatic, hydrocarbons, (including BTEX), tend to evaporate into the atmosphere.

[2]Residual hydrocarbons will persist in the marine environment. Waxy components may solidify over the annual temperatures observed in the Gippsland Basin.

D3.2 What's the worst that could happen?

A summary of the WCDS for both West Tuna and Snapper production is outlined in Table D-21.

Table D-21 A summary of the WCDS for production of Barracouta condensate, based on the modelling report (RPS, 2025)

	West Tuna (Scenario 4)	Snapper (Scenario 5)
Modelled Oil Pollution Scenario* (WCDS)	Level 2 Spill: A surface release following a loss of well control (with production from current production tubing against zero wellhead pressure) resulting in a release of condensate over 98 days.	
Oil type and name	Barracouta condensate	
Spill volume	41,448m^3	23,373m^3
Dominant weathering process	Evaporation	
Approximate evaporation rate	(depending on temperature)	

	West Tuna (Scenario 4)	Snapper (Scenario 5)
...within the first 12 hours	85%	
...within the first 24 hours	89%	
...over several days	90%	
Probability of contact to a shoreline receptor at or above the low threshold (10g/m^2)	46% (at Bega Valley (NSW), and Bega Valley Shire Council (NSW))	76% (at East Gippsland)
Minimum time before shoreline accumulation at or above the low threshold (10g/m^2)	6.26 days (at Bega Valley (NSW), and Bega Valley Shire Council (NSW))	7.16 days (at Montague Island (NSW))
Maximum volume ashore from a single spill simulation at or above the low threshold (10g/m^2)	2.1m^3 (at Montague Island)	4.2m^3 (at East Gippsland)
Maximum length of the shoreline		
...at 10g/m^2	12.5km	15.2km
...at 100g/m^2	N/A	0.9km
...at 1000g/m^2	N/A	N/A
Estimated weathering after 7 days	Based on mass balance for condensate using constant 5kn wind speeds at 15°C water temperature	
Evaporation	90%	
Dissolved	1%	
Decay	0%	
Entrained in water column	0%	
Floating	9%	

*Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

D3.3 Exposure – Shoreline

Within this section, the modelling results for maximum potential shoreline loading, and zones of potential floating oil exposure for both condensate scenarios are shown. Results from Scenario 4 are outlined in Figure D-12 and Figure D-14, while results from Scenario 5 are outlined in Figure D-13 and Figure D-15.

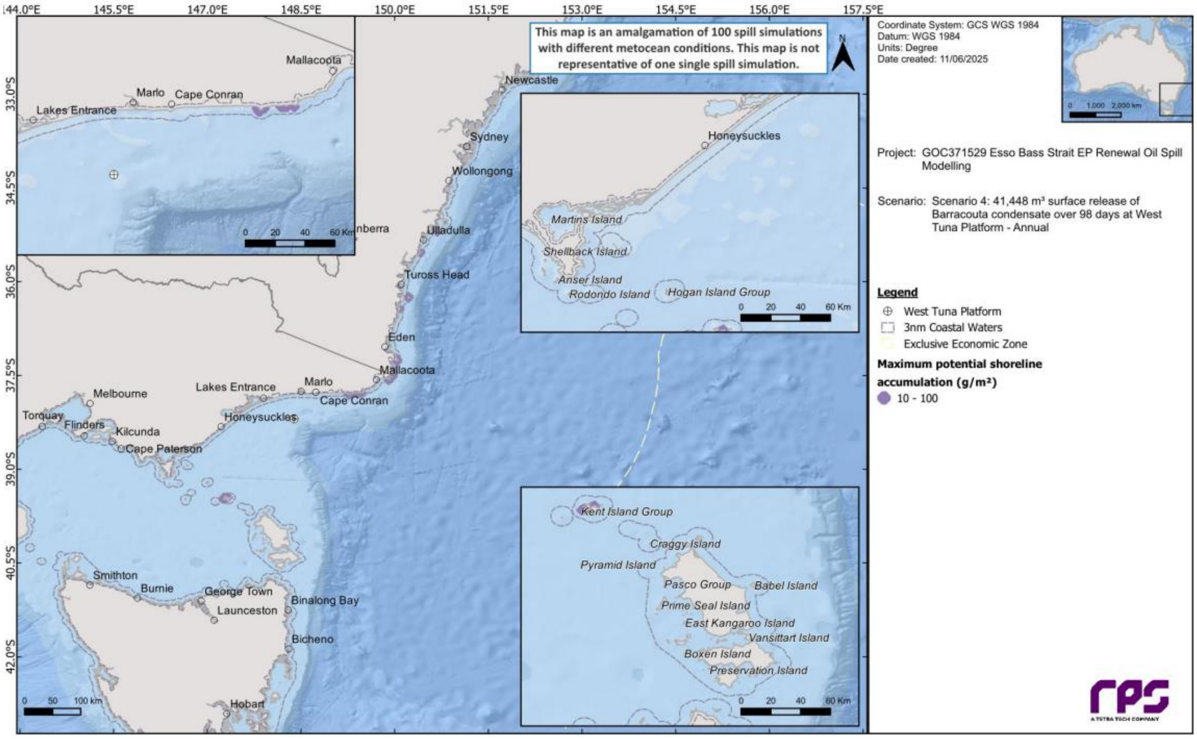


Figure D-12 **Scenario 4 - Maximum potential shoreline loading in the event of a 41,448m³ surface release of condensate over 98 days following an accidental release incident at the West Tuna platform. The stochastic results were calculated from 100 spill trajectories (RPS, 2025)**

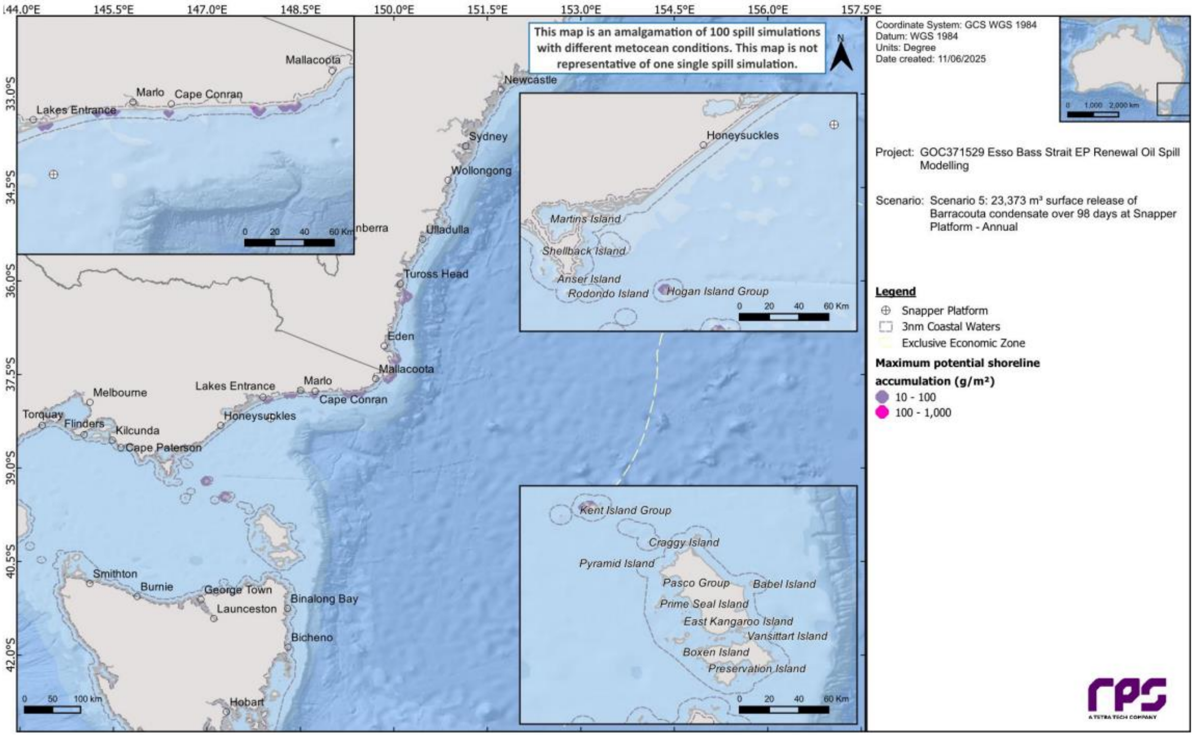


Figure D-13 **Scenario 5 - Maximum potential shoreline loading in the event of a 23,373m³ surface release of condensate over 98 days following an accidental release incident at the Snapper platform. The stochastic results were calculated from 100 spill trajectories (RPS, 2025)**

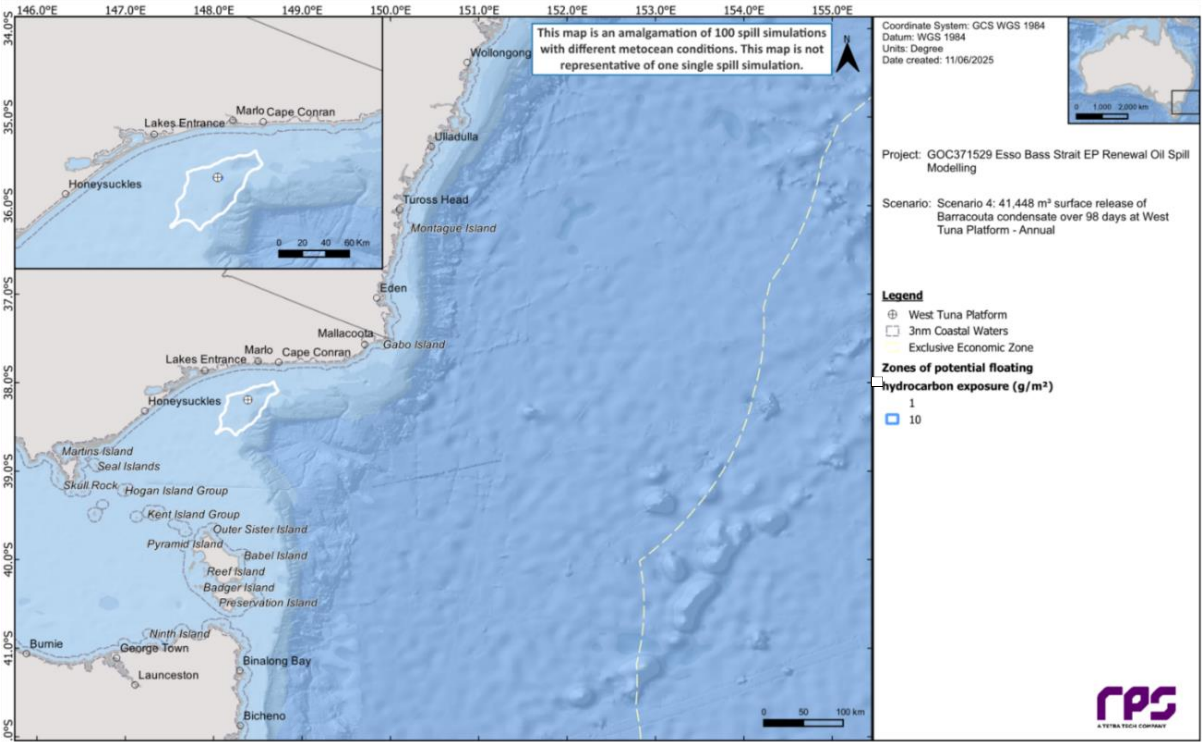


Figure D-14 Scenario 4 - Zones of potential floating oil exposure in the event of a 41,448m³ surface release of condensate over 98 days following an accidental release incident at the West Tuna platform. The results were calculated from 100 spill trajectories and represent annual conditions (RPS, 2025)

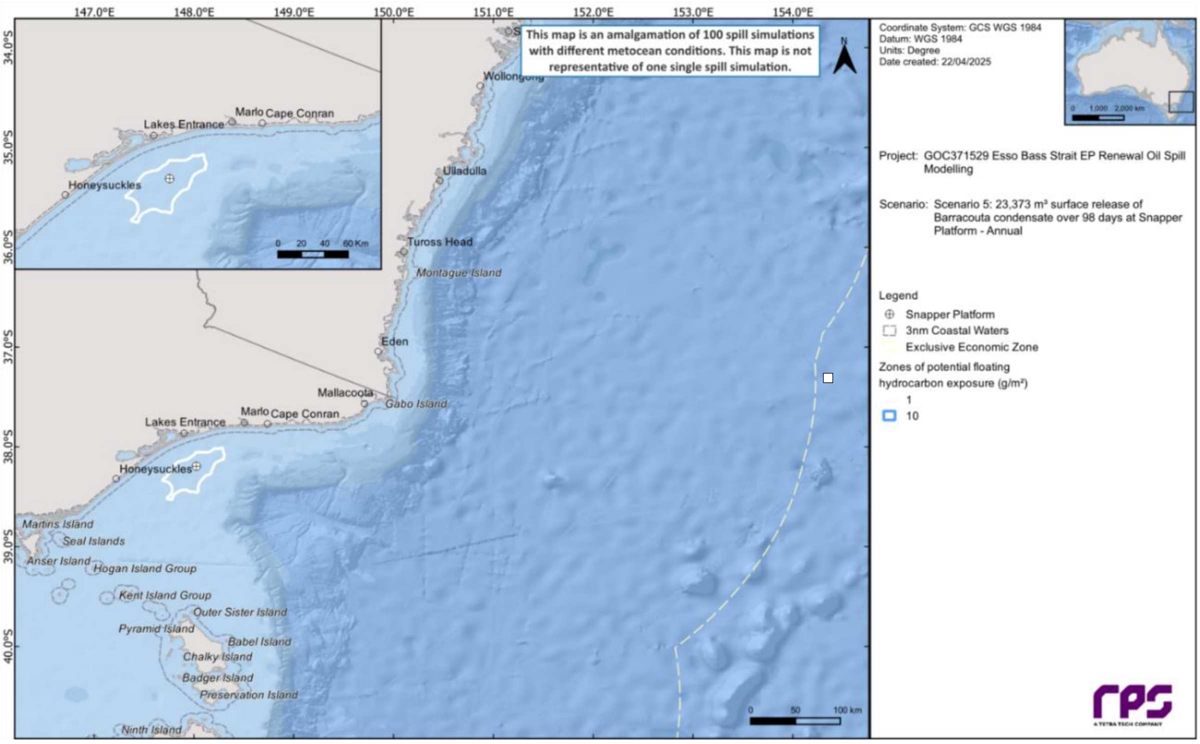


Figure D-15 Scenario 5 - Zones of potential floating oil exposure in the event of a 23,373m³ surface release of condensate over 98 days following an accidental release incident at the Snapper platform. The results were calculated from 100 spill trajectories and represent annual conditions (RPS, 2025)

Table D-22 lists the identified receptors that have been predicted to be impacted by the hydrocarbon spill. The predicted timeframes until impact have been grouped. Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025). for more details.

Table D-22 Summary of receptors that are predicted to be impacted in the modelled scenarios and the approximate timeframe until contact

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
West Tuna (Scenario 4)						
Minimum time to oil exposure on sea surface at moderate threshold	Biologically Important Area	Antipodean albatross - Foraging	-	-	-	-
		Black-browed albatross - Foraging**	✓	-	-	-
		Bullers albatross - Foraging**	✓	-	-	-
		Campbell albatross - Foraging**	✓	-	-	-
		Common diving-petrel - Foraging**	✓	-	-	-
		Indian yellow-nosed albatross - Foraging**	✓	-	-	-
		Pygmy blue whale - Foraging**	✓	-	-	-
		Short-tailed shearwater - Foraging	-	-	-	-
		Shy albatross - Foraging likely**	✓	-	-	-
		Wandering albatross - Foraging**	✓	-	-	-
		White-faced storm-petrel - Foraging	-	-	-	-
		Southern right whale - Migration**	✓	-	-	-
	Key Ecological Feature	Upwelling East of Eden**	✓	-	-	-
Minimum time to shoreline accumulation of oil at	Shore	Bega Valley (NSW)	-	-	-	-
		East Gippsland (Victoria)	-	-	-	-
		Gabo Island (Victoria)	-	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
moderate threshold		Kent Island Group (Tasmania)	-	-	-	-
		Montague Island (NSW)	-	-	-	-
		Shoal Haven (NSW)	-	-	-	-
	Shore Local Government Area	Bega Valley Shire Council (NSW)	-	-	-	-
		Flinders Council (Tasmania)	-	-	-	-
		Gabo Island (Victoria)	-	-	-	-
	Shore Victoria - MPRA	Cape Howe/Mallacoota	-	-	-	-
		Croajingolong - West	-	-	-	-
		Point Hicks	-	-	-	-
Snapper (Scenario 5)						
Minimum time to oil exposure on sea surface at moderate threshold	Biologically Important Area	Black-browed albatross - Foraging**	✓	-	-	-
		Bullers albatross - Foraging**	✓	-	-	-
		Campbell albatross - Foraging**	✓	-	-	-
		Common diving-petrel - Foraging**	✓	-	-	-
		Indian yellow-nosed albatross - Foraging**	✓	-	-	-
		Pygmy blue whale - Foraging**	✓	-	-	-
		Short-tailed shearwater - Foraging	✓	-	-	-
		Shy albatross - Foraging likely**	✓	-	-	-
		Wandering albatross - Foraging**	✓	-	-	-
		White shark - Breeding (nursery area)	-	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
		Southern right whale - Migration**	✓	-	-	-
	Key Ecological Feature	Upwelling East of Eden	-	-	-	-
Minimum time to shoreline accumulation of oil at moderate threshold	Shore	Bega Valley (NSW)	-	-	-	-
		East Gippsland (Victoria)	-	-	-	✓(26 days)
		Eurobodalla (NSW)	-	-	-	-
		Gabo Island (Victoria)	-	-	-	✓(26 days)
		Hogan Island Group (Tasmania)	-	-	-	-
		Kent Island Group (Tasmania)	-	-	-	-
		Montague Island (NSW)	-	-	-	-
	Shore Local Government Area	Bega Valley Shire Council (NSW)	-	-	-	-
		Eurobodalla Shire Council (NSW)	-	-	-	-
		Flinders Council (Tasmania)	-	-	-	-
		Gabo Island (Unincorporated) (Victoria)	-	-	-	✓(26 days)
	Shore Victoria MPRA	Cape Conran	-	-	-	-
		Cape Howe/Mallacoota	-	-	-	✓(26 days)
		Corringle	-	-	-	-
		Croajingolong - West	-	-	-	-
		Lakes Entrance	-	-	-	-
		Marlo	-	-	-	-
		Point Hicks	-	-	-	✓(43 days)

**The release location resides within the receptor boundaries.

Protection priorities based on sensitivity and predicted consequence (refer to Section 5 of EP), protectable/actionable areas, and minimum time to exposure in this area are:

- Mallacoota due to sensitivity of estuary mouth, hooded plover habitat. The Betka River catchment area is within the Croajingolong National Park.

The other potentially contacted areas are primarily sandy beaches or river mouths that are not permanently open.

D3.4 Strategic Net Environmental Benefit Analysis and selection of response options

For each given response strategy, the benefits and relative effectiveness have been considered for the scenario, determining the viability of the strategy based on a net environmental benefit, as found in Table D-23.

Table D-23 Assessment of viability for response strategies, considering the benefits and their effectiveness on the oil type

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
Source control	Stops/minimises the flow of hydrocarbons into to environment.	Only viable option to stop flow of oil to the marine environment.	Yes	✓
Surveillance and monitoring	Although surveillance is not an active intervention to treat or remove oil pollution, it is critical to effective response both in the initial stages of an incident and during ongoing response operations. Outputs can be used to guide decision making on the need for other response strategies.	Surveillance and monitoring can be used to observe the natural break-up and dissipation of a Barracouta condensate spill from the West Kingfish and Snapper platforms without the need for active intervention. Can be used to inform the effectiveness of current response strategies.	Yes	✓
Dispersant application	Dispersants act by allowing hydrocarbons to be mixed into the upper layers of the water column, which accelerates the biodegradation process. This removes oil from the water surface, protecting leeward shorelines and providing benefit to sea-surface air breathing fauna. Use of dispersants may eliminate or minimise oil	Barracouta condensate is a Group 1 hydrocarbon. Group 1 oils are likely to be ≤50 μm thick, and spraying dispersant on slicks below this thickness is not recommended. Additionally, condensate is likely to naturally evaporate and disperse readily. Therefore, surface dispersant application would not generally be recommended as a strategy, as application of dispersant to condensate is likely to lead to over-treatment and increase	No	×

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
	impacting sensitive resources.	toxicity in the water column. This could also affect or interrupt the natural dispersion processes.		
Containment and recovery	Booms and skimmers contain surface oil where there is a potential threat to environmental sensitivities. This relies on calm sea conditions (<1.8m wave height, <0.75kn current speed and <20kn wind speed) to collect and adequate deployment timeframes. Targeted containment and recovery can be utilised to reduce impact to sensitive areas such as Lake's Entrance, and Gabo Island where access for shoreline protection is limited (see below: Protection of Sensitive Shoreline Resources).	Condensate from the West Tuna and Snapper platforms will be largely removed from the surface through evaporation (90% within the first 24 hours) and is likely to naturally evaporate and disperse readily. Therefore, containment and recovery would collect minimal oil and would not generally be recommended as a strategy for condensate due to minimised efficiency. Additionally, in the Bass Strait Region, sea conditions are likely to be suitable for containment and recovery operations only 50% of the time.	No	×
Shoreline protection and deflection	Booms and skimmers will be deployed to protect environmental sensitivities. Environmental conditions (e.g. strong current, high wave action) limit application.	Condensate released at the West Tuna and Snapper platforms may contact the shoreline along the Gippsland coast and the southern coast of NSW, with modelling predicting shortest time of moderate levels to shore as approximately 26 days. TRPs have been developed to guide the protection of sensitive estuary openings and sensitivities along this section of coastline.	Yes	✓
Shoreline clean-up	Last response strategy to remove oil from the environment due to shoreline impact.	Condensate released at the West Tuna and Snapper platforms may contact the shoreline along the Gippsland coast and the southern coast of NSW, with modelling predicting shortest time of	Yes	✓

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
		moderate levels to shore as approximately 26 days. There are various shoreline techniques that are appropriate for this type of hydrocarbon, a shoreline clean-up may be effective for reducing shoreline loadings where access is possible, to be assessed on a case-by-case basis.		
OWR	Consists of hazing/deterrence, relocation, capture, cleaning and rehabilitation of oiled wildlife. May include pre-emptive captive management.	OWR is likely to be required as a result of extensive shoreline oiling. Operational monitoring will be used to inform the need for OWR to be implemented.	Yes	✓

D3.5 Response resources required

The resources required for the scenarios outlined in this QRG for each relevant response strategy are listed in Table D-24.

Table D-24 Resources required for the scenarios outlined in this QRG, for each relevant response strategy, based on the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025)

Response Strategy[1]	Resource Type	Quantity	Timeframe
Source control	Remotely operated vehicle debris clearing/subsea intervention	1 x remotely operated vehicle and 1 x vessel	Estimated 14 days (from call out request to arrival in Victoria)
		Subsea first response toolkit and 1 x vessel	Deployment timing will depend on equipment availability and transit time. Estimated 7 days (from Perth to BBMT via road transport).
		1 x contract well control specialists (Wild Well Control/OSRL)	Deployment timing will depend on vessel availability and transit time. Estimated 2 days (from Singapore)
	Relief well	1 x mobile offshore drilling unit (via AEP Mutual Aid Agreement)	Estimated 98 days (via heavy lift vessel)

Response Strategy[1]	Resource Type	Quantity	Timeframe
		1 x contract engineering support specialists (Wild Well Control/OSRL) Well construction material	
SMV	OSMP O1.1 Weather and sea state	N/A	N/A
	OSMP O1.2 Trajectory estimation	1 x contracted modeller	N/A
	OSMP Module O1.3 and O4.1 Aerial surveillance	1x observer per aircraft Aircraft to have 100nm range and 3-hour duration	Initial overflight <4 hours service requested. Trained observer <12 hours of spill occurring
	OSMP Module O1.4 Tracking buoy	2 x STBs available	Deployed <12 hours of spill occurring (dependent on weather conditions) (Level 2 and 3 spill)
	OSMP O1.5 Satellite imagery	1 x contract	<24 hours
	OSMP Module O2.1 and O2.3 Water and oil sampling	1 x vessel 1 x initial sampling kit 1 x contract with laboratory	Samples obtained <24 hours of spill occurring Analysis initiated <24 hours of receipt in laboratory
Protection of sensitive shoreline resources[2]	Boom	2 x shore seal boom (25m) 26 x near shore boom (25m)	1 strike team to arrive within 6 days
	Anchor kits	9	
	Skimming systems	2	
	Shoreline Deployment Kits	2	
	Temporary Waste Storage	10	

Response Strategy[1]	Resource Type	Quantity	Timeframe
	Vessel	1 x shallow draft	
	Personnel	63 (4 x site supervisors, 11 x trained responders, 48 x general labourers)	
Shoreline Clean-up[3]	Shovels	10	1 strike team within 6 days
	Rakes	10	
	Flushing systems	2	
	Skimmer systems	1	
	Shoreline booming/ancillaries	Various	
	Personnel	11 (1 x team leader, 10 x responders)	
OWR[4]	Personnel	Up to 93 personnel (4 IMT, 19 team leaders/specialist staff, 70 team members)	4 x specialised operators within 5 days
	OWR first strike kit	1	DEECA will make the decision to stand up additional resources which are based in Victoria. Available <24 hours from request for services.
	Intermediate bulk container	2	
	Response Tool	1	
	Utility task vehicle/all-terrain vehicle	2	
	1 x vessel – personnel/equipment	1	

[1] Calculated resources requirement are for planning purposes only. Actual response strategies and resource needs to be determined in consultation with the State Control Agency.

[2] Resources for shoreline protection and deflection are based on the relevant TRP with the highest number of resources required. In this QRG, this is Lakes Entrance TRP, in Victoria. Based on maximum length of shoreline impacted at 100g/m^3 or greater.

[3] Resources for shoreline clean-up are based on the assumption of a manual clean-up rate of 1m^3 per person, per day. Therefore, a strike team of 10 people (excluding team leaders) would recover approximately 10m^3 of oiled waste per day. Based on peak volume of shoreline accumulation of 10g/m^3 or greater.

[4] The list of OWR resources required considers that the magnitude, and therefore resources required, of a potential wildlife impact can be determined through the use of the evaluation tool in the WAOWRP.

D3.6 Relevant Tactical Response Plans

In the event of an incident, the IMT can refer to TRPs which have been developed for selected areas of shoreline along Victorian, NSW, and Tasmanian coastlines. These outline information about the specific locations, including site description, access, main sensitivities, and other response-relevant details. The TRPs that are relevant to this QRG can be found in Table D-25.

Table D-25 List of relevant TRPs for the coastal areas predicted to be impacted at moderate threshold or above (RPS, 2025)

Victoria	NSW
• Sydenham Inlet -Bemm River/BS coast • Tamboon Inlet – Bemm River/Point Hicks • Wingan Inlet – Point Hicks • Thurra River – Point Hicks • Mueller River – Point Hicks • Gabo Island -Mallacoota • Shipwreck Creek – Mallacoota • Davis Creek – Mallacoota • Betka River – Mallacoota • Mallacoota • Lakes Entrance • Lake Bunga – Lakes Entrance • Lake Tyers	• Woodburn and Saltwater creeks – Ben Boyd National Park • Wonboyn River • Towamba River – Eden • Nullica River – Eden • Bittangabee Bay – Eden • Fisheries Creek - Twofold Bay • Boydtown Creek – Cape Howe

D3.7 Oil spill monitoring

Table D-26 and Table D-27 summarise the probability of receptors coming into contact with both dissolved oil and entrained oil during production activities at both West Tuna and Snapper platforms. Additional information can be found in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-26 Probability of receptors coming into contact with dissolved hydrocarbons in the 0-10m depth layer below the sea surface a moderate threshold (50 - 400ppb), for both West Tuna and Snapper during production (RPS, 2025)

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
>90%	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • White-faced storm-petrel – Foraging • Southern right whale – Migration IMCRA: • Twofold Shelf • Southeast Shelf Transition	Biologically Important Area: • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • Southern right whale – Migration IMCRA: • Twofold Shelf • Southeast Shelf Transition Key Ecological Feature: • Upwelling East of Eden

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
	Key Ecological Feature: • Upwelling East of Eden Marine Reserve: • South-east (Marine)	Marine Reserve: • South-east (Marine)
75% - 90%	Biologically Important Area: • White shark – Foraging IMCRA: • Southeast Transition	Biologically Important Area: • White-faced storm-petrel - Foraging
50% - 75%	Biologically Important Area: • Short-tailed shearwater – Foraging Special Purpose Zone: • *SS Federal* (1901)	Biologically Important Area: • Antipodean albatross – Foraging • Short-tailed shearwater – Foraging • National Resource Management Regions: • East Gippsland State waters: • Victoria
25% - 50%	Biologically Important Area: • Wedge-tailed shearwater - Foraging	Biologically Important Area: • White shark - Breeding (nursery area) • White shark – Foraging • Southern right whale – Reproduction IMCRA: • Southeast Transition Marine National Park: • Point Hicks Shore: • East Gippsland
10% - 25%	Biologically Important Area: • Little penguin – Foraging • Southern right whale – Reproduction National Resource Management Regions: • East Gippsland Reefs, Shoals and Banks: • New Zealand Star Bank	Biologically Important Area: • Little penguin - Foraging • Wedge-tailed shearwater – Foraging National Resource Management Regions: • West Gippsland Reefs, Shoals and Banks: • New Zealand Star Bank

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
	Shore: • East Gippsland State waters: • Victoria	Shore Victoria - MPRA: • Corringle • Lake Tyers Beach • Marlo • Point Hicks
<10%	Australian Marine Park: • Beagle Biologically Important Area: • Grey nurse shark – Foraging • Grey nurse shark – Migration • Humpback whale - Migration (north and south) • Indo-Pacific/spotted bottlenose dolphin – Breeding • Sooty shearwater – Foraging • White shark - Breeding (nursery area) • White-faced storm-petrel – Breeding IBRA: • Furneaux IMCRA: • Batemans Shelf Key Ecological Feature: • Big Horseshoe Canyon Marine National Park: • Cape Howe • Point Hicks Marine Sanctuary: • Beware Reef National Park: • Kent Group National Resource Management Regions: • North National Resource Management Region • South East NSW Reefs, Shoals and Banks: • Beware Reef Shore: • Bega Valley • Gabo Island	Biologically Important Area: • Grey nurse shark – Foraging • Humpback whale - Migration (north and south) • Indo-Pacific/spotted bottlenose dolphin – Breeding • Sooty shearwater – Foraging IBRA: • South East Corner Marine National Park: • Cape Howe Marine Sanctuary: • Beware Reef National Resource Management Regions: • South East NSW Reefs, Shoals and Banks: • Beware Reef Shore: • Bega Valley • Gabo Island Shore Local Government Area: • Bega Valley Shire Council • Gabo Island Shore Victoria - MPRA: • Cape Conran • Cape Howe/Mallacoota • Croajingolong – West • Lakes Entrance • Sydenham Inlet • Cape Conran State waters: • NSW

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
	• Kent Island Group Shore Local Government Area: • Bega Valley Shire Council • Flinders Council • Gabo Island Shore Victoria - MPRA: • Cape Conran • Cape Howe/Mallacoota • Croajingolong – West • Marlo • Point Hicks • Sydenham Inlet State waters: • NSW • Tasmania	

Table D-27 Probability of receptors coming into contact with entrained oil at a low threshold (≤10ppb), for both West Tuna and Snapper during production (RPS, 2025)

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
>90%	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Grey nurse shark – Foraging • Grey nurse shark – Migration • Humpback whale - Migration (north and south) • Indian yellow-nosed albatross – Foraging • Indo-Pacific/spotted bottlenose dolphin – Breeding • Little penguin – Foraging • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • Wedge-tailed shearwater – Foraging • White shark – Foraging • White-faced storm-petrel – Breeding	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Grey nurse shark – Foraging • Humpback whale - Migration (north and south) • Indian yellow-nosed albatross – Foraging • Indo-Pacific/spotted bottlenose dolphin – Breeding • Little penguin – Foraging • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • Wedge-tailed shearwater – Foraging • White shark - Breeding (nursery area) • White shark – Foraging • White-faced storm-petrel – Foraging • Southern right whale – Migration

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
	• White-faced storm-petrel – Foraging • Southern right whale – Migration • Southern right whale – Reproduction IBRA: • South East Corner IMCRA: • Twofold Shelf • Southeast Shelf Transition • Southeast Transition Key Ecological Feature: • Upwelling East of Eden Marine National Park: • Cape Howe • Point Hicks Marine Reserve: • South-east (Marine) National Park: • Ben Boyd National Resource Management Regions: • East Gippsland • South East NSW Reefs, Shoals and Banks: • New Zealand Star Bank Shore: • Bega Valley • East Gippsland • Gabo Island Shore Local Government Area: • Gabo Island Shore Victoria - MPRA: • Croajingolong - West • Cape Howe/Mallacoota • Point Hicks Special Purpose Zone: • *SS Federal* (1901) State waters: • NSW	• Southern right whale – Reproduction IMCRA: • Twofold Shelf • Southeast Shelf Transition • Southeast Transition Key Ecological Feature: • Upwelling East of Eden Marine National Park: • Cape Howe • Point Hicks Marine Reserves: • South-east (Marine) National Resource Management Regions: • East Gippsland • South East NSW Reefs, Shoals and Banks: • New Zealand Star Bank Shore: • Bega Valley • East Gippsland • Gabo Island Shore Local Government Area: • Gabo Island Shore Victoria - MPRA: • Cape Howe/Mallacoota • Croajingolong – West • Point Hicks State waters: • NSW • Victoria

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
	• Victoria	
75% - 90%	Australian Marine Park: • East Gippsland Biologically Important Area: • Little penguin – Breeding • Sooty shearwater – Foraging • Wilsons storm petrel – Migration IMCRA: • Batemans Shelf Key Ecological Feature: • Big Horseshoe Canyon Shore Local Government Area: • Bega Valley Shire Council	Biologically Important Area: • Grey nurse shark – Migration • Little penguin – Breeding • Sooty shearwater – Foraging • White-faced storm-petrel – Breeding IBRA: • South East Corner Shore Local Government Area: • Bega Valley Shire Council
50% - 75%	Biologically Important Area: • Black petrel – Foraging • Crested tern – Foraging • Flesh-footed shearwater – Foraging • Great-winged petrel – Foraging • Northern giant petrel – Foraging • Southern giant petrel – Foraging • White-capped albatross – Foraging IMCRA: • Flinders Marine Park: • Batemans Marine Reserves: • Temperate East (Marine) Nature Reserve: • Nadgee Shore Victoria - MPRA: • Croajingolong - East	IMCRA: • Batemans Shelf Marine Park: • Batemans National Park: • Ben Boyd Shore Victoria - MPRA: • Sydenham Inlet
25% - 50%	Australian Marine Park: • Beagle Biologically Important Area: • Crested tern – Breeding	Australian Marine Park: • Beagle • East Gippsland Biologically Important Area: • Black petrel – Foraging

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
	• White shark - Breeding (nursery area) IBRA: • Furneaux Key Ecological Feature: • Canyons on the Eastern Continental Slope • Shelf Rocky Reefs National Park: • Kent Group National Resource Management Regions: • North National Resource Management Region Shore: • Kent Island Group • Montague Island Shore Local Government Area: • Flinders Council State waters: • Tasmania	• Crested tern – Breeding • Crested tern – Foraging • Flesh-footed shearwater – Foraging • Great-winged petrel – Foraging • Northern giant petrel – Foraging • Southern giant petrel – Foraging • White-capped albatross – Foraging • Wilsons storm petrel – Migration IBRA: • Furneaux IMCRA: • Flinders Key Ecological Feature: • Shelf Rock Reefs Marine Reserves: • Temperate East (Marine) National Park: • Kent Group National Resource Management Regions: • North National Resource Management Region Shore: • Hogan Island Group • Kent Island Group • Montague Island Shore Local Government Area: • Flinders Council Shore Victoria - MPRA: • Croajingolong – East Special purpose zone: • *SS Federal* (1901) State waters: • Tasmania
10% - 25%	Australian Marine Park: • Flinders Biologically Important Area:	Biologically Important Area: • Short-tailed shearwater – Breeding Conservation Area:

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
	• Black-faced cormorant – Foraging • Short-tailed shearwater – Breeding • White-fronted tern – Foraging IMCRA: • Central Eastern Province Natural Catchment Area: • East Gippsland Coastal streams National Park: • Croajingolong • Meroo • Mimosa Rocks • Murramarang Nature Reserve: • Brush Island Reefs, Shoals and Banks: • Endeavour Reef • Wright Rock Shore: • Badger Island • Clarke Island • Craggy Island • Eurobodalla • Flinders Island • Inner Sister Island • Outer Sister Island • Shoal Haven Shore Local Government Area: • Eurobodalla Shire Council • Shoalhaven City Council Shore Victoria - MPRA: • Sydenham Inlet Wilderness Zone: • Sandpatch	• Hogan Group Key Ecological Feature: • Big Horseshoe Canyon • Canyons on the Eastern Continental Slope Natural Catchment Area: • East Gippsland Coastal streams National Park: • Croajingolong Nature Reserve: • Nadgee Shore: • Eurobodalla Shore Local Government Area: • Eurobodalla Shire Council Shore Victoria - MPRA: • Cape Conran • Marlo Wilderness Zone: • Sandpatch
<10%	Australian Marine Park: • Freycinet • Jervis Bioregional Assessments: • Sydney Basin	Australian Marine Park: • Flinders • Jervis Bioregional Assessments: • Sydney Basin

Probability	West Tuna (Scenario 4)	Snapper (Scenario 5)
	Conservation Area: • Blyth Point • Pasco Group • Settlement Point • St Helens Commonwealth Heritage Place Natural: • Beecroft Peninsula Conservation Park: • Goose Island IBRA: • Sydney Basin IMCRA: • Central Bass Strait • Freycinet • Bass Strait Shelf Province • Tasmania Province • Tasmanian Shelf Province Indigenous Protected Area: • Great Dog Island Key Ecological Feature: • Tasman Front and eddy field Marine Park: • Jervis Bay Marine Sanctuary: • Beware Reef Nationally Important Wetland: • Jervis Bay Sea Cliffs National Park: • Biamanga • Eurobodalla Nature Recreation Area: • Humbug Point Reefs, Shoals and Banks: • Beware Reef Shore: • Break O'Day • Goose Island • Hogan Island Group • Pasco Group	Biologically Important Area: • Black-faced cormorant – Foraging • White-fronted tern – Foraging Conservation Area: • Settlement Point Conservation Park: • Curtis Island • Goose Island IBRA: • Sydney Basin IMCRA: • Central Eastern Province Marine Park: • Jervis Bay Marine sanctuary: • Beware Reef National Park: • Eurobodalla • Mimosa Rocks • Murramarang Nature Reserve: • Brush Island Reefs, Shoals and Banks: • Beware Reef Shore: • Badger Island • Clarke Island • Curtis Island • Flinders Island • Goose Island • Inner Sister Island • Outer Sister Island • Shoal Haven Shore Local Government Area: • Shoalhaven City Council Shore Victoria - MPRA: • Corringle • Lake Tyers Beach

<table>
<tr><th>Probability</th><th>West Tuna (Scenario 4)</th><th>Snapper (Scenario 5)</th></tr>
<tr><td></td><td>Pyramid Island
Vansittart Island
Shore Local Government Area:
Break O'Day Council
Shore Victoria - MPRA:
Cape Conran
Marlo</td><td></td></tr>
</table>

Sufficient resources are available to undertake monitoring, and these are detailed in the Operational and Scientific Monitoring Program. Modelling indicates that the spill does intersects the coastline within 6 days. In the unlikely event of a spill, should trajectory modelling predict shoreline contact, sufficient resources are available to be initiated within this time. Modules in addition to those required to monitor the spill may be initiated and resources mobilised to priority monitoring locations as determined at the time.

Appendix D-4 Quick Reference Guide – Production MLA500 Pipeline – Kipper condensate

The purpose of this document is to provide information specific to a WCDS for a subsea release of Kipper condensate from MLA500 pipeline during production. This document is intended for use by incident responders and during stakeholder consultation activities. The scenarios represent the WCDSs modelled in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

For further details, refer to the *Bass Strait Oil Spill Emergency Plan* (AUGO-EV-ELI-001).

D4.1 Field location/oil properties

This QRG applies to Esso's Gippsland Basin operations and project activities, the location of which is detailed in Figure D-16.

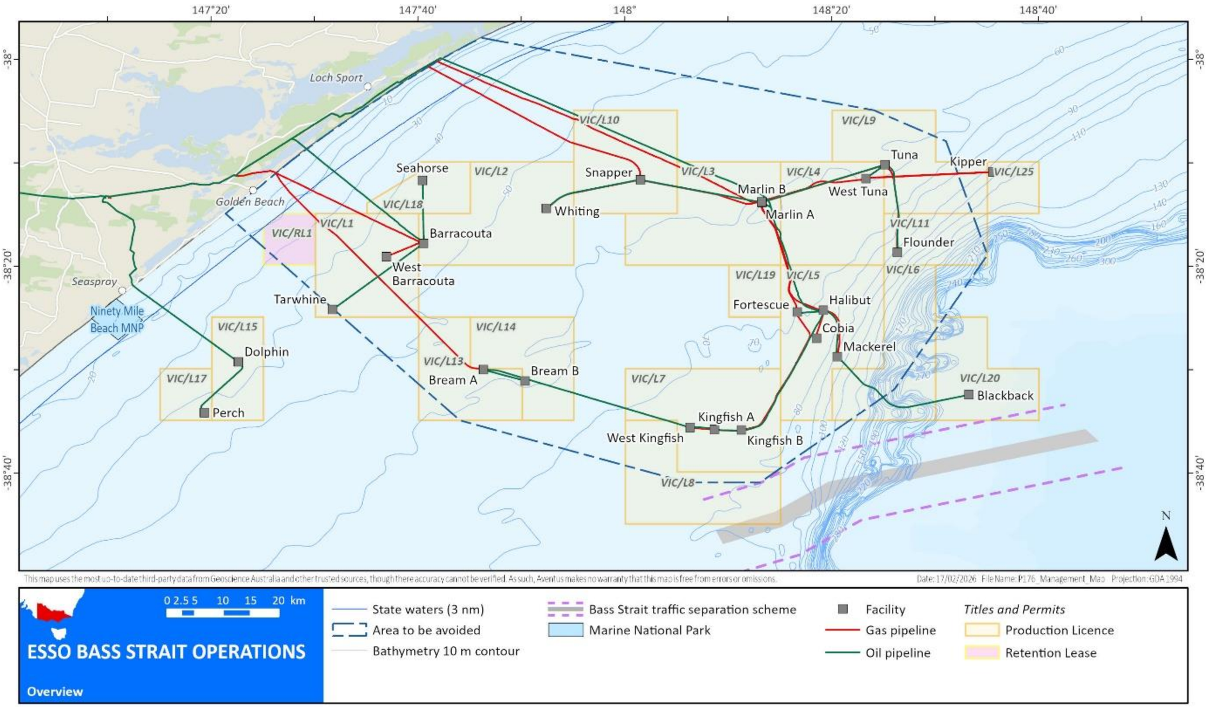


Figure D-16 Location of Bass Strait region and asset locations

Details of the pipeline relevant to this QRG can be found in Table D-28.

The physical properties of Kipper condensate can be referred to in Table D-29, and further details can be found in *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-28 Details of pipeline relevant to this QRG

Name	Licenses	From	To	Nominal OD (mm)	Length (km)
MLA500	VIC/PL2, VIC/PL2(V)	Marlin platform	Shore	500	52.6

Table D-29 Physical properties of Kipper condensate (RPS, 2025)

Oil type and name	Kipper condensate*
Density	760.0kg/m^3 (@15^{0}C)

Oil type and name	Kipper condensate*
API	54.5
Dynamic viscosity	0.64cP (@15°C)
Pour point	-39°C
Oil property category	Group 1 – non-persistent
Wax content	2.3%
Aromatic Content[1]	13.4%
Volatile (Boiling Point <180°C)	43.2%
Semi-volatile (Boiling Point 180 - 265°C)	30.8%
Low volatility (Boiling Point 265 - 380°C)	23.8%
Residual (BP> 380°C)[2]	2.2%

*Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

[1]Soluble, aromatic, hydrocarbons, (including BTEX), tend to evaporate into the atmosphere.

[2]Residual hydrocarbons will persist in the marine environment. Waxy components may solidify over the annual temperatures observed in the Gippsland Basin.

D4.2 What's the worst that could happen?

A summary of the WCDS for a release from the MLA500 pipeline during production is outlined in Table D-30.

Table D-30 A summary of the WCDS for Kipper condensate, for a release from the MLA500 pipeline during base business operations, based on the modelling report (RPS, 2025)

MLA500	
Modelled Oil Pollution Scenario* (WCDS)	Level 2 Spill: subsea release of Kipper condensate over 1 hour following a pipeline rupture loss of containment incident at the MLA500 pipeline location.
Oil type and name	Kipper condensate
Spill volume	1123 m^3
Dominant weathering process	Evaporation
Approximate evaporation rate	(depending on temperature)
...within the first 12 hours	65%
...within the first 24 hours	75%
...over several days	76%

MLA500	
Probability of contact to a shoreline receptor at or above the low threshold (10g/m^2)	54% (at East Gippsland)
Minimum time before shoreline accumulation at or above the low threshold (10g/m^2)	0.61 days (at East Gippsland and Lakes Entrance)
Maximum volume ashore from a single spill simulation at or above the low threshold (10g/m^2)	154.8m^3 (at Wellington, East Gippsland and Lakes Entrance - West)
Maximum length of the shoreline	
...at 10g/m^2	43.6km
...at 100g/m^2	3.6km
...at 1000g/m^2	N/A
Weathering after 7 days	Based on mass balance for condensate using constant 5kn wind speeds at 15°C water temperature
Evaporation	76%
Dissolved	0%
Decay	0%
Entrained in water column	0%
Floating	24%

*Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

D4.3 Exposure – Shoreline

Within this section, the modelling results for maximum potential shoreline loading are shown in Figure D-17, and the zones of potential floating oil exposure are shown in Figure D-18.

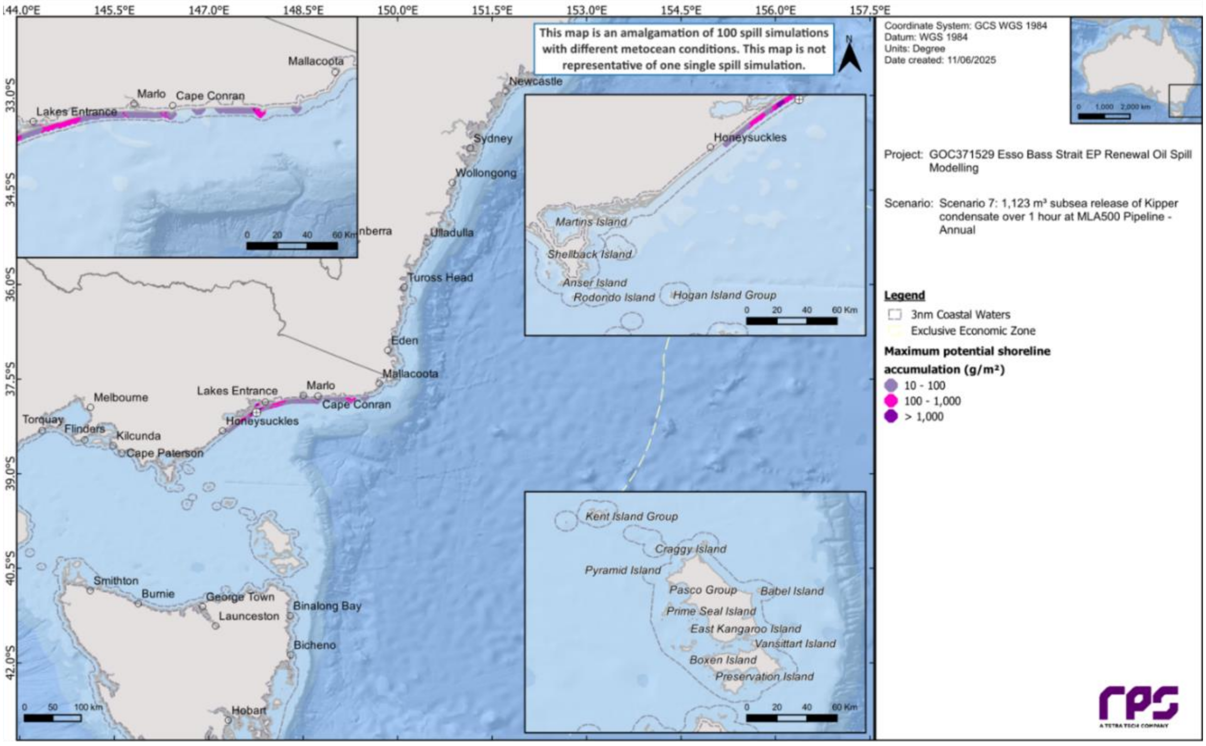


Figure D-17 Scenario 7 - Maximum potential shoreline loading in the event of a 1123m³ subsea release of condensate over 1 hour following a pipeline rupture loss of containment incident at the MLA500 pipeline. The stochastic results were calculated from 100 spill trajectories (RPS, 2025)

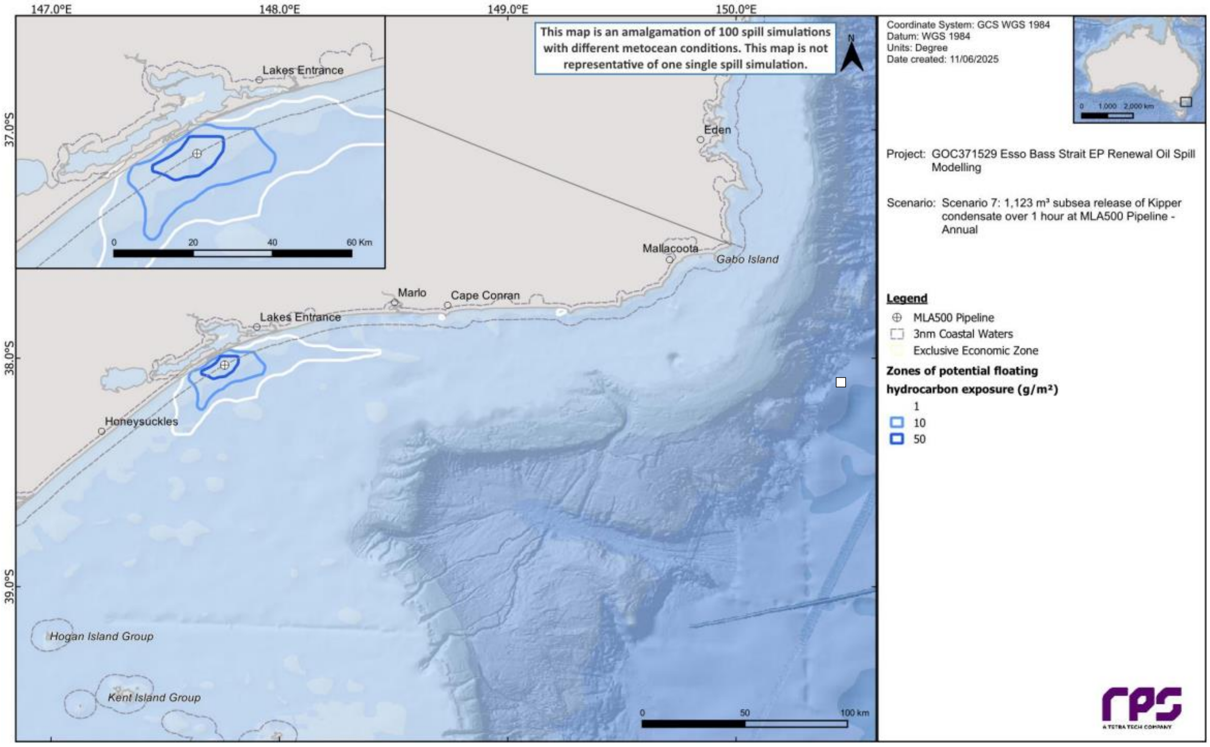


Figure D-18 Scenario 7 - Zones of potential floating oil exposure in the event of a 1123m³ subsea release of condensate over 1 hour following a pipeline rupture loss of containment incident at the MLA500 pipeline. The results were calculated from 100 spill trajectories and represent annual conditions (RPS, 2025)

Table D-31 lists the identified receptors that have been predicted to be impacted by the hydrocarbon spill. The predicted timeframes until impact have been grouped. Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025) for more details.

Table D-31 Summary of receptors that are predicted to be impacted in the modelled scenarios and the approximate timeframe until contact

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
MLA500 pipeline						
Minimum time to oil exposure on sea surface at moderate threshold	Biologically Important Area	Antipodean albatross - Foraging	-	-	-	-
		Black-browed albatross - Foraging**	✓	-	-	-
		Bullers albatross - Foraging**	✓	-	-	-
		Campbell albatross - Foraging**	✓	-	-	-
		Common diving-petrel - Foraging**	✓	-	-	-
		Indian yellow-nosed albatross - Foraging**	✓	-	-	-
		Pygmy blue whale - Foraging**	✓	-	-	-
		Short-tailed shearwater - Foraging	-	-	-	-
		Shy albatross - Foraging likely**	✓	-	-	-
		Wandering albatross - Foraging**	✓	-	-	-
		White shark – Breeding** and Foraging	✓	-	-	-
		White-faced storm-petrel - Foraging	-	-	-	-
		Southern right whale - Migration** and reproduction	✓	-	-	-
	Key Ecological Feature	Upwelling East of Eden**	-	-	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
Minimum time to shoreline accumulation of oil at moderate threshold	Shore	East Gippsland (Victoria)	-	✓	-	-
		Wellington (Victoria)	✓	-	-	-
	Shore Victoria - MPRA	Cape Conran	-	-	✓	-
		Corringle	-	-	✓	-
		Croajingolong - West	-	-	-	-
		Golden Beach	-	-	✓	-
		Lake Tyers Beach	-	✓	-	-
		Lakes Entrance	-	-	✓	-
		Lakes Entrance - West	✓	-	-	-
		Marlo	-	-	✓	-
		Ocean Grange	-	✓	-	-
		Point Hicks	-	-	✓	-
		Sydenham Inlet	-	-	-	-

**The release location resides within the receptor boundaries.

Protection priorities based on sensitivity and predicted consequence (refer to Section 5 of EP), protectable/actionable areas, and minimum time to exposure in this area are:

- Lakes Entrance permanently open river mouth to the Gippsland Lakes being a recognised Ramsar site, marine flora and fauna, marshes, wetlands, estuarine habitat, shorebird/seabird colonies, amenity beaches, surf club, commercial fishing, tourism, dive sites, recreational aquatic activities, waterway amenity access.
- Snowy River permanently open river mouth to the Snowy inlet. Main sensitivities include dunes, marshes, wetlands, shorebird and seabird colonies, estuarine habitats, amenity beach, commercial and recreational fishing/boating, and tourism.

The other potentially contacted areas are primarily sandy beaches or river mouths that are not permanently open.

D4.4 Strategic Net Environmental Benefit Analysis and selection of response options

For each given response strategy, the benefits and relative effectiveness have been considered for the scenario, determining the viability of the strategy based on a net environmental benefit, as found in Table D-32.

Table D-32 Assessment of viability for response strategies, considering the benefits and their effectiveness on the oil type

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
Source control	Stops/minimises the flow of hydrocarbons into to environment.	Only viable option to stop flow of oil to the marine environment.	Yes	✓
Surveillance and monitoring	Although surveillance is not an active intervention to treat or remove oil pollution, it is critical to effective response both in the initial stages of an incident and during ongoing response operations. Outputs can be used to guide decision making on the need for other response strategies.	Surveillance and monitoring can be used to observe the natural break-up and dissipation of a Kipper condensate spill from the MLA500 pipeline without the need for active intervention. Can be used to inform the effectiveness of current response strategies.	Yes	✓
Dispersant application	Dispersants act by allowing hydrocarbons to be mixed into the upper layers of the water column, which accelerates the biodegradation process. This removes oil from the water surface, protecting leeward shorelines and providing benefit to sea-surface air breathing fauna. Use of dispersants may eliminate or minimise oil impacting sensitive resources.	Kipper condensate is a Group 1 hydrocarbon. Group 1 oils are likely to be ≤50μm thick, and spraying dispersant on slicks below this thickness is not recommended. Additionally, condensate is likely to naturally evaporate and disperse readily. Therefore, surface dispersant application would not generally be recommended as a strategy, as application of dispersant to condensate is likely to lead to over-treatment and increase toxicity in the water column. This could also affect or interrupt the natural dispersion processes.	No	×
Containment and recovery	Booms and skimmers contain surface oil where there is a potential threat to environmental sensitivities. This relies on calm sea conditions (<1.8m wave height, <0.75kn current	Kipper condensate from the MLA500 pipeline will be largely removed from the surface through evaporation (75% within the first 24 hours) and is likely to naturally evaporate and disperse readily.	No	×

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
	speed and <20kn wind speed) to collect and adequate deployment timeframes. Targeted containment and recovery can be utilised to reduce impact to sensitive areas such as Lake's Entrance, where access for shoreline protection is limited (see below: protection of sensitive shoreline resources).	Therefore, containment and recovery would collect minimal oil and would not generally be recommended as a strategy for condensate due to minimised efficiency. Additionally, in the Bass Strait Region, sea conditions are likely to be suitable for containment and recovery operations only 50% of the time.		
Shoreline protection and deflection	Booms and skimmers will be deployed to protect environmental sensitivities. Environmental conditions (e.g. strong current, high wave action) limit application.	Condensate released at the MLA500 pipeline may contact the shoreline along the Gippsland. coast, with modelling predicting shortest time of low levels to shore as approximately 0.61 days. TRPs have been developed to guide the protection of sensitive estuary openings and sensitivities along this section of coastline.	Yes	✓
Shoreline clean-up	Last response strategy to remove oil from the environment due to shoreline impact.	Condensate released from the MLA500 pipeline may contact the shoreline along the Gippsland. coast, with modelling predicting shortest time of low levels to shore as approximately 0.61 days. There are various shoreline techniques that are appropriate for this type of hydrocarbon, a shoreline clean-up may be effective for reducing shoreline loadings where access is possible, to be assessed on a case-by-case basis.	Yes	✓
OWR	Consists of hazing/deterrence, relocation, capture,	OWR is likely to be required as a result of extensive shoreline oiling.	Yes	✓

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
	cleaning and rehabilitation of oiled wildlife. May include pre-emptive captive management.	Operational monitoring will be used to inform the need for OWR to be implemented.		

D4.5 Response resources required

The resources required for the scenarios outlined in this QRG for each relevant response strategy are listed in Table D-33.

Table D-33 Resources required for the scenarios outlined in this QRG, for each relevant response strategy, based on the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025)

Response strategy[1]	Resource type	Quantity	Timeframe
Source control	Remotely operated vehicle debris clearing/subsea intervention	1 x remotely operated vehicle and 1 x vessel	Estimated 14 days (from call out request to arrival in Victoria)
		Subsea first response toolkit and 1 x vessel	Deployment timing will depend on equipment availability and transit time. Estimated 7 days (from Perth to BBMT via road transport).
		1 x contract well control specialists (Wild Well Control/OSRL)	Deployment timing will depend on vessel availability and transit time. Estimated 2 days (from Singapore)
	Pipeline de-pressuring and watering out	1 x Competent operators on relevant platform	
	Pipeline repair	Pipeline repair equipment 1 x ROV and 1 x vessel	Available within 45 days Estimated 14 days (from call out request to arrival in Victoria)

Response strategy[1]	Resource type	Quantity	Timeframe
SMV	OSMP O1.1 Weather and sea state	N/A	N/A
	OSMP O1.2 Trajectory estimation	1 x contracted modeller	Within 4 hours
	OSMP Module O1.3 and O4.1 Aerial surveillance	1x observer per aircraft Aircraft to have 100nm range and 3-hour duration	Initial overflight <4 hours service requested. Trained observer <12 hours of spill occurring
	OSMP Module O1.4 Tracking buoy	2 x STBs available	Deployed <12 hours of spill occurring (dependent on weather conditions) (Level 2 and 3 spill)
	OSMP O1.5 Satellite imagery	1 x contract	<24 hours
	OSMP Module O2.1 and O2.3 Water and oil sampling	1 x vessel 1 x initial sampling kit 1 x contract with laboratory	Samples obtained <24 hours of spill occurring Analysis initiated <24 hours of receipt in laboratory
Protection of sensitive shoreline resources[2]	Boom	2 x shore seal boom (25m) 26 x near shore boom (25m) 1 x offshore booming system (200m Ro-boom) or 1 x enhanced booming system (e.g. current buster)	One initial strike team to arrive within 24 hours.
	Anchor kits	9	
	Skimming systems	2	
	Shoreline deployment kits	2	

Response strategy[1]	Resource type	Quantity	Timeframe
	Temporary waste storage	10	
	Vessels	1 x offshore/near shore (for offshore boom) 1 x nearshore booming 1 x workboat (personnel/equipment transport) 1 x shallow draft 2 x oil recovery vessels	
	Vehicles	1 x utility task vehicle/all-terrain vehicle	
	Personnel	63 (4 x site supervisor, 11 x trained responders, 48 x general labourers)	
Shoreline clean-up[3]	Shovels	160	One initial strike team within 24 hours. 16 strike teams in total
	Rakes	160	
	Flushing systems	32	
	Skimmer systems	16	
	Shoreline booming/ancillaries	Various	
	Personnel	176 (16 x team leaders, 160 x responders)	
OWR[4]	Personnel	Up to 93 personnel (4 IMT, 19 team leaders/specialist staff, 70 team members)	4 x specialised operators within 5 days
	OWR first strike kit	1	DEECA will make the decision to stand up additional resources which are based in Victoria. Available <24 hours from request for services.
	Intermediate bulk container	2	
	Response tool	1	
	Utility task vehicle/all-terrain vehicle	2	
	1 x vessel – personnel/equipment	1	

[1] Calculated resources requirement are for planning purposes only. Actual response strategies and resource need to be determined in consultation with the State Control Agency.

[2] Resources for shoreline protection and deflection are based on the relevant TRP with the highest number of resources required. In this QRG, this is Snowy River TRP, in Victoria. Based on maximum length of shoreline impacted at 100g/m^3 or greater.

[3] Resources for shoreline clean-up are based on the assumption of a manual clean-up rate of 1m^3 per person, per day. Therefore, a strike team of 10 people (excluding team leaders) would recover approximately 10m^3 of oiled waste per day. Based on peak volume of shoreline accumulation of 10g/m^3 or greater.

[4] The list of OWR resources required considers that the magnitude, and therefore resources required, of a potential wildlife impact can be determined through the use of the evaluation tool in the WAOWRP.

D4.6 Relevant Tactical Response Plans

In the event of an incident, Esso can refer to TRPs which have been developed by Esso for selected areas of shoreline along Victorian, NSW, and Tasmanian coastlines. These outline information about the specific locations, including site description, access, main sensitivities, and other response-relevant details. The TRPs that are relevant to this QRG can be found in Table D-34.

Table D-34 List of relevant TRPs produced by Esso for the coastal areas predicted to be impacted at moderate threshold or above (RPS, 2025)

Victoria
• Merriman Creek – Seaspray • Lakes Entrance • Lake Bunga – Lakes Entrance • Lake Tyers • Yeerung river – Cape Conran • Snowy River – Marlo • Tamboon Inlet – Bemm River/Point Hicks • Wingan Inlet – Point Hicks • Thurra River – Point Hicks • Mueller River – Point Hicks

D4.7 Oil spill monitoring

Table D-35 and Table D-36 summarise the probability of receptors coming into contact with both dissolved oil and entrained oil during production from the MLA500 pipeline. Additional information can be found in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-35 Probability of receptors coming into contact with dissolved hydrocarbons in the 0-10m depth layer below the sea surface at a moderate threshold (50 - 400ppb), for Base Business activities along the MLA500 pipeline (RPS, 2025)

Probability	MLA500
>90%	N/A
75% - 90%	N/A
50% - 75%	N/A
25% - 50%	Biologically Important Area: • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging

Probability	MLA500
	• Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • White shark - Breeding (nursery area) • Southern right whale – Migration IMCRA: • Twofold Shelf • Southeast Shelf Transition Marine Reserve: • South-east (Marine) National Resource Management Regions: • West Gippsland State waters: • Victoria
10% - 25%	N/A
<10%	Biologically Important Area: • White-faced storm-petrel – Foraging • Southern right whale – Reproduction Key Ecological Feature: • Upwelling East of Eden National Resource Management Regions: • East Gippsland Shore: • East Gippsland Shore Victoria - MPRA: • Marlo

Table D-36 Probability of receptors coming into contact with entrained oil at a low threshold (≤10ppb), during Base Business activities along the MLA500 pipeline (RPS, 2025)

Probability	MLA500
>90%	Biologically Important Area: • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging

Probability	MLA500
	• White shark - Breeding (nursery area) • Southern right whale – Migration • Southern right whale – Reproduction IMCRA: • Twofold Shelf • Southeast Shelf Transition Marine Reserves: • South-east (Marine) National Resource Management Regions: • West Gippsland State waters: • Victoria
75% - 90%	Key Ecological Feature: • Upwelling East of Eden Shore: • East Gippsland
50% - 75%	National Resource Management Regions: • East Gippsland Shore: • Wellington Shore Victoria - MPRA: • Lakes Entrance - West
25% - 50%	Biologically Important Area: • Antipodean albatross – Foraging • White-faced storm-petrel – Foraging Shore Victoria - MPRA: • Corringle • Lake Tyers Beach • Lakes Entrance • Marlo • Ocean Grange
10% - 25%	Biologically Important Area: • Short-tailed shearwater – Foraging • White shark - Foraging Marine National Park: • Point Hicks Marine Sanctuary:

Probability	MLA500
	• Beware Reef Reefs, Shoals and Banks: • Beware Reef Shore Victoria - MPRA: • Cape Conran • Golden Beach • Point Hicks • Sydenham Inlet
<10%	Biologically Important Area: • Humpback whale - Migration (north and south) • Little penguin – Foraging • Wedge-tailed shearwater – Foraging IBRA: • South East Corner IMCRA: • Southeast Transition Reefs, Shoals and Banks: • New Zealand Star Bank Shore Victoria - MPRA: • Croajingolong – West • Seaspray

Sufficient resources are available to undertake monitoring and these are detailed in the Operational and Scientific Monitoring Program. Modelling indicates that the spill does intersects the coastline within 24 hours. In the unlikely event of a spill, should trajectory modelling predict shoreline contact, sufficient resources are available to be initiated within 24 hours (in most cases sooner). Modules in addition to those required to monitor the spill may be initiated and resources mobilised to priority monitoring locations as determined at the time.

Appendix D-5 Quick Reference Guide – Cessation of Production HLA600 pipeline – Kipper condensate

The purpose of this document is to provide information specific to a WCDS for a subsea release of Kipper condensate from HLA600 pipeline during Cessation of Production operations. This document is intended for use by incident responders and during stakeholder consultation activities. The scenarios represent the WCDSs modelled in the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

For further details, refer to the *Bass Strait Oil Pollution Emergency Plan* (AUGO-EV-ELI-001).

D5.1 Field location/oil properties

This QRG applies to Esso's Gippsland Basin operations and project activities, the location of which is detailed in Figure D-19.

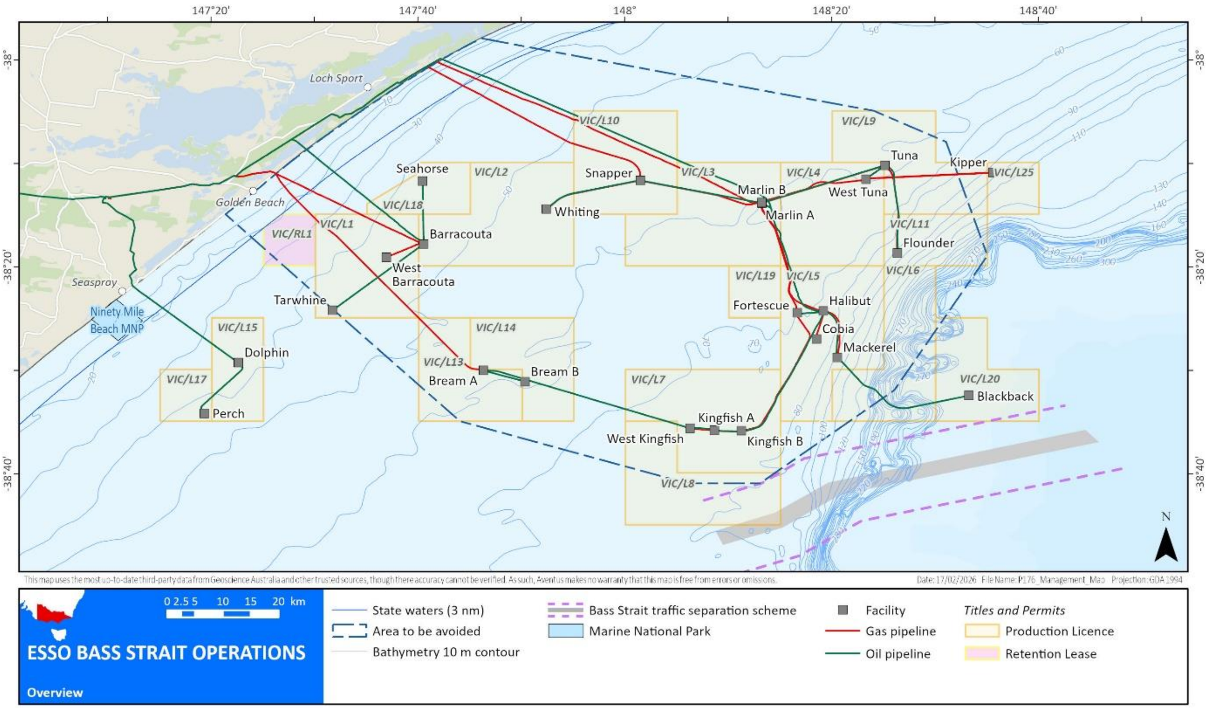


Figure D-19 Location of Bass Strait region and asset locations

Details of the pipeline relevant to this QRG can be found in Table D-37.

The physical properties of Kipper condensate can be referred to in Table D-38, and further details can be found in *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-37 Details of pipeline relevant to this QRG

Name	Licenses	From	To	Nominal OD (mm)	Length (km)
HLA600	VIC/PL5, VIC/PL5(V)	Halibut platform	Shore	600	77

Table D-38 Physical properties of Kipper condensate (RPS, 2025)

Oil type and name	Kipper condensate*
Density	760.0kg/m³ (@15⁰C)
API	54.5
Dynamic viscosity	0.64cP (@15°C)
Pour point	-39°C
Oil property category	Group 1 – non-persistent
Wax content	2.3%
Aromatic Content [1]	13.4%
Volatile (Boiling Point <180°C)	43.2%
Semi-volatile (Boiling Point 180 - 265°C)	30.8%
Low volatility (Boiling Point 265 - 380°C)	23.8%
Residual (BP> 380°C) [2]	2.2%

*Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

[1]Soluble, aromatic, hydrocarbons, (including BTEX), tend to evaporate into the atmosphere.

[2]Residual hydrocarbons will persist in the marine environment. Waxy components may solidify over the annual temperatures observed in the Gippsland Basin.

D5.2 What's the worst that could happen?

A summary of the WCDS for a release from the HLA600 pipeline during Cessation of Production operations is outlined in Table D-39.

Table D-39 A summary of the WCDS for Kipper condensate, for a release from the HLA600 pipeline during Cessation of Production operations, based on the modelling report (RPS, 2025)

	HLA600
Modelled Oil Pollution Scenario* (WCDS)	Level 2 Spill: subsea release of Kipper condensate over 16 days following a pipeline rupture loss of containment incident at the HLA600 pipeline location.
Oil type and name	Kipper condensate
Spill volume	3302m³
Dominant weathering process	Evaporation
Approximate evaporation rate	(depending on temperature)
...within the first 12 hours	65%

	HLA600
...within the first 24 hours	75%
...over several days	76%
Probability of contact to a shoreline receptor at or above the low threshold (10g/m^2)	96% (at East Gippsland)
Minimum time before shoreline accumulation at or above the low threshold (10g/m^2)	0.65 days (at East Gippsland)
Maximum volume ashore from a single spill simulation at or above the low threshold (10g/m^2)	72.7m^3 (at Lakes Entrance - West)
Maximum length of the shoreline	
...at 10g/m^2	78.3km
...at 100g/m^2	N/A
...at 1000g/m^2	3.2 km
Weathering after 7 days	Based on mass balance for condensate using constant 5kn wind speeds at 15°C water temperature
Evaporation	76%
Dissolved	0%
Decay	0%
Entrained in water column	0%
Floating	24%

*Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

D5.3 Exposure – Shoreline

Within this Section, the modelling results for maximum potential shoreline loading are shown in Figure D-20, and the zones of potential floating oil exposure are shown in Figure D-21.

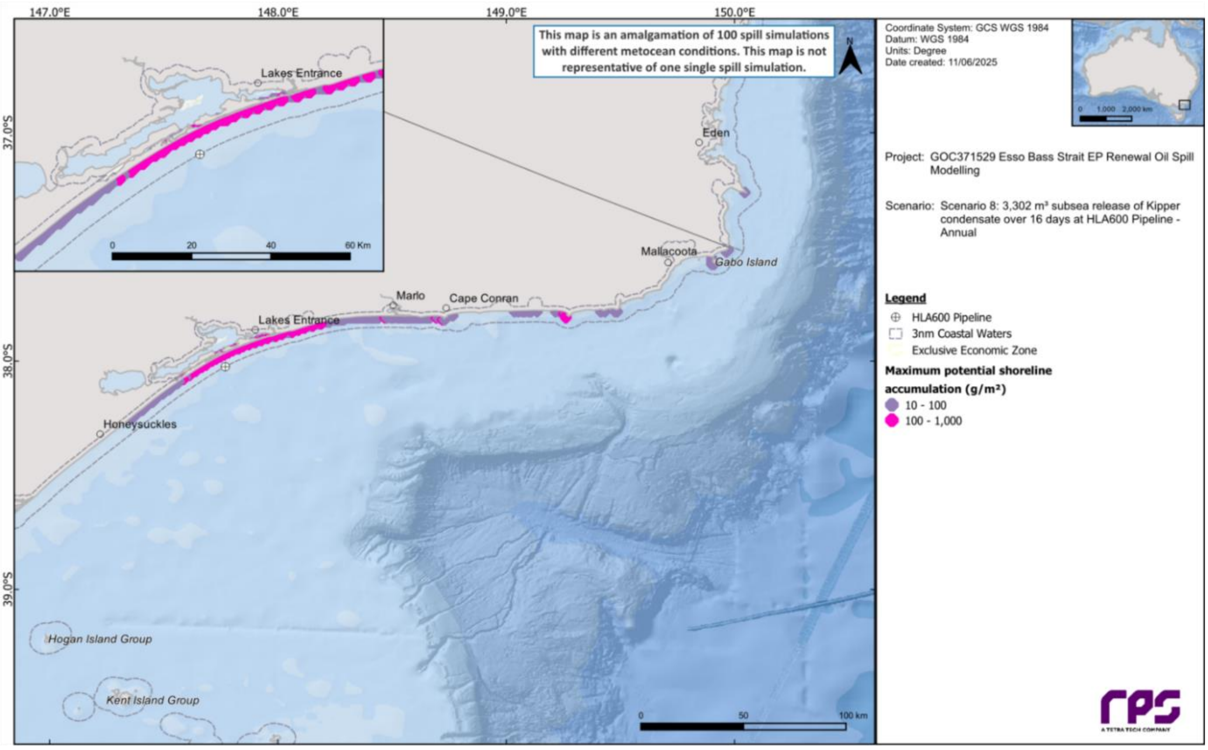


Figure D-20 **Scenario 8 - Maximum potential shoreline loading in the event of a 3302m³ subsea release of condensate over 16 days following a pipeline rupture loss of containment incident at the HLA600 pipeline. The stochastic results were calculated from 100 spill trajectories (RPS, 2025)**

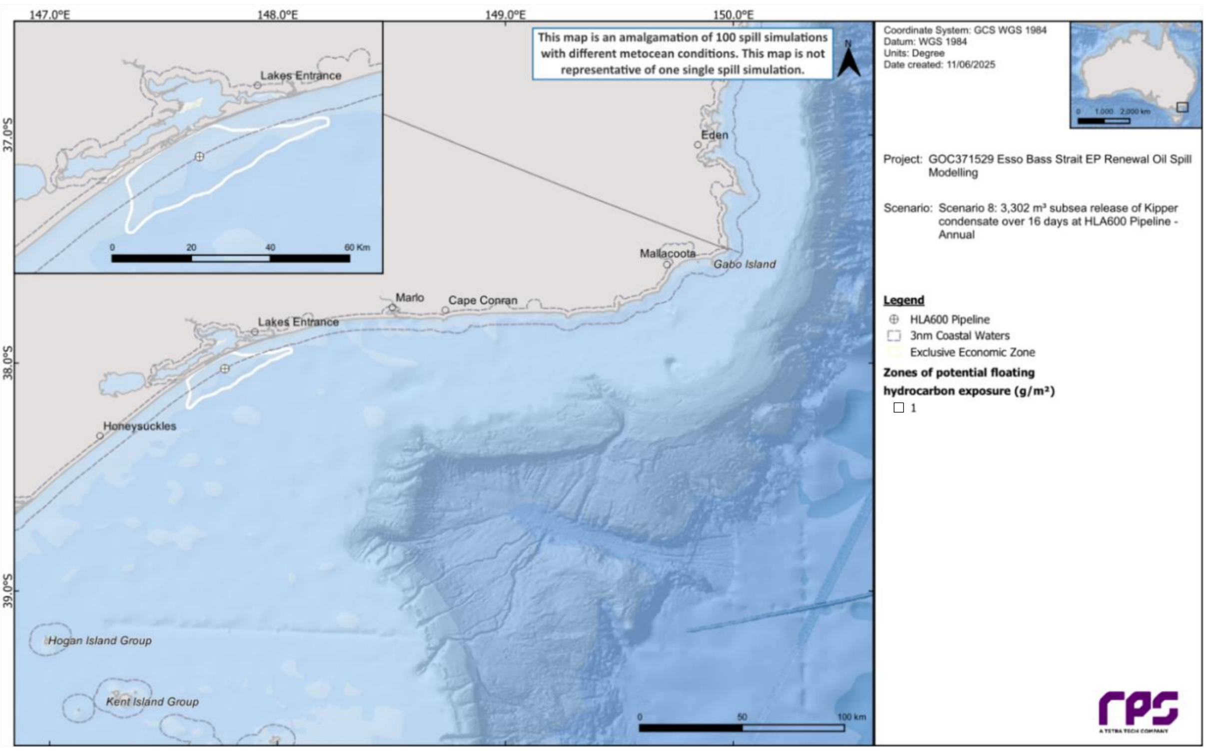


Figure D-21 **Scenario 8 - Zones of potential floating oil exposure in the event of a 3302m³ subsea release of condensate over 16 days following a pipeline rupture loss of containment incident at the HLA600 pipeline. The results were calculated from 100 spill trajectories and represent annual conditions (RPS, 2025)**

Table D-40 lists the identified receptors that have been predicted to be impacted by the hydrocarbon spill. The predicted timeframes until impact have been grouped. Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025) for more details.

Table D-40 Summary of receptors that are predicted to be impacted in the modelled scenarios and the approximate timeframe until contact

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
HLA600 pipeline						
Minimum time to oil exposure on sea surface at moderate threshold	Biologically Important Area	Black-browed albatross - Foraging**	-	-	-	-
		Bullers albatross - Foraging**	-	-	-	-
		Campbell albatross - Foraging**	-	-	-	-
		Common diving-petrel - Foraging**	-	-	-	-
		Indian yellow-nosed albatross - Foraging**	-	-	-	-
		Pygmy blue whale - Foraging**	-	-	-	-
		Shy albatross - Foraging likely**	-	-	-	-
		Wandering albatross - Foraging**	-	-	-	-
		White shark – Breeding** and Foraging	-	-	-	-
		Southern right whale - Migration** and Reproduction	-	-	-	-
	Key Ecological Feature	Upwelling East of Eden**	-	-	-	-
Minimum time to shoreline accumulation of oil at moderate threshold	Shore	Bega Valley (NSW)	-	-	-	-
		Bega Valley -2 (NSW)	-	-	-	-
		East Gippsland (Victoria)	-	✓	-	-
		Gabo Island (Victoria)	-	-	-	-
		Wellington (Victoria)	-	✓	-	-

Receptor			<12 hours	12-48 hours	>48 hours	>1 week
	Shore Local Government Area	Bega Valley Shire Council (NSW)	-	-	-	-
		Gabo Island (Unincorporated) (Victoria)	-	-	-	-
	Shore Victoria - MPRA	Cape Conran	-	-	-	✓(7 days)
		Cape Howe/Mallacoota	-	-	-	-
		Corringle	-	-	-	✓(21 days)
		Croajingolong - West	-	-	-	-
		Golden Beach	-	-	-	-
		Lake Tyers Beach	-	-	-	✓(17 days)
		Lakes Entrance	-	-	-	✓(9 days)
		Lakes Entrance - West	-	✓	-	-
		Marlo	-	-	-	✓(7 days)
		Ocean Grange	-	-	✓	-
		Point Hicks	-	-	✓	-
		Sydenham Inlet	-	-	-	-

**The release location resides within the receptor boundaries.

Protection priorities based on sensitivity and predicted consequence (refer to Section 5 of EP), protectable/actionable areas, and minimum time to exposure in this area are:

- Lakes Entrance permanently open river mouth to the Gippsland Lakes being a recognised Ramsar site, marine flora and fauna, marshes, wetlands, estuarine habitat, shorebird/seabird colonies, amenity beaches, surf club, commercial fishing, tourism, dive sites, recreational aquatic activities, waterway amenity access.
- Snowy River permanently open river mouth to the Snowy inlet. Main sensitivities include dunes, marshes, wetlands, shorebird and seabird colonies, estuarine habitats, amenity beach, commercial and recreational fishing/boating, and tourism.

The other potentially contacted areas are primarily sandy beaches or river mouths that are not permanently open.

D5.4 Strategic Net Environmental Benefit Analysis and selection of response options

For each given response strategy, the benefits and relative effectiveness have been considered for the scenario, determining the viability of the strategy based on a net environmental benefit, as found in Table D-41.

Table D-41 Assessment of viability for response strategies, considering the benefits and their effectiveness on the oil type

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
Source control	Stops/minimises the flow of hydrocarbons into to environment.	Only viable option to stop flow of oil to the marine environment.	Yes	✓
Surveillance and monitoring	Although surveillance is not an active intervention to treat or remove oil pollution, it is critical to effective response both in the initial stages of an incident and during ongoing response operations. Outputs can be used to guide decision making on the need for other response strategies.	Surveillance and monitoring can be used to observe the natural break-up and dissipation of a Kipper condensate spill from the HLA600 pipeline without the need for active intervention. Can be used to inform the effectiveness of current response strategies.	Yes	✓
Dispersant application	Dispersants act by allowing hydrocarbons to be mixed into the upper layers of the water column, which accelerates the biodegradation process. This removes oil from the water surface, protecting leeward shorelines and providing benefit to sea-surface air breathing fauna. Use of dispersants may eliminate or minimise oil impacting sensitive resources.	Kipper condensate is a Group 1 hydrocarbon. Group 1 oils are likely to be ≤50μm thick, and spraying dispersant on slicks below this thickness is not recommended. Additionally, condensate is likely to naturally evaporate and disperse readily. Therefore, surface dispersant application would not generally be recommended as a strategy, as application of dispersant to condensate is likely to lead to over-treatment and increase toxicity in the water column. This could also affect or interrupt the natural dispersion processes.	No	×
Containment and recovery	Booms and skimmers contain surface oil where there is a potential threat to environmental sensitivities.	Kipper condensate from the HLA600 pipeline will be largely removed from the surface through evaporation (75% within the first 24 hours) and is	No	×

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
	This relies on calm sea conditions (<1.8m wave height, <0.75kn current speed and <20kn wind speed) to collect and adequate deployment timeframes. Targeted containment and recovery can be utilised to reduce impact to sensitive areas such as Lake's Entrance, where access for shoreline protection is limited (see below: protection of sensitive shoreline resources).	likely to naturally evaporate and disperse readily. Therefore, containment and recovery would collect minimal oil and would not generally be recommended as a strategy for condensate due to minimised efficiency. Additionally, in the Bass Strait Region, sea conditions are likely to be suitable for containment and recovery operations only 50% of the time.		
Shoreline protection and deflection	Booms and skimmers will be deployed to protect environmental sensitivities. Environmental conditions (e.g. strong current, high wave action) limit application.	Condensate released at the HLA600 pipeline may contact the shoreline along the Gippsland coast, with modelling predicting shortest time of moderate levels to shore as approximately 1 day. TRPs have been developed to guide the protection of sensitive estuary openings and sensitivities along this section of coastline.	Yes	✓
Shoreline clean-up	Last response strategy to remove oil from the environment due to shoreline impact.	Condensate released from the HLA600 pipeline may contact the shoreline along the Gippsland. coast, with modelling predicting shortest time of moderate levels to shore as approximately 1 day. There are various shoreline techniques that are appropriate for this type of hydrocarbon, a shoreline clean-up may be effective for reducing shoreline loadings where access is possible, to be assessed on a case-by-case basis.	Yes	✓
OWR	Consists of hazing/deterrence, relocation, capture, cleaning and rehabilitation of oiled wildlife. May	OWR is likely to be required as a result of extensive shoreline oiling.	Yes	✓

Response option	Benefits	Effectiveness on condensate oil spill	Viable response?	Net benefit?
	include pre-emptive captive management.	Operational monitoring will be used to inform the need for OWR to be implemented.		

D5.5 Response resources required

The resources required for the scenarios outlined in this QRG for each relevant response strategy are listed in Table D-42.

Table D-42 Resources required for the scenarios outlined in this QRG, for each relevant response strategy, based on the *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025)

Response Strategy[1]	Resource Type	Quantity	Timeframe
Source control	Remotely operated vehicle debris clearing/subsea intervention	1 x remotely operated vehicle and 1 x vessel	Estimated 14 days (from call out request to arrival in Victoria)
		Subsea first response toolkit and 1 x vessel	Deployment timing will depend on equipment availability and transit time. Estimated 7 days (from Perth to BBMT via road transport).
		1 x contract well control specialists (Wild Well Control/OSRL)	Deployment timing will depend on vessel availability and transit time. Estimated 2 days (from Singapore)
	Pipeline de-pressuring and watering out	1 x competent operators on relevant platform	
	Pipeline repair	Pipeline repair equipment 1 x ROV and 1 x vessel	Available within 45 days Estimated 14 days (from call out request to arrival in Victoria)
SMV	OSMP O1.1 Weather and sea state	N/A	N/A
	OSMP O1.2 Trajectory estimation	1 x contracted modeller	Within 4 hours
	OSMP Module O1.3 and O4.1 Aerial surveillance	1x observer per aircraft Aircraft to have 100nm range and 3-hour duration	Initial overflight <4 hours service requested. Trained observer <12 hours of spill occurring

Response Strategy[1]	Resource Type	Quantity	Timeframe
	OSMP Module O1.4 Tracking buoy	2 x STBs available	Deployed <12 hours of spill occurring (dependent on weather conditions) (Level 2 and 3 spill)
	OSMP O1.5 Satellite imagery	1 x contract	<24 hours
	OSMP Module O2.1 and O2.3 Water and oil sampling	1 x vessel 1 x initial sampling kit 1 x contract with laboratory	Samples obtained <24 hours of spill occurring Analysis initiated <24 hours of receipt in laboratory
Protection of sensitive shoreline resources[2]	Boom	2 x shore seal boom (25m) 26 x near shore boom (25m) 1 x offshore booming system (200m Ro-boom) or 1 x enhanced booming system (e.g. current buster)	One initial strike team to arrive within 24 hours.
	Anchor kits	9	
	Skimming systems	2	
	Shoreline deployment Kits	2	
	Temporary waste storage	10	
	Vessels	1 x offshore/near shore (for offshore boom) 1 x nearshore booming 1 x workboat (personnel/equipment transport) 1 x shallow draft 2 x oil recovery vessels	
	Vehicles	1 x utility task vehicle/all-terrain vehicle	
	Personnel	63	

Response Strategy[1]	Resource Type	Quantity	Timeframe
		(4 x site supervisor, 11 x trained responders, 48 x general labourers)	
Shoreline clean-up[3]	Shovels	80	One initial strike team to arrive within 24 hours. Eight strike teams in total.
	Rakes	80	
	Flushing systems	16	
	Skimmer systems	8	
	Shoreline booming/ancillaries	Various	
	Personnel	88 (8 x team leaders, 80 x responders)	
OWR[4]	Personnel	Up to 93 personnel (4 IMT, 19 team leaders/specialist staff, 70 team members)	4 x specialised operators within 5 days
	OWR first strike kit	1	DEECA will make the decision to stand up additional resources which are based in Victoria. Available <24 hours from request for services.
	Intermediate bulk container	2	
	Response tool	1	
	Utility task vehicle/all-terrain vehicle	2	
	1 x vessel – personnel/equipment	1	

[1] Calculated resources requirement are for planning purposes only. Actual response strategies and resource need to be determined in consultation with the State Control Agency.

[2] Resources for shoreline protection and deflection are based on the relevant TRP with the highest number of resources required. In this QRG, this is Snowy River TRP, in Victoria. Based on maximum length of shoreline impacted at 100g/m^3 or greater.

[3] Resources for shoreline clean-up are based on the assumption of a manual clean-up rate of 1m^3 per person, per day. Therefore, a strike team of 10 people (excluding team leaders) would recover approximately 10m^3 of oiled waste per day. Based on peak volume of shoreline accumulation of 10g/m^3 or greater.

[4] The list of OWR resources required considers that the magnitude, and therefore resources required, of a potential wildlife impact can be determined through the use of the evaluation tool in the WAOWRP.

D5.6 Relevant Tactical Response Plans

In the event of an incident, Esso can refer to TRPs which have been developed by Esso for selected areas of shoreline along Victorian, NSW, and Tasmanian coastlines. These outline information about the specific locations, including site description, access, main sensitivities, and other response-relevant details. The TRPs that are relevant to this QRG can be found in Table D-43.

Table D-43 List of relevant TRPs produced by Esso for the coastal areas predicted to be impacted at moderate threshold or above (RPS, 2025)

Victoria
• Yeerung river – Cape Conran • Tamboon Inlet – Bemm River/Point Hicks • Wingan Inlet – Point Hicks • Thurra River – Point Hicks • Mueller River – Point Hicks • Gabo Island -Mallacoota • Shipwreck Creek – Mallacoota • Davis Creek – Mallacoota • Betka River – Mallacoota • Mallacoota • Snowy River – Marlo • Merriman Creek – Seaspray • Lakes Entrance • Lake Bunga – Lakes Entrance • Lake Tyers

D5.7 Oil spill monitoring

Table D-44 summarises the probability of receptors coming into contact with entrained condensate during activities along the HLA600 pipeline. No dissolved oil was predicted within the 0-10m depth layer below the sea surface, at a moderate threshold for the scenario. Additional information can be found in *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025).

Table D-44 Probability of receptors coming into contact with entrained oil at a low threshold (≤10ppb), during Cessation of Production activities along the HLA500 pipeline (RPS, 2025)

Probability	HLA600
>90%	Biologically Important Area: • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Foraging • Shy albatross - Foraging likely • Wandering albatross – Foraging • White shark - Breeding (nursery area) • Southern right whale – Migration • Southern right whale – Reproduction IMCRA: • Twofold Shelf • Southeast Shelf Transition Key Ecological Feature: • Upwelling East of Eden Marine Reserve: • South-east (Marine)

Probability	HLA600
	National Resource Management Regions: • East Gippsland • West Gippsland Shore: • East Gippsland
75% - 90%	Biologically Important Area: • White-faced storm-petrel – Foraging Shore Victoria - MPRA: • Lakes Entrance – West State waters: • Victoria
50% - 75%	Biologically Important Area: • Antipodean albatross – Foraging • White shark – Foraging Marine National Park: • Point Hicks Shore: • Wellington Shore Victoria - MPRA: • Corringle • Lake Tyers Beach • Lakes Entrance • Marlo • Ocean Grange • Point Hicks
25% - 50%	Biologically Important Area: • Short-tailed shearwater – Foraging Shore Victoria - MPRA: • Cape Conran • Croajingolong – West • Sydenham Inlet
10% - 25%	Biologically Important Area: • Little penguin – Foraging • Wedge-tailed shearwater – Foraging Marine National Park: • Cape Howe Marine Sanctuary: • Beware Reef

Probability	HLA600
	Reefs, Shoals, and Banks: • Beware Reef Shore: • Gabo Island Shore Local Government Area: • Gabo Island Shore Victoria - MPRA: • Cape Howe/Mallacoota • Golden Beach
<10%	Biologically Important Area: • Grey nurse shark – Migration • Humpback whale - Migration (north and south) • Indo-Pacific/spotted bottlenose dolphin – Breeding • Sooty shearwater – Foraging IBRA: • South East Corner IMCRA: • Southeast Transition Marine National Park: • Ninety Mile Beach National Resource Management Regions: • South East NSW Reefs, Shoals and Banks: • New Zealand Star Bank State waters: • NSW

Sufficient resources are available to undertake monitoring, and these are detailed in the Operational and Scientific Monitoring Program. Modelling indicates that the spill does intersect the coastline within 24 hours. In the unlikely event of a spill, should trajectory modelling predict shoreline contact, sufficient resources are available to be initiated within 24 hours. Modules in addition to those required to monitor the spill may be initiated and resources mobilised to priority monitoring locations as determined at the time.

Appendix D-6 Quick Reference Guide – Operations – Marine diesel oil vessels

The purpose of this document is to provide information specific to MDO loss of containment scenarios, following vessel collision during operations. This document is intended for use by incident responders and during stakeholder consultation activities. The scenarios represent those modelled in the *Gippsland Basin Vessel Activities Oil Spill Modelling* (RPS, 2019)).

For further details, refer to the *Bass Strait Oil Spill Emergency Plan* (AUGO-EV-ELI-001).

D6.1 Field location/oil properties

This QRG applies to Esso's Gippsland Basin operations and project activities, the location of which is detailed in Figure D-22.

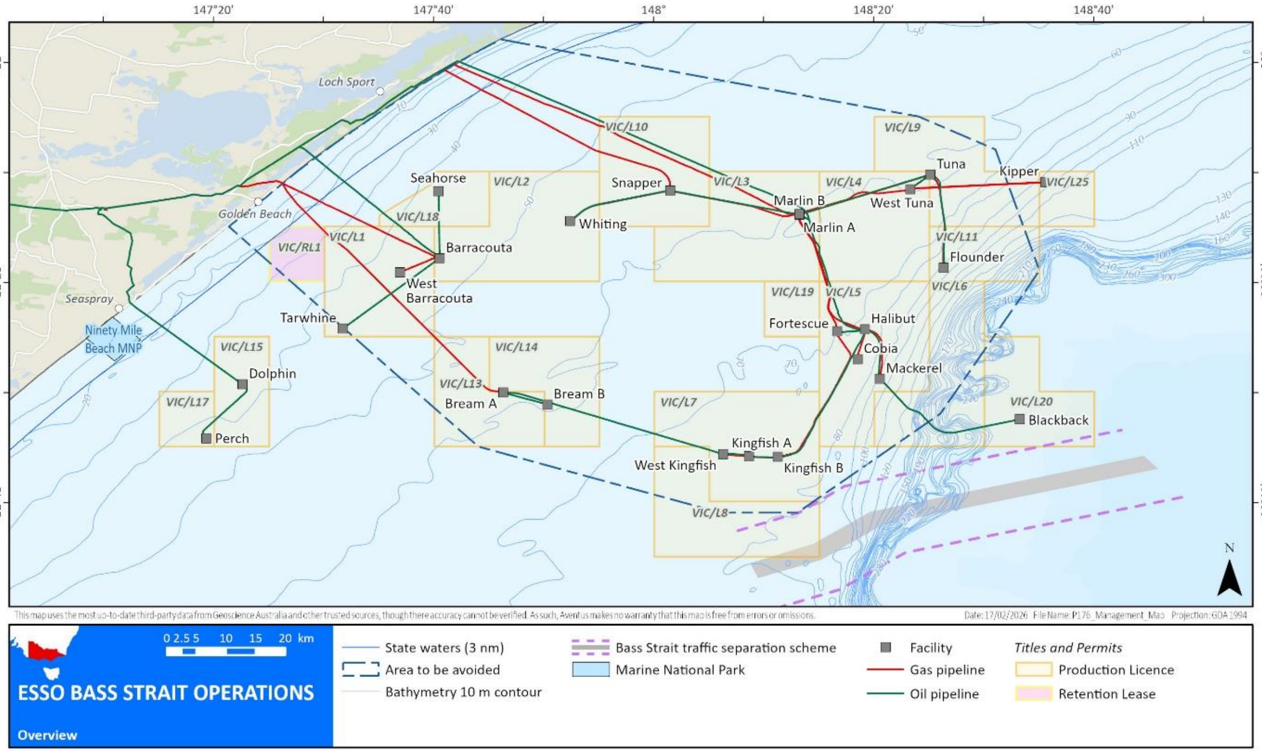


Figure D-22 Location of Bass Strait region and asset locations

Details of the facilities relevant to this QRG can be found in Table D-45.

The physical properties of MDO can be referred to in Table D-46, and further details can be found in the *Gippsland Basin Vessel Activities Oil Spill Modelling* (RPS, 2019).

Table D-45 Details of facilities relevant to this QRG

Facility	Licence	Coordinates	
		Latitude	Longitude
West Kingfish platform	VIC/L07	38° 35′ 39" S	148° 06′ 15" E
Perch monotower	VIC/L17	38° 34′ 15" S	147° 19′ 16″ E
Barracouta platform	VIC/L02	38° 17′ 53" S	147° 40′ 28" E

Facility	Licence	Coordinates	
		Latitude	Longitude
Kipper subsea facility	VIC/L25	38° 10′ 53″ S	148° 35′ 35″ E
Halibut platform	VIC/L05	38° 24′ 15″ S	148° 19′ 12″ E

Table D-46 Physical properties of MDO (RPS, 2019)

Oil type and name	MDO*
Density	829.0kg/m^3 (@25⁰C)
API	37.6
Dynamic viscosity	4.0cP (@25°C)
Pour point	-14°C
Oil property category	Group 2 – light-persistent
Wax content	
Aromatic Content [1]	
Volatile (Boiling Point <180°C)	6%
Semi-volatile (Boiling Point 180 - 265°C)	34.6%
Low volatility (Boiling Point 265 - 380°C)	54.4%
Residual (BP> 380°C) [2]	5%

*Refer to *Gippsland Basin Vessel Activities Oil Spill Modelling* (RPS, 2019) .

[1]Soluble, aromatic, hydrocarbons, (including BTEX), tend to evaporate into the atmosphere.

[2]Residual hydrocarbons will persist in the marine environment. Waxy components may solidify over the annual temperatures observed in the Gippsland Basin.

D6.2 What's the worst that could happen?

A summary of five WCDS following a release of MDO from vessel collisions is outlined in Table D-44.

Table D-47 A summary of five WCDS for MDO, following vessel collisions during operations, based on the *Gippsland Basin Vessel Activities Oil Spill Modelling* (RPS, 2019))

	West Kingfish	Perch	Barracouta	Kipper	Halibut
Modelled Oil Pollution Scenario* (WCDS)	Level 2 Spill: surface release of MDO over 6 hours in the event of a loss of containment following a vessel collision.				
Oil type and name	MDO				

	West Kingfish	Perch	Barracouta	Kipper	Halibut
Spill volume	$280m^3$				$220m^3$
Release rate (m3/h)	46.7				36.7
Dominant weathering process	Evaporation				
Probability of contact to a shoreline receptor at or above the low threshold ($10g/m^2$)	0%	2% (at Wellington) and 1% (at Woodside Beach)	4% (at Wellington), 2% (at Ocean Grange), and 2% (at Seaspray)	0%	0%
Minimum time before shoreline accumulation at or above the low threshold ($10g/m^2$)	0 days	1.2 days (at Wellington and Woodside Beach)	2 days (at Wellington and Ocean Grange)	0 days	0 days
Maximum volume ashore from a single spill simulation at or above the low threshold ($10g/m^2$)	$0m^3$	$28.1m^3$ (at Wellington and Woodside Beach)	$25.1m^3$ (at Wellington and Ocean Grange)	$0m^3$	$0m^3$
Maximum length of the shoreline					
...at $10g/m^2$	N/A	24km	16km	N/A	N/A
...at $100g/m^2$	N/A	14km	9km	N/A	N/A
...at $1000g/m^2$	N/A	N/A	N/A	N/A	N/A
Approximate weathering after 30 days	Based on the deterministic analysis				
Evaporation	40-89%				
Decay	5-31%				
Entrained in water column	5-22%				

	West Kingfish	Perch	Barracouta	Kipper	Halibut
Ashore	0-8%				

*Refer to *Gippsland Basin Vessel Activities Oil Spill Modelling* (RPS, 2019).

D6.3 Exposure – Shoreline

Within this section, the modelling results for maximum potential shoreline loading, and the zones of potential floating oil exposure are shown for each scenario. As West Kingfish, Kipper and Halibut models predicted no shoreline contact above the 10g/m^2 threshold, no figures have been included for these scenarios.

D6.3.1 West Kingfish

No shoreline contact was predicted in this scenario. Figure D-23 demonstrates the zones of potential oil exposure for an MDO spill scenario from the West Kingfish platform.

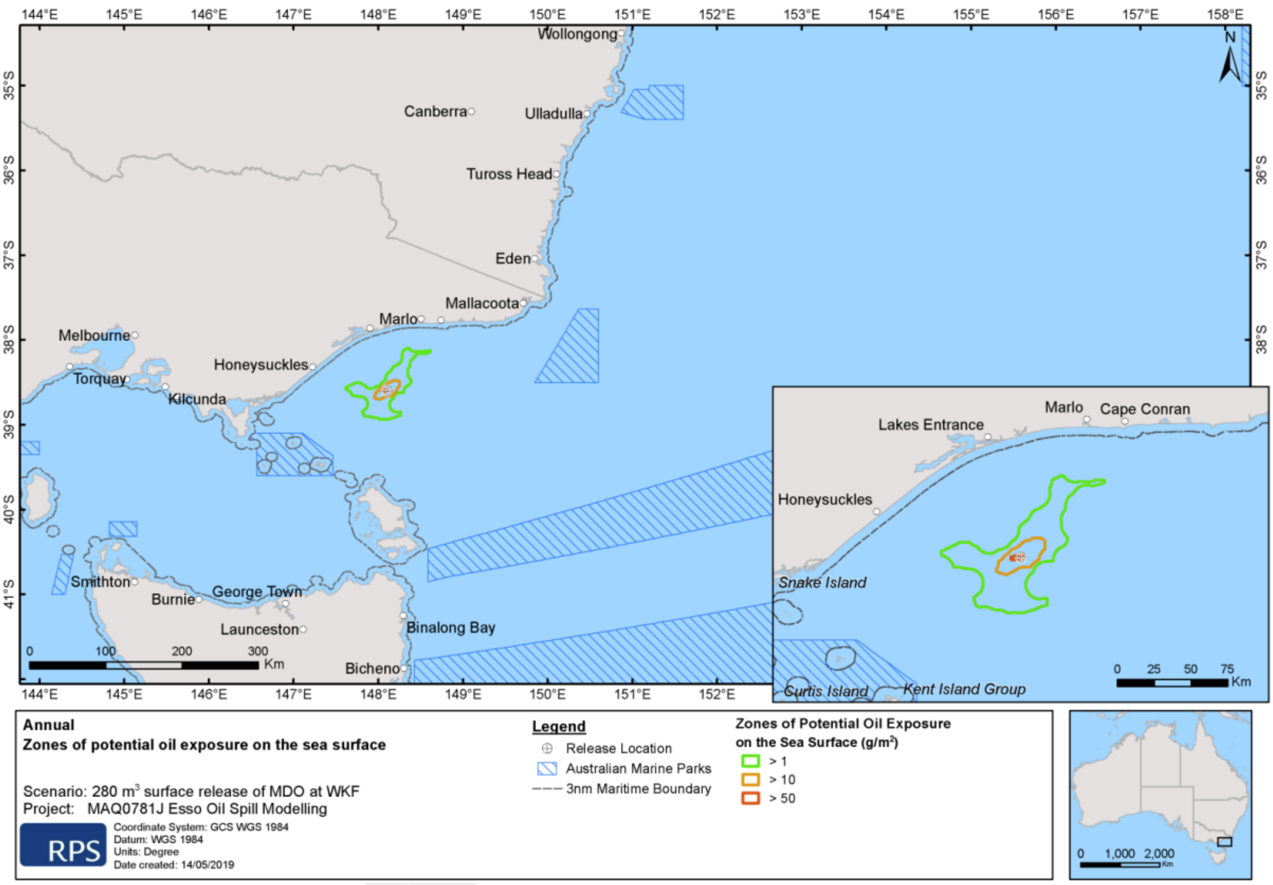


Figure D-23 Zones of potential oil exposure on the sea surface, in the event of a 280m^3 surface release of MDO over 6 hours at West Kingfish, tracked for 30 days. The results were calculated from 100 spill trajectories

D6.3.2 Perch

Figure D-24 shows the maximum potential shoreline loading results, and Figure D-25 demonstrates the zones of potential oil exposure for an MDO spill scenario from the Perch platform.

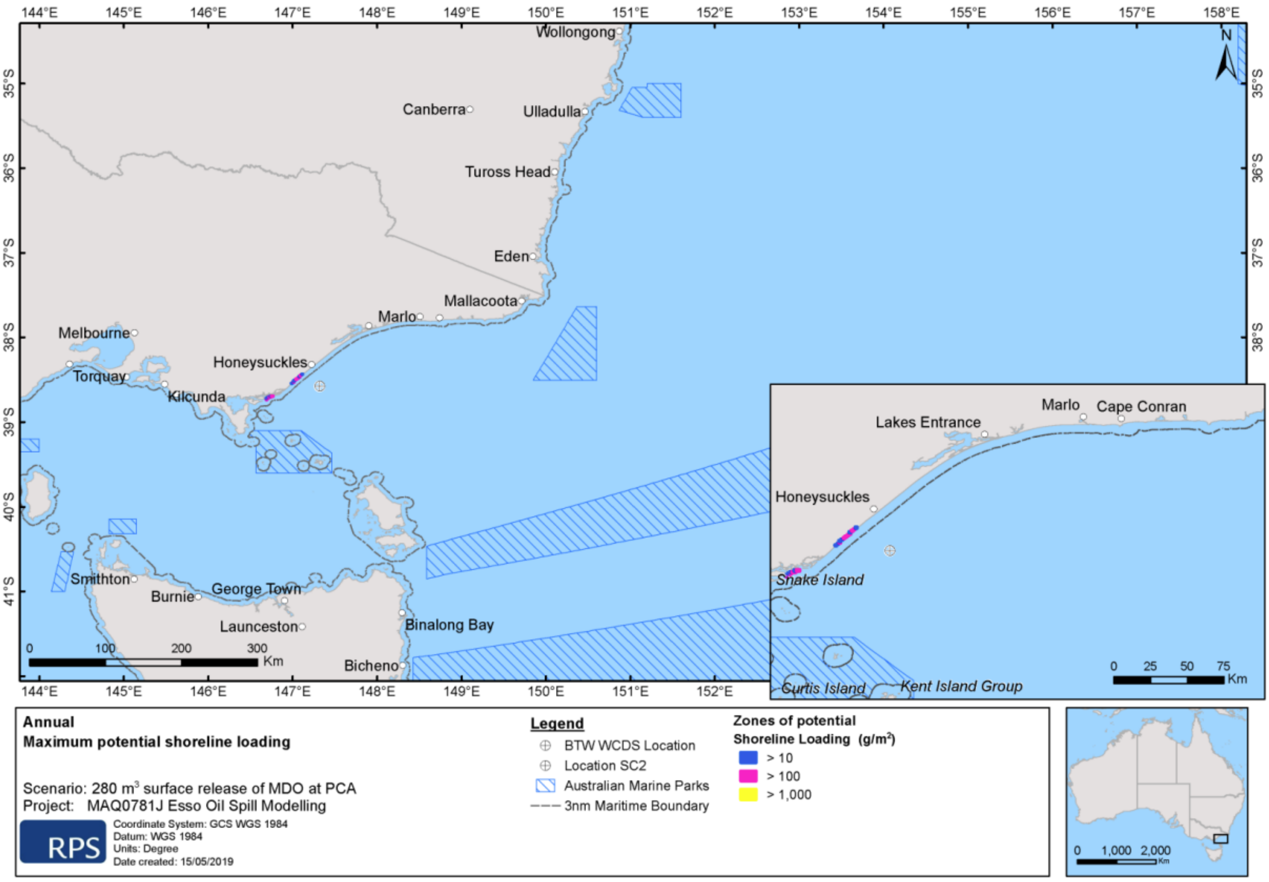


Figure D-24 **Maximum potential shoreline loading for the low (≥10g/m²), moderate (≥100g/m²) and high (≥1000g/m²) thresholds. Results were based on a 280m³ surface release of MDO over 6 hours at the Perch monotower, tracked for 30 days. The results were calculated from 100 spill trajectories**

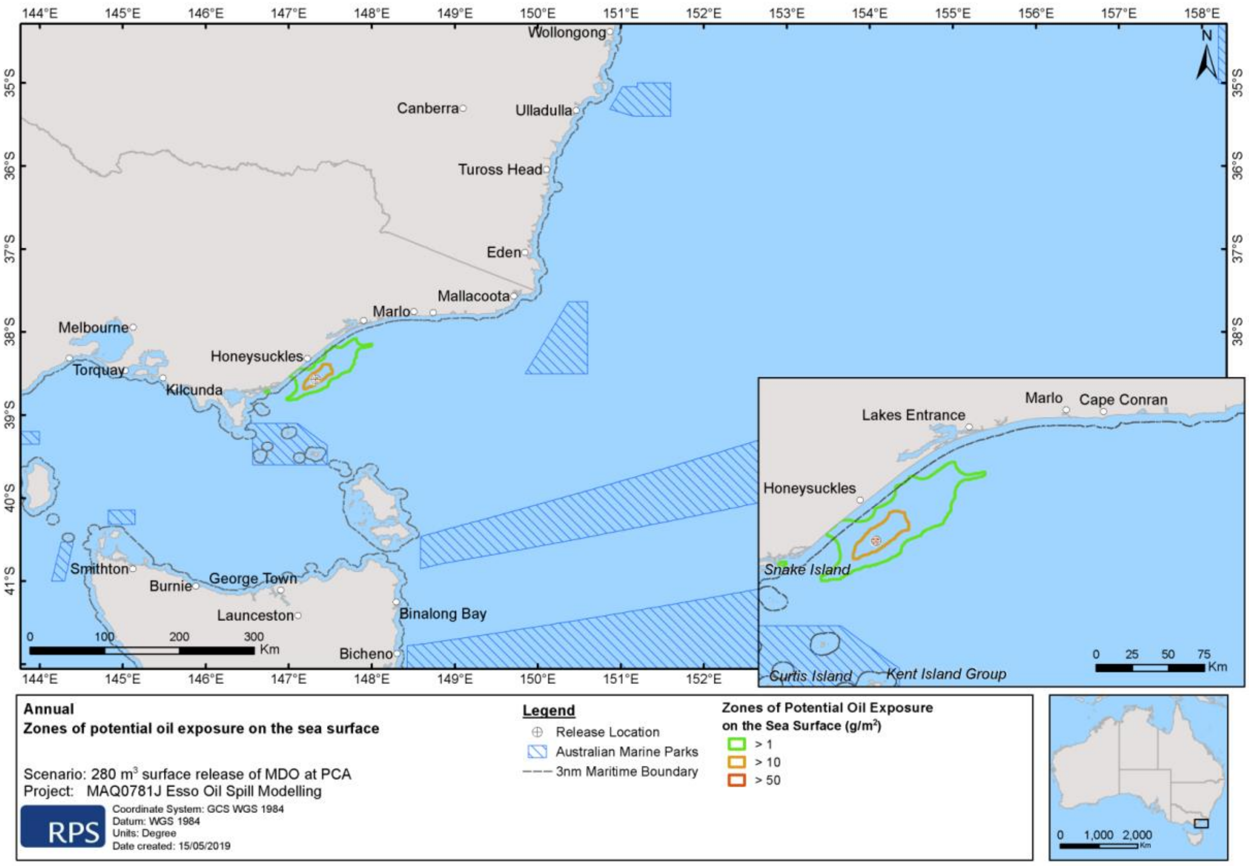


Figure D-25 Zones of potential oil exposure on the sea surface, in the event of a 280m³ surface release of MDO over 6 hours at the Perch monotower, tracked for 30 days. The results were calculated from 100 spill trajectories

D6.3.3 Barracouta

Figure D-26 shows the maximum potential shoreline loading results, and Figure D-27 demonstrates the zones of potential oil exposure for an MDO spill scenario from the Barracouta platform.

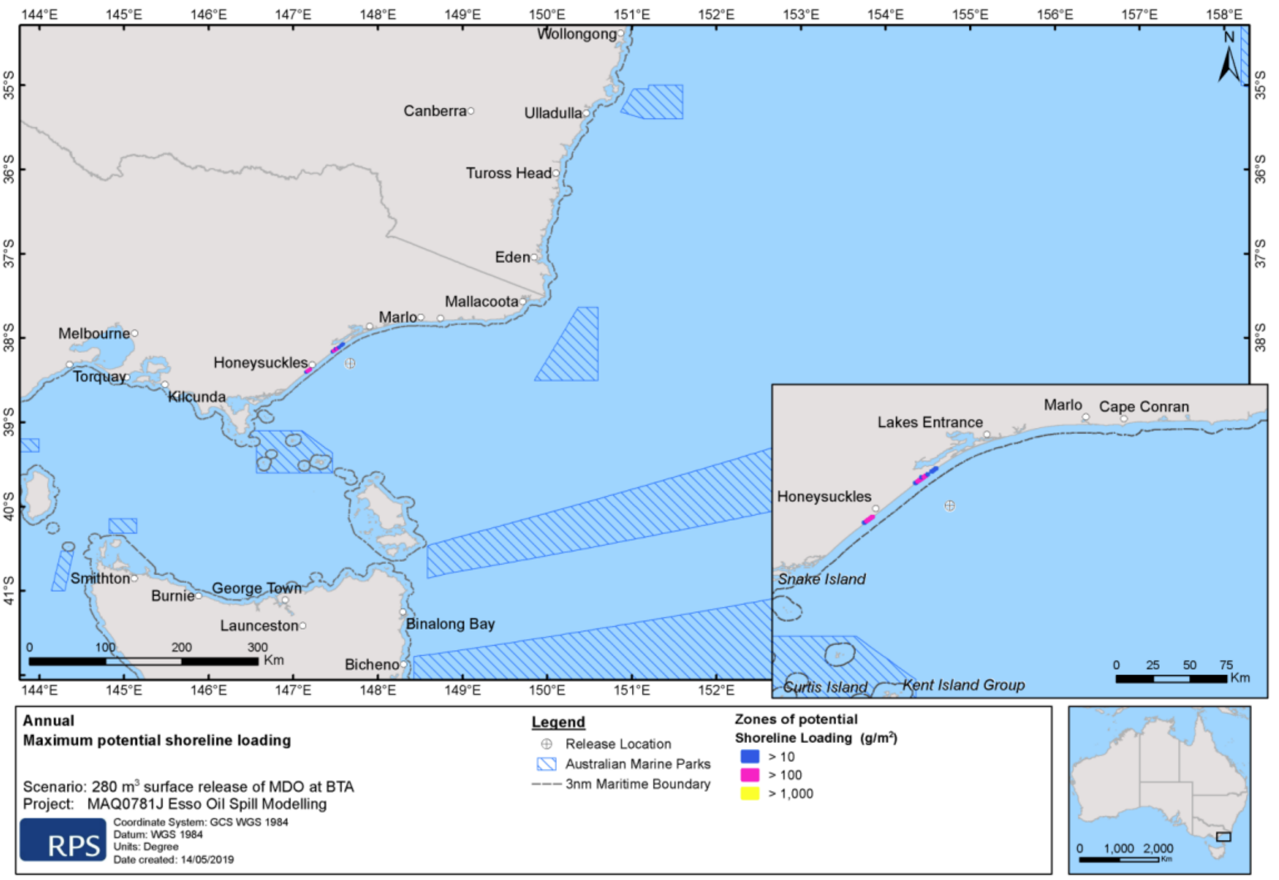


Figure D-26 Maximum potential shoreline loading for the low (≥10g/m²), moderate (≥100g/m²) and high (≥1000g/m²) thresholds. Results were based on a 280m³ surface release of MDO over 6 hours at the Barracouta platform, tracked for 30 days. The results were calculated from 100 spill trajectories

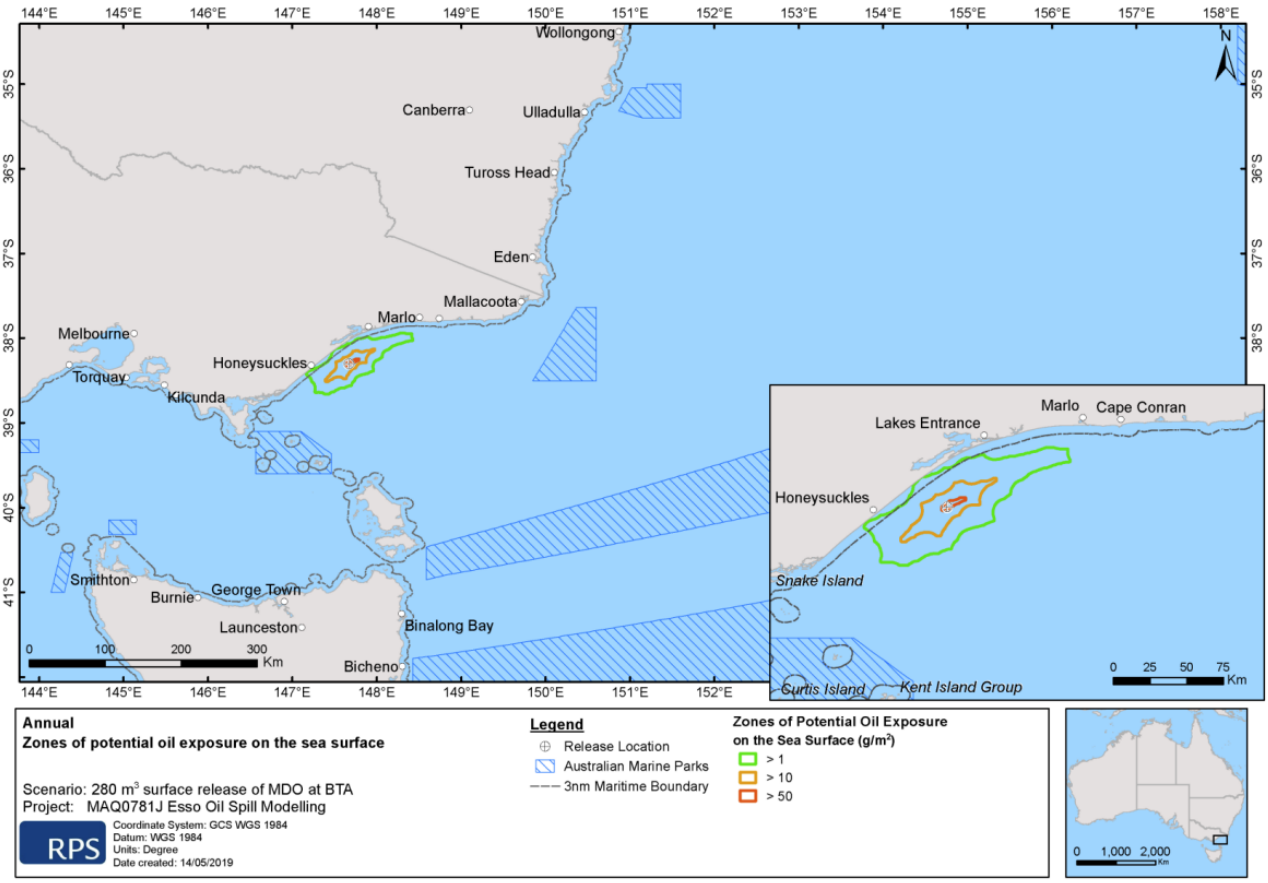


Figure D-27 Zones of potential oil exposure on the sea surface, in the event of a 280m^3 surface release of MDO over 6 hours at the Barracouta platform, tracked for 30 days. The results were calculated from 100 spill trajectories

D6.3.4 Kipper

No shoreline contact was predicted in this scenario. Figure D-28 demonstrates the zones of potential oil exposure for an MDO spill scenario from the Kipper subsea facility.

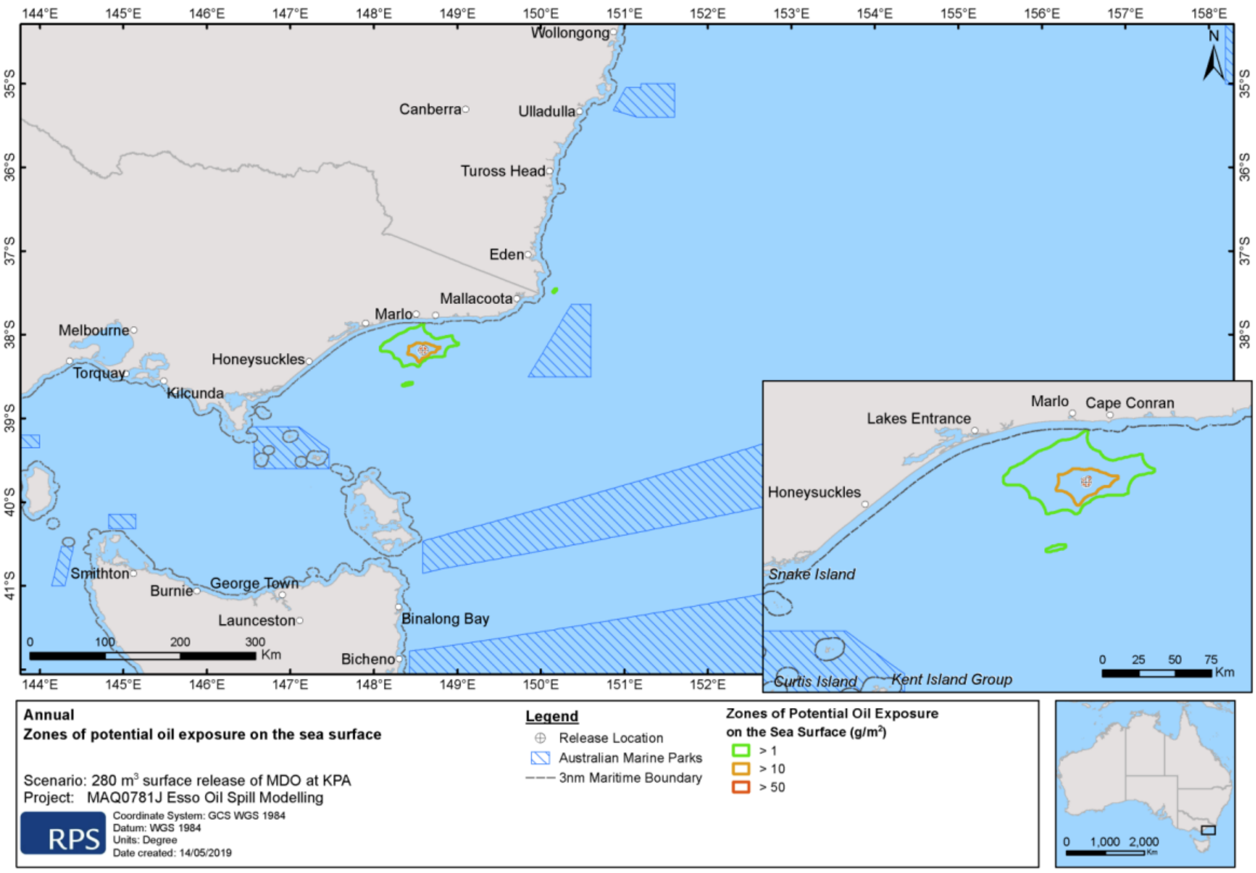


Figure D-28 Zones of potential oil exposure on the sea surface, in the event of a 280m³ surface release of MDO over 6 hours at the Kipper, tracked for 30 days. The results were calculated from 100 spill trajectories

D6.3.5 Halibut

No shoreline contact was predicted in this scenario. Figure D-29 demonstrates the zones of potential oil exposure for an MDO spill scenario from the Halibut platform.

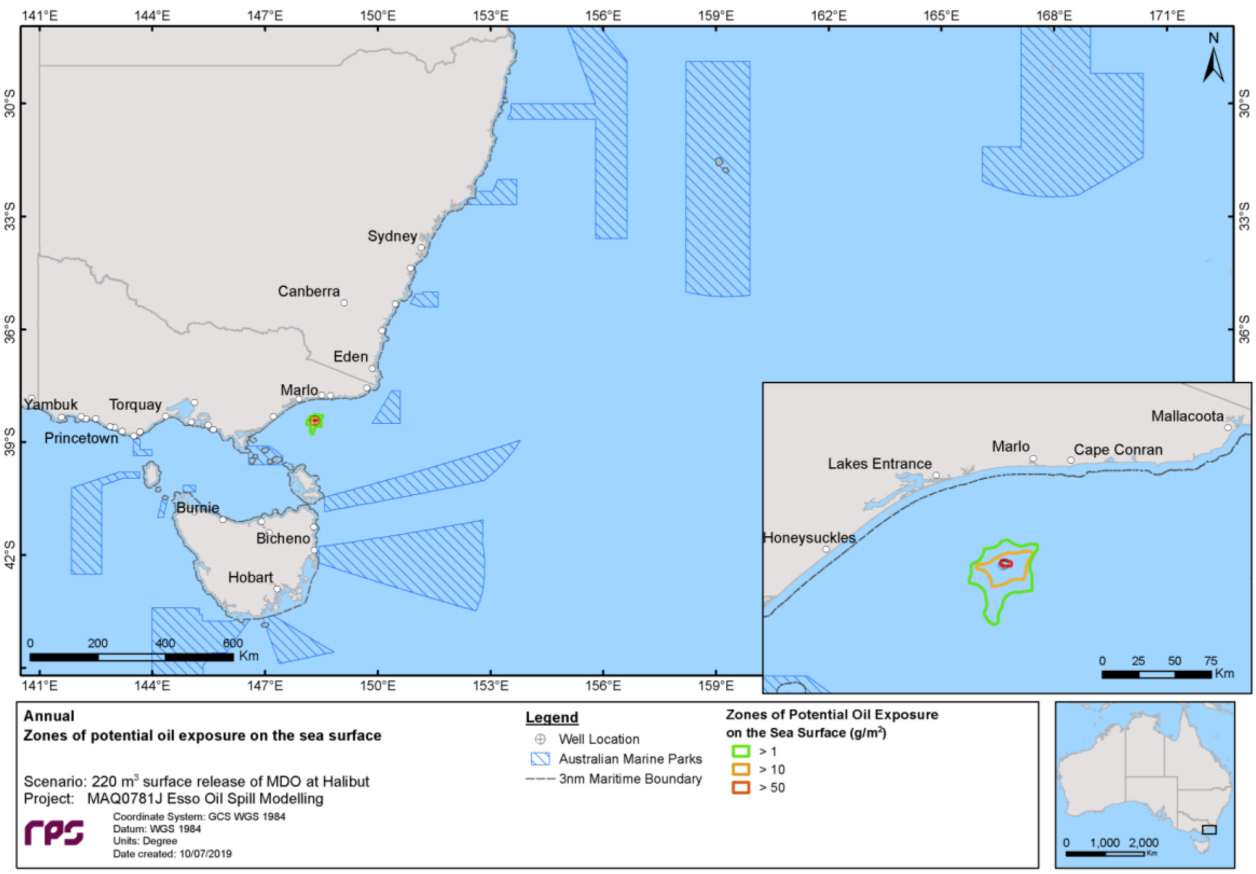


Figure D-29 Zones of potential oil exposure on the sea surface, in the event of a 220m^3 surface release of MDO over 6 hours at the Halibut platform, tracked for 20 days. The results were calculated from 100 spill trajectories

D6.4 Impacted receptors

Table D-48 lists the identified receptors that have been predicted to be impacted by the hydrocarbon spill. The predicted timeframes until impact have been grouped. Refer to *Bass Strait Environmental Plan Renewal Oil Spill Modelling* (RPS, 2025) for more details.

Table D-48 Summary of receptors that are predicted to be impacted in the modelled scenarios and the approximate timeframe until contact

	Receptor		<12 hours	12-48 hours	>48 hours	>1 week
Various MDO scenarios						
Minimum time to oil exposure on sea surface at moderate threshold	Biologically Important Area	Antipodean albatross - Foraging	✓*	-	-	-
		Black-browed albatross - Foraging**	✓*	-	-	-
		Bullers albatross - Foraging**	✓*	-	-	-
		Campbell albatross - Foraging**	✓*	-	-	-

	Receptor		<12 hours	12-48 hours	>48 hours	>1 week
		Common diving-petrel - Foraging**	✓*	-	-	-
		Humpback whale – Foraging**	-	-	-	-
		Indian yellow-nosed albatross - Foraging**	✓*	-	-	-
		Pygmy blue whale – Distribution and Foraging**	✓*	-	-	-
		Short-tailed shearwater – Foraging**	✓*	-	-	-
		Shy albatross - Foraging**	✓*	-	-	-
		White-faced storm-petrel - Foraging	-	✓*	-	-
		Wandering albatross - Foraging**	✓*	-	-	-
		Wedge-tailed shearwater – Foraging**	-	-	-	-
		White shark – Breeding and distribution	✓*	-	-	-
		Southern right whale - Migration**	✓*	-	-	-
	Key Ecological Feature	Upwelling East of Eden**	✓*	-	-	-
	Exclusive Economic Zone	Australian Exclusive Economic Zone	✓*	-	-	-
Minimum time to shoreline accumulation of oil at moderate threshold	Shore	Wellington (Victoria)	-	✓*	-	-
		Ocean Grange	-	-	✓*	-
		Seaspray	-	-	✓*	-
	Marine National Park	Ninety Mile Beach	-	-	-	-
	Shore Local Government Area	Woodside Beach	-	✓*	-	-

* Worst case from all modelled MDO scenarios.

**The release location resides within the receptor boundaries.

D6.5 Strategic Net Environmental Benefit Analysis and selection of response options

For each given response strategy, the benefits and relative effectiveness have been considered for the scenario, determining the viability of the strategy based on a net environmental benefit, as found in Table D-49.

Table D-49 Assessment of viability for response strategies, considering the benefits and their effectiveness on the oil type

Response option	Benefits	Effectiveness on MDO oil spill	Viable response?	Net benefit?
Source control	Stops/minimises the flow of hydrocarbons into to environment.	Only viable option to stop flow of oil to the marine environment.	Yes	✓
Surveillance and monitoring	Although surveillance is not an active intervention to treat or remove oil pollution, it is critical to effective response both in the initial stages of an incident and during ongoing response operations. Outputs can be used to guide decision making on the need for other response strategies.	Surveillance and monitoring can be used to observe the natural break-up and dissipation of a MDO spill from various locations without the need for active intervention. Can be used to inform the effectiveness of current response strategies.	Yes	✓
Dispersant application	Dispersants act by allowing hydrocarbons to be mixed into the upper layers of the water column, which accelerates the biodegradation process. This removes oil from the water surface, protecting leeward shorelines and providing benefit to sea-surface air breathing fauna. Use of dispersants may eliminate or minimise oil impacting sensitive resources.	MDO is a Group 2 hydrocarbon. Group 2 oils are likely to be ≤50 μm thick, and spraying dispersant on slicks below this thickness is not recommended. Additionally, MDO is likely to naturally evaporate and disperse readily. Therefore, surface dispersant application would not generally be recommended as a strategy, as application of dispersant to MDO is likely to lead to over-treatment and increase toxicity in the water column. This could also affect or interrupt the natural dispersion processes.	No	×
Containment and recovery	Booms and skimmers contain surface oil where there is a potential threat to environmental sensitivities. This relies on calm sea conditions (<1.8m wave height, <0.75kn current	MDO is likely to spread and will be largely removed from the surface through evaporation and is likely to disperse naturally. Therefore, containment and recovery would collect minimal oil and would not generally be	No	×

Response option	Benefits	Effectiveness on MDO oil spill	Viable response?	Net benefit?
	speed and <20kn wind speed) to collect and adequate deployment timeframes.	recommended as a strategy for MDO due to minimised efficiency. Additionally, in the Bass Strait Region, sea conditions are likely to be suitable for containment and recovery operations only 50% of the time.		
Shoreline protection and deflection	Booms and skimmers will be deployed to protect environmental sensitivities. Environmental conditions (e.g. strong current, high wave action) limit application.	MDO from vessel collisions may contact the shoreline along the Gippsland. coast, with modelling predicting shortest time of moderate levels to shore as approximately 28 hours. TRPs have been developed to guide the protection of sensitive estuary openings and sensitivities along this section of coastline.	Yes	✓
Shoreline clean-up	Last response strategy to remove oil from the environment due to shoreline impact.	MDO released during a vessel collision may contact the shoreline along the Gippsland. coast, with modelling predicting shortest time of moderate levels to shore as approximately 28 hours. There are various shoreline techniques that are appropriate for this type of hydrocarbon, a shoreline clean-up may be effective for reducing shoreline loadings where access is possible, to be assessed on a case-by-case basis.	Yes	✓
OWR	Consists of hazing/deterrence, relocation, capture, cleaning and rehabilitation of oiled wildlife. May include pre-emptive captive management.	OWR is likely to be required as a result of shoreline oiling. Operational monitoring will be used to inform the need for OWR to be implemented.	Yes	✓

D6.6 Response resources required

The resources required for the scenarios outlined in this QRG for each relevant response strategy are listed in Table D-50.

Table D-50 Resources required for the scenarios outlined in this QRG, for each relevant response strategy, based on the *Gippsland Basin Vessel Activities Oil Spill Modelling* (RPS, 2019)

Response strategy[1]	Resource type	Quantity	Timeframe
Source Control	As per vessel Shipboard Oil Pollution Emergency Plan		
SMV	OSMP O1.1 Weather and sea state	N/A	N/A
	OSMP O1.2 Trajectory estimation	1 x contracted modeller	N/A
	OSMP Module O1.3 and O4.1 Aerial surveillance	1x observer per aircraft Aircraft to have 100nm range and 3-hour duration	Initial overflight <4 hours service requested Trained observer <12 hours of spill occurring
	OSMP Module O1.4 Tracking buoy	2 x STBs available	Deployed <12 hours of spill occurring (dependent on weather conditions) (Level 2 and 3 spill)
	OSMP O1.5 Satellite imagery	1 x contract	<24 hours
	OSMP Module O2.1 and O2.3 Water and oil sampling	1 x vessel 1 x initial sampling kit 1 x contract with laboratory	Samples obtained <24 hours of spill occurring Analysis initiated <24 hours of receipt in laboratory
Protection of sensitive shoreline resources[2]	Heavy plant equipment (operator and support)	1	1 to arrive within 1.2 days
Shoreline Clean-up[3]	Shovels	30	1 strike team to arrive within 24 hours. 3 strike teams required overall.
	Rakes	30	
	Flushing systems	6	
	Skimmer systems	3	
	Shoreline booming/ancillaries	Various	
	Personnel	33 (3 x team leaders, 30 x responders)	
OWR[4]	Personnel	93 personnel (4 IMT, 19 team leaders/specialist staff, 70 team members)	4 x specialised operators within 5 days

[1] Calculated resources requirement are for planning purposes only. Actual response strategies and resource needs to be determined in consultation with the State Control Agency.

[2] Resources for shoreline protection and deflection are based on the relevant TRP with the highest number of resources required. In this QRG, the TRP used is Merriman Creek, in Victoria. Based on maximum length of shoreline impacted at 100g/m^3 or greater.

[3] Resources for shoreline clean-up are based on the assumption of a manual clean-up rate of 1m^3 per person, per day. Therefore, a strike team of 10 people (excluding team leaders) would recover approximately 10m^3 of oiled waste per day. Based on peak volume of shoreline accumulation of 10g/m^3 or greater.

[4] The list of OWR resources required considers that the magnitude, and therefore resources required, of a potential wildlife impact can be determined through the use of the evaluation tool in the WAOWRP.

D6.7 Relevant Tactical Response Plans

In the event of an incident, Esso can refer to TRPs which have been developed by Esso for selected areas of shoreline along Victorian, NSW, and Tasmanian coastlines. These outline information about the specific locations, including site description, access, main sensitivities, and other response-relevant details. The TRPs that are relevant to this QRG can be found in Table D-51.

Table D-51 List of relevant TRPs produced by Esso for the coastal areas predicted to be impacted at moderate threshold or above (RPS, 2025)

Victoria
• Merriman Creek - Seaspray

D6.8 Oil spill monitoring

Table D-52 summarise the probability of receptors coming into contact with entrained oil during activities involving MDO. No dissolved oil was predicted within the 0-10m depth layer below the sea surface, at a moderate threshold for the scenario. Additional information can be found in the *Gippsland Basin Vessel Activities Oil Spill Modelling* (RPS, 2019).

Table D-52 Probability of receptors coming into contact with entrained oil a low threshold (≤10ppb), during activities involving MDO (RPS, 2025)

Probability	West Kingfish	Perch	Barracouta	Kipper	Halibut
>90%	N/A	N/A	N/A	N/A	N/A
75% - 90%	N/A	N/A	N/A	N/A	Biologically Important Area: • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Distribution • Pygmy blue whale – Foraging • Shy albatross – Foraging • Southern right whale – Migration • Wandering albatross – Foraging

Probability	West Kingfish	Perch	Barracouta	Kipper	Halibut
					• White shark – Distribution Exclusive Economic Zone: • Australian Exclusive Economic Zone
50% - 75%	N/A	Biologically Important Area: • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging • Pygmy blue whale – Distribution • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross – Foraging • Southern right whale – Migration	Biologically Important Area: • Pygmy blue whale – Distribution • Pygmy blue whale – Foraging • Shy albatross – Foraging • Southern right whale – Migration • White shark – Distribution • White shark – Foraging • White-faced storm-petrel – Foraging Key Ecological Feature: • Upwelling East of Eden Marine National Park: • Point Hicks State waters: • Victoria	N/A	N/A

Probability	West Kingfish	Perch	Barracouta	Kipper	Halibut
		• Wandering albatross – Foraging • White shark – Breeding • White shark – Distribution • White shark – Foraging • White-faced storm-petrel – Foraging Key Ecological Feature: • Upwelling East of Eden			
25% - 50%	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging	Biologically Important Area: • Antipodean albatross – Foraging • Humpback Whale – Foraging • Indo-Pacific/spotted bottlenose dolphin – Breeding • Little penguin – Foraging • Wedge-tailed shearwater – Foraging Marine National Park:	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging	Biologically Important Area: • Antipodean albatross – Foraging • Black-browed albatross – Foraging • Bullers albatross – Foraging • Campbell albatross – Foraging • Common diving-petrel – Foraging • Indian yellow-nosed albatross – Foraging	Biologically Important Area: • Antipodean albatross – Foraging • Short-tailed shearwater – Foraging • White shark – Foraging • White-faced storm-petrel – Foraging Key Ecological Feature: • Upwelling East of Eden Marine National Park:

Probability	West Kingfish	Perch	Barracouta	Kipper	Halibut
	• Pygmy blue whale – Distribution • Pygmy blue whale – Foraging • Short-tailed shearwater – Foraging • Shy albatross – Foraging • Southern right whale – Migration • Wandering albatross – Foraging • White shark – Distribution • White shark – Foraging • White-faced storm-petrel – Foraging Key Ecological Feature: • Upwelling East of Eden	• Cape Howe • Point Hicks Reefs, Shoals and Banks: • New Zealand Star Bank State waters: • NSW • Victoria Sub-Local Government Area: • Croajingolong (West) • Point Hicks	• Little penguin – Foraging • Wandering albatross – Foraging • Wedge-tailed shearwater – Foraging • White shark – Breeding Marine National Park: • Cape Howe Reefs, Shoals and Banks: • New Zealand Star Bank Sub-Local Government Area: • Croajingolong (West) • Point Hicks	• Little penguin – Foraging • Pygmy blue whale – Distribution • Pygmy blue whale – Foraging • Shy albatross – Foraging • Southern right whale – Migration • Wandering albatross – Foraging • Wedge-tailed shearwater – Foraging • White shark – Distribution • White shark – Foraging • White-faced storm-petrel – Foraging Key Ecological Feature: • Upwelling East of Eden Reefs, Shoals and Banks: • New Zealand Star Bank	• Cape Howe • Point Hicks
10% - 25%	Biologically Important Area:	Biologically Important Area:	Biologically Important Area:	Biologically Important Area:	Biologically Important Area:

Probability	West Kingfish	Perch	Barracouta	Kipper	Halibut
	• Humpback whale – Foraging • Indo-Pacific/spotted bottlenose dolphin – Breeding • Little penguin – Foraging • Wedge-tailed shearwater – Foraging Key Ecological Feature: • Big Horseshoe Canyon Marine National Park: • Cape Howe • Point Hicks Reefs, Shoals and Banks: • New Zealand Star Bank Special Management Area: • The Skerries Special Management Area State waters: • NSW • Victoria Sub-Local Government Area:	• Grey nurse shark – Foraging • Grey nurse shark – Migration • Sooty shearwater – Foraging Marine National Park: • Ninety Mile Beach Marine Sanctuary: • Beware Reef Special Management Area: • The Skerries Special Management Area Sub-Local Government Area: • Bega Valley • Cape Conran • Cape Howe/Mallacoota • Croajingolong (East) • Marlo • McLoughlins Beach • Sydenham Inlet	• Grey nurse shark – Foraging • Grey nurse shark – Migration • Humpback whale – Foraging • Indo-Pacific/spotted bottlenose dolphin – Breeding • Short-tailed shearwater – Foraging • Sooty shearwater – Foraging Marine Sanctuary: • Beware Reef Special Management Area: • The Skerries Special Management Area State waters: • NSW Sub-Local Government Area: • Cape Conran • Cape Howe/Mallacoota • Croajingolong (East) • Marlo	• Black petrel – Foraging • Flesh-footed shearwater – Foraging • Great-winged petrel – Foraging • Grey nurse shark – Foraging • Grey nurse shark – Migration • Humpback whale – Foraging • Indo-Pacific/spotted bottlenose dolphin – Breeding • Northern giant petrel – Foraging • Short-tailed shearwater – Foraging • Sooty shearwater – Foraging • Southern giant petrel – Foraging • White-capped albatross – Foraging • White-faced storm-petrel – Breeding • Wilsons storm petrel – Migration	• Grey nurse shark – Foraging • Grey nurse shark – Migration • Humpback whale – Foraging • Indo-Pacific/spotted bottlenose dolphin – Breeding • Little penguin – Foraging • Sooty shearwater – Foraging • Wedge-tailed shearwater – Foraging Key Ecological Feature: • Big Horseshoe Canyon Reefs, Shoals and Banks: • New Zealand Star Bank State waters: • NSW • Victoria Sub-Local Government Area: • Bega Valley

Probability	West Kingfish	Perch	Barracouta	Kipper	Halibut
	• Cape Howe/Mallacoota • Croajingolong (East) • Croajingolong (West) • Point Hicks		• Sydenham Inlet	Key Ecological Feature: • Big Horseshoe Canyon Marine National Park: • Cape Howe • Point Hicks State waters: • NSW • Victoria Sub-Local Government Area: • Cape Howe/Mallacoota • Croajingolong (West) • Point Hicks	• Cape Howe/Mallacoota • Croajingolong (West) • Point Hicks
<10%	Australian Marine Park: • Beagle • East Gippsland • Flinders Biologically Important Area: • Black petrel – Foraging • Crested tern – Foraging • Flesh-footed shearwater – Foraging	Australian Marine Park: • Beagle • East Gippsland • Flinders Biologically Important Area: • Black petrel – Foraging • Crested tern – Breeding • Crested tern – Foraging	Australian Marine Park: • Beagle • East Gippsland Biologically Important Area: • Black petrel – Foraging • Crested tern – Breeding • Crested tern – Foraging	Australian Marine Park: • Beagle • East Gippsland • Flinders • Freycinet Biologically Important Area: • Crested tern – Breeding • Crested tern – Foraging • Little penguin – Breeding	Australian Marine Park: • Beagle • East Gippsland • Flinders Biologically Important Area: • White shark – Breeding Marine National Park: • Wilsons Promontory

Probability	West Kingfish	Perch	Barracouta	Kipper	Halibut
	• Great-winged petrel – Foraging • Grey nurse shark – Foraging • Grey nurse shark – Migration • Little penguin – Breeding • Northern giant petrel – Foraging • Short-tailed shearwater – Breeding • Sooty shearwater – Foraging • Southern giant petrel – Foraging • White shark – Breeding • White-capped albatross – Foraging • White-faced storm-petrel – Breeding • Wilsons storm petrel – Migration Key Ecological Feature: • Canyons on the Eastern Continental Slope • Shelf Rock Reefs Marine Park:	• Flesh-footed shearwater – Foraging • Great-winged petrel – Foraging • Little penguin – Breeding • Northern giant petrel – Foraging • Short-tailed shearwater – Breeding • Southern giant petrel – Foraging • White-capped albatross – Foraging • White-faced storm-petrel – Breeding • Wilsons storm petrel – Migration Key Ecological Feature: • Big Horseshoe Canyon • Canyons on the Eastern Continental Slope • Shelf Rocky Reefs Marine Park: • Batemans National Park:	• Flesh-footed shearwater – Foraging • Great-winged petrel – Foraging • Little penguin – Breeding • Northern giant petrel – Foraging • Short-tailed shearwater – Breeding • Southern giant petrel – Foraging • White-capped albatross – Foraging • White-faced storm-petrel – Breeding • Wilsons storm petrel – Migration Key Ecological Feature: • Big Horseshoe Canyon • Canyons on the Eastern Continental Slope • Shelf Rocky Reefs Marine National Park: • Ninety Mile Beach Marine Park:	• Short-tailed shearwater – Breeding • Southern right whale - Connecting habitat • White shark – Breeding Key Ecological Feature: • Canyons on the Eastern Continental Slope • Seamounts South and east of Tasmania • Shelf Rocky Reefs MP: • Batemans Marine Sanctuary: • Beware Reef National Park: • Kent Group Reefs, Shoals and Banks: • Wright Rock Special Management Area: • The Skerries Special Management Area	Marine sanctuary: • Beware Reef National Park: • Kent Group Reefs, Shoals and Banks: • Wakitipu Rock State waters: • Tasmania Sub-Local Government Area: • Cape Conran • Corringle • Croajingolong (East) • Golden Beach • Lake Tyers Beach • Lakes Entrance • Marlo • Ocean Grange • Sydenham Inlet • Wilsons Promontory (East) • Wilsons Promontory (West)

Probability	West Kingfish	Perch	Barracouta	Kipper	Halibut
	• Batemans Marine Sanctuary: • Beware Reef National Park: • Kent Group Reefs, Shoals and Banks: • Wakitipu Rock • Warrego Rock • Wright Rock State waters: • Tasmania Sub-Local Government Area: • Bega Valley • Cape Conran • Eurobodalla • Marlo • Shoal Haven • Sydenham Inlet	• Kent Group Ramsar: • Gippsland Lakes Reefs, Shoals and Banks: • Wright Rock State waters • Tasmania Sub-Local Government Area: • Clonmel Island • Corringle • Golden Beach • Lake Tyers Beach • Lakes Entrance • Lakes Entrance (West) • Ocean Grange • Seaspray • Shoal Haven • Snake Island • Wilsons Promontory (East) • Wilsons Promontory (Northeast) • Wilsons Promontory (West) • Woodside Beach	• Batemans National Park: • Kent Group Ramsar: • Gippsland Lakes State waters: • Tasmania Sub-Local Government Area: • Bega Valley • Corringle • Golden Beach • Lake Tyers Beach • Lakes Entrance • Lakes Entrance (West) • Ocean Grange • Seaspray • Wilsons Promontory (East) • Woodside Beach	State waters: • Tasmania Sub-Local Government Area: • Bega Valley • Cape Conran • Croajingolong (East) • Eurobodalla • Marlo • Shoal Haven • Sydenham Inlet	

Sufficient resources are available to undertake monitoring and these are detailed in the Operational and Scientific Monitoring Program. Modelling indicates that the spill does intersects the coastline within 24 hours. In the unlikely event of a spill, should trajectory modelling predict shoreline contact, sufficient resources are available to be initiated within 24 hours. Modules in addition to those required to monitor the spill may be initiated and resources mobilised to priority monitoring locations as determined at the time.

Appendix E: Dispersant testing results

ExxonMobil undertook dispersant efficacy testing on five Bass Strait crudes against two of the available dispersants (Dasic Slickgone NS and COREXIT 9500). Testing was also conducted on a third dispersant COREXIT 9527, although this is no longer available for use as it is not accepted by AMSA on the National Plan.

The testing was carried out on fresh crude, 12-hour weathered, 24-hour weathered and 48-hour weathered under Bass Strait summer and winter conditions. Each dispersant was tested at an application rate of 20:1 (oil: dispersant).

The results are provided in Table E-1.

Key findings from the dispersant efficacy testing include:

- testing shows that dispersant is highly effective on most types of fresh oil, but not all ExxonMobil crudes tested are amenable to dispersant
- non-spreading oils are considered to be non-dispersible
- effectiveness of dispersant decreases significantly on weathered oils
- once pour point of the oil is above temperature of the seawater, the dispersibility rapidly drops off
- dispersibility of the oil generally increases at higher temperatures.

Table E-1 Dispersant efficacy on different Bass Strait crudes at an application rate of 20:1 (oil: dispersant)

Crude	Seasonal conditions	Weathering	Dispersant					
			Corexit EC9527		Corexit EC9500A		Slickgone NS	
			10A*	5Q**	10A*	5Q**	10A*	5Q**
Snapper crude oil	Summer	Fresh	84.2	73.5	99.7	95.6	99.7	75.8
		Fresh (duplicate)	-	-	-	-	99.8	72.3
		12 hours	1.4	1.7	3.0	1.2	3.4	2.4
		24 hours	1.2	0.7	1.5	0.4	2.1	1.3
		48 hours	0.6	1.3	1.3	1.4	3.2	2.7
	Winter	Fresh	84.2	73.5	99.7	95.6	99.7	75.8
		Fresh (duplicate)	-	-	-	-	99.8	72.3
		12 hours	1.4	1.7	3.0	1.2	3.4	2.4
		24 hours	1.2	0.7	1.5	0.4	2.1	1.3
		48 hours	0.6	1.3	1.3	1.4	3.2	2.7

Crude	Seasonal conditions	Weathering	Dispersant					
			Corexit EC9527		Corexit EC9500A		Slickgone NS	
			10A*	5Q**	10A*	5Q**	10A*	5Q**
Flounder crude oil	Summer	Fresh	84.6	75.9	99.4	64.6	48.0	27.6
		Fresh (duplicate)	-	-	95.3	59.5	-	-
		12 hours	4.1	4.7	2.9	1.3	1.0	0.5
		24 hours	0.5	0.6	0.3	0.3	0.7	0.1
		48 hours	0.3	0.3	0.2	0.2	0.2	0.3
	Winter	Fresh	84.6	75.9	100.0	65.0	48.0	27.6
		Fresh (duplicate)	-	-	95.3	59.5	-	-
		12 hours	1.4	1.1	7.8	3.6	4.5	2.7
		24 hours	1.4	1.1	4.3	1.8	2.0	1.3
		48 hours	2.6	0.4	0.4	0.2	0.4	0.5
West Kingfish crude oil	Summer	Fresh	36.0	8.1	99.9	7.3	99.9	55.8
		Fresh (duplicate)	-	-	78.9	6.0	-	-
		12 hours	0.5	0.1	0.1	0.2	2.5	0.9
		24 hours	0.4	0.1	0.1	0.2	1.8	0.9
		48 hours	0.4	0.1	0.6	0.5	1.7	0.8
	Winter	Fresh	36.0	8.1	72.0	3.7	99.9	55.8
		12 hours	1.6	1.1	8.7	1.7	31.7	14.7
		24 hours	0.4	0.4	0.8	0.3	2.4	1.3
		48 hours	0.4	0.1	0.6	0.5	1.7	0.8
Halibut crude oil	Summer	Fresh	99.9	51.9	99.7	16.9	95.0	45.9
		Fresh (duplicate)	-	-	-	-	90.9	45.8
		12 hours	0.2	0.2	0.3	0.3	0.9	0.6
		24 hours	0.2	0.2	0.3	0.3	0.9	0.6

Crude	Seasonal conditions	Weathering	Dispersant					
			Corexit EC9527		Corexit EC9500A		Slickgone NS	
			10A*	5Q**	10A*	5Q**	10A*	5Q**
		48 hours	0.1	0.1	0.1	0.1	0.3	0.5
	Winter	Fresh	99.9	51.9	99.7	16.9	95.0	45.9
		Fresh (duplicate)	-	-	-	-	90.9	45.8
		12 hours	4.4	2.7	2.4	2.0	4.0	1.2
		24 hours	1.5	0.6	0.6	0.9	0.9	0.5
Moonfish crude oil	-	Fresh	3.8	1.7	2.4	1.3	2.6	1.7
		Fresh (duplicate)	0.6	0.5	-	-	2.6	1.7

*Sample collected and analysed after 10 minutes of agitation

**Sample collected and analysed after agitation had stopped for 5 minutes.