Plan

CDN/ID 3972816

Oil Pollution Emergency Plan

BassGas Offshore Operations

In the event of an oil pollution emergency refer directly to Section 4 (Response Actions)

Revision	Date	Reason for issue	Originator	Reviewers	Approver
0	20/09/2019	Issued to NOPSEMA and ERR for assessment	Aventus Consulting	P. Wemyss	P. Wemyss
A	18/09/2019	Internal review	Aventus Consulting	S. Payne, P. Wemyss	-

Review due	Review frequency
Annually from date of acceptance	1 year

THE THREE WHATS
What can go wrong?
What could cause it to go wrong?
What can I do to prevent it?

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Abbreviations

Abbreviation	Definition
AMOSC	Australian Marine Oil Spill Centre
AMSA	Australian Maritime Safety Authority
CEM	Crisis and Emergency Management Framework
CMP	Crisis Management Plan
CMT	Crisis Management Team
CxT	Crisis Communications Team
DELWP	Department of Environment, Land, Water and Planning (Vic)
DJPR EMB	Department of Jobs, Precincts and Regions – Emergency Management Branch (Vic)
DJPR ERR	Department of Jobs, Precincts and Regions – Earth Resources Regulation (Vic)
DPIPWE	Department of Primary Industries, Parks, Waters and Environment (Tas)
EMBA	Environment that May be Affected
EMLO	Emergency Management Liaison Officer
EMT	Emergency Management Team
EP	Environment Plan
EPA	Environmental Protection Authority
ERP	Emergency Response Plan
ERT	Emergency Response Team
ESD	Emergency Shut Down
HSE	Health, Safety, and Environment
IMO	International Maritime Organisation
IT DR	Business Continuity and IT Disaster Recovery
JSCC	Joint Strategic Coordination Committee
LoWC	Loss of Well Control
MD	Managing Director
MDO	Marine Diesel Oil
NatPlan	National Plan for Maritime Environmental Emergencies
NEBA	Net Environmental Benefit Analysis
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
NRC	National Response Centre
OPEP	Oil Pollution Emergency Plan
OSMP	Operational & Scientific Monitoring Plan
OSRL	Oil Spill Response Limited
OSTM	Oil Spill Trajectory Modelling
OWR	Oiled Wildlife Response
PIC	Person In Charge

Abbreviation	Definition
POLREP	Marine Pollution Report
PSV	Platform Supply Vessel
SCME	State Controller Maritime Emergencies
SITREP	Marine Pollution Situation Report
SMPEP	Shipboard Marine Pollution Emergency Plan
SOPEP	Shipboard Oil Spill Pollution Emergency Plan
VOC	Volatile Organic Compounds
WEMP	Wells Emergency Management Plan
WET	Wells Emergency Team
WOMP	Well Operations Management Plan

1 Purpose

The purpose of this Oil Pollution Emergency Plan (OPEP) is to:

- Describe the arrangements regarding Beach Energy's access to resources and appropriately trained response personnel in order to effectively respond to and manage an emergency oil spill response in a timely manner.
- Provide a timely implementation of the pre-determined response strategies as outlined in this OPEP, based on credible worst-case hydrocarbon spill risks as presented within the BassGas Operations Environment Plan (EP) (CDN/ID 3972814).
- Ensure the processes and response structures are consistent with those used in applicable government and industry oil spill response plans, namely:
    - The National Plan for Maritime Environmental Emergencies ('NatPlan') (AMSA, 2019).
    - State Maritime Emergencies (non-Search and Rescue) Plan ('VicPlan') (EMV, 2016).
    - Tasmanian Marine Oil Spill Contingency Plan ('TasPlan') (DPIPWE, 2011).
    - The AMOSPlan (AMOSC, 2017).
- Ensure effective integration and use of industry and government response efforts and resources.
- Meet the following regulatory requirements:
    - Commonwealth - Regulation 14(8) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (herein referred to as the OPGGS(E))
    - Victoria - Regulation 17 of the Offshore Petroleum and Greenhouse Gas Storage Regulations 2011 (herein referred to as the OPGGS Regulations)
    - Tasmania – Regulation 20 of the Petroleum (Submerged Lands) (Management of Environment) Regulations 2012 (herein referred to as the P(SL)(MoE) Regulations).

This OPEP supersedes the Origin Energy Integrated Gas BassGas Offshore OPEP (TAS 9100 SAF PLN, CDN/ID 3973983).

2 The Proponent

The proponent is Lattice Energy Limited (Lattice), a wholly owned subsidiary of Beach Energy Limited (Beach).

Lattice is the majority owner and the nominated operator for the offshore facilities and infrastructure presented in Figure 2.1. A detailed description of the BassGas offshore infrastructure is presented in Chapter 3 of the EP.

Given Lattice is the proponent for this project, as a member of the Beach group, it may be referred to in this application as 'Beach.'

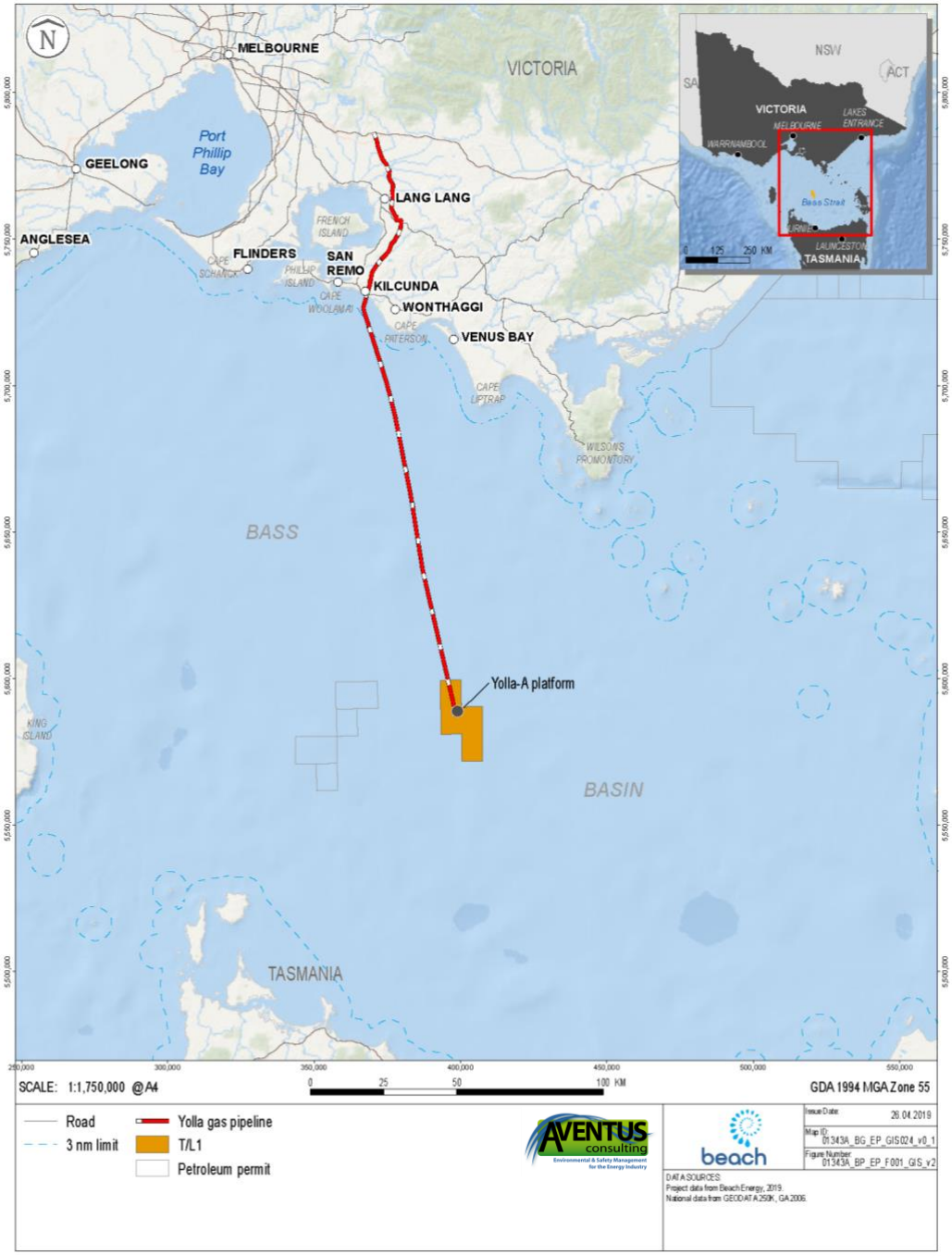


Figure 2.1. BassGas location map

3 Scope

This OPEP covers potential oil pollution emergencies that may result from BassGas operations. Spills from the BassGas facilities may impact Commonwealth, Victorian and/or Tasmanian jurisdictions

The plan recognises the divisions of responsibility as defined under the terms of the NatPlan, which have been incorporated into this OPEP.

3.1 Interface with Emergency Response Documents

This OPEP interfaces with the follow emergency response documents:

- BassGas Offshore operations EP (CDN/ID 3972814);
- Vessel-specific Shipboard Oil Pollution Emergency Plan (SOPEP) / Shipboard Marine Pollution Emergency Plan (SMPEP), or equivalent;
- Yolla-A Safety Case (CDN/ID 5214686);
- Lang Lang Gas Plant Safety Case (CDN/ID 5214692);
- BassGas Raw Gas Pipeline - Offshore Pipeline Safety Case (CDN/ID 5214688);
- BassGas Raw Gas Pipeline – PL243 Safety Management Plan (CDN/ID 8201905);
- Yolla Well Operations Management Plan (WOMP) (CDN/ID 3972817);
- BassGas site Emergency Response Plan (ERP) (CDN/ID 3974548);
- Emergency Management Plan (EMP) (CDN/ID 18025990);
- Relief Well Plan, Otway & Bass (T-5100-35-MP-005); and
- Offshore Victoria Operational and Scientific Monitoring Plan (OSMP) (CDN/ID S4100AH717908).

3.2 Beach Offshore Facilities and Activities within the Bass Basin

The BassGas operations covered by this OPEP are summarised in Table 3.1. A detailed description is available in Chapter 3 of the BassGas Offshore Operations EP.

Table 3.1. Summary of BassGas facilities

Facility / Activity	Description	Title	Hydrocarbon type	Minimum distance from shore	Water depth (approx.)
Yolla production wells	Four producing Yolla gas wells and two plugged and suspended wells	T/L1	Gas and condensate	93 km	80 m
Yolla-A Platform	Manned Yolla-A production platform, supporting the wellheads and topsides facilities	T/L1	Gas and condensate	93 km	80 m
Yolla Pipeline	Offshore pipeline system consisting of a 350 mm production pipeline from the platform to the shore crossing near Kilcunda	T/L1	Gas and condensate	0 – 93 km	Shallow to 80 m
Vessel-based activities	Platform support, inspection and maintenance activities	T/L1	Marine diesel oil	Varies	Shallow to 80 m

3.3 Hydrocarbon Types

There are two types of hydrocarbon covered in this OPEP that are associated with the BassGas operations;

- Marine Diesel Oil (MDO) – used in the platform supply vessel (PSV), vessels undertaking inspection and maintenance activities, and used to power the crane and other equipment on the Yolla-A platform; and
- Condensate – produced from the Yolla-3, -4, -5 and -6 wells.

3.3.1 Marine Diesel

MDO is a light petroleum distillate that is predicted to undergo rapid evaporative loss and slicks are expected to break up rapidly. The typical characteristics of MDO are detailed in Table 3.2 and Table 3.3.

Table 3.2. Marine diesel physical characteristics

Parameter	Details
Density (kg/m3)	829 at 25oC
API	37.6
Dynamic viscosity (cP)	4.0 at 25oC
Pour point (°C)	-14
Oil category	Group II
Oil persistence classification	Light-persistent oil

Table 3.3. Physical characteristics of MDO

	Volatiles	Semi-volatiles	Low Volatiles	Residual Oil
Boiling Point (°C)	< 180	180-265	265-380	> 380
MDO (%)	6.0	34.6	54.4	5.0
Persistence	Non-persistent			Persistent

3.3.2 Yolla Condensate

Liquids associated with gas production from Yolla are condensate. No heavy oil is present. Characteristics of Yolla gas condensate are detailed in Table 3.4. A detailed outline of the composition of Yolla reservoir fluids is presented in Table 3.3 of the EP.

Condensate characteristics indicate that spills of Yolla gas condensate will spread rapidly, with residual hydrocarbons potentially distributed over a large area. Any slicks will break up readily as a result of weathering processes.

Table 3.4. Physical characteristics of Yolla condensate

	Volatiles	Semi-volatiles	Low Volatiles	Residual Oil (%)	Density (kg/m3 at 15oC)	Dynamic viscosity (cP at 25oC)
Boiling Point (°C)	< 180	180-265	265-380	> 380	770.6	0.14
Yolla condensate (%)	80.0	12.0	6.55	1.45		
Persistence	Non-persistent			Persistent		

3.4 Potential Spill Scenarios

The potential worst-case hydrocarbon spill scenarios relating to BassGas offshore operations are:

- A loss of well control (LoWC) at Yolla-A of 204,250 bbl/day for 86 days;
- A loss of containment (LoC) from the raw gas pipeline of 3,144.9 bbl of condensate over 57.6 minutes at the 3 nm State/Commonwealth waters boundary; and
- A LoC of MDO from a vessel bunker tank (300 m3) over 6 hours as a result of a vessel collision.

To understand the risks posed by these hydrocarbon spill scenarios, Beach commissioned RPS to undertake oil spill trajectory modelling (OSTM) using the Yolla condensate properties and MDO properties outlined in Section 3.3.

An analysis of the modelling results for visual and 'actionable' surface and shoreline exposure (i.e., hydrocarbons that can be responded to), minimum time to shoreline contact and maximum shoreline loading is presented in Table 3.5. Assessment of the environmental risks associated with these hydrocarbon spill scenarios is presented in Sections 7.15, 7.16 and 7.17 of the BassGas Offshore Operations EP.

3.5 Spill Modelling Analysis

Table 3.5 provides a summary of the OSTM sea surface and shoreline results. Oil in the water column (entrained and dissolved aromatic hydrocarbons) is not relevant to the OPEP given that this oil cannot be responded to. The OSTM is based on 100 spill trajectories per scenario during annualised conditions.

Table 3.5. Summary of BassGas sea surface and shoreline OSTM results

Spill Scenario	LoWC	Pipeline Rupture	Vessel Spill
Location	Yolla wells	3 nm from shore	3 nm from shore
Product	Condensate	Condensate	MDO
Release volume	204,250 bbl	3,144.9 bbl	300 m^3
Duration	86 days	57.6 minutes	6 hours
Sea Surface			
0.5 – 10 g/m^2 (barely visible)	Up to 35 km from release site	Up to 11 km from release site	Up to 106 km from release site
10 – 25 g/m^2 (Actionable)	Nil	Up to 3 km from release site	Up to 11 km from release site
Shoreline			
Maximum length of shoreline contacted >100 g/m^2 (Actionable)	No contact	4 km	7 km
Maximum length of shoreline contacted >1,000 g/m^2 (High loading)	No contact	No contact	4 km
Minimum time to shoreline accumulation	No contact	15 days	12 days
Mean maximum volume on shoreline	No contact	7 m^3	23 m^3

3.6 Actionable Response Areas

Figure 3.1 illustrates the areas where a response could be undertaken to contain and recover oil, deflect oil, or mount a shoreline clean-up operation. To determine these 'actionable' areas, the following oil exposures were used from *National Plan response, assessment and termination of cleaning for oil contaminated foreshores* (AMSA, 2015):

- A sea surface oil exposure >10 g/m^2 (0.01 mm thick) – this represents the practical limit for surface response options. Below this thickness, oil containment, recovery and chemical treatment (dispersant) become ineffective.

- A shoreline contact exposure of 100 g/m^2 (0.1 mm thick) – this represents the minimum thickness that does not inhibit the potential for recovery and is best remediated by natural coastal processes alone.

The actionable area is based on extrapolating the MDO and condensate OSTM results from where the raw gas pipeline intersects the 3 nm state waters boundary. Note that there are no identified actionable response areas within Tasmanian State waters or shorelines.

Figure 3.1. Area of actionable oil

4 Response Actions

4.1 Response Levels and Control Agencies

4.1.1 Level of Spill

In line with the National Plan and for the purpose of response planning, marine oil spills are divided into three categories. Depending on the spill size, the level structure allows for escalation of the response according to the risk of impacts, appropriate response actions and resources required for the response.

The levels and associated response adopted by Beach are as per the NatPlan and are outlined herein.

Level 1 Spill

A Level 1 spill is defined as a spill with no further discharge possible and is within the response capabilities of the platform, or support vessel resources.

The control agency is:

- Beach will be in control of the response for spills from the platform, wells, pipeline or vessels conducting activity within the 500-m radius petroleum safety zone (PSZ) around the platform; and
- The vessel owner will be in control of Level 1 spills from the vessels outside of the 500m platform exclusion zone.

A summary of Level 1 control agencies is presented in Table 4.1.

Table 4.1. Level 1 Spill Control Agencies

Spill Scenario	Control Agency
Condensate release from platform, wells or pipeline	Beach
Vessel loss of containment while conducting activity within the 500-m radius platform PSZ	
Vessel loss of containment not within the 500m platform exclusion zone	Vessel Owner

Level 2 Spill

A Level 2 spill is defined as a spill that is beyond the capabilities of Beach and its on-site contractors on the platform or vessels.

In terms of control agency:

- Beach will remain in control of the response for Level 2 spills in Commonwealth waters from the platform, wells or pipeline;
- Control of level 2 condensate and vessel spills within state waters will be handed to the Victorian government with continued support by Beach; and
- Control of level 2 vessel spills within Commonwealth waters will be handed to AMSA with continued support by Beach.

For a Level 2 Spill, Beach will activate the Emergency Management Team (EMT) in Adelaide, which reflects the Australasian Inter-service Incident Management System (AIIMS) structure and who will ensure adequate response support/coordination is allocated.

A summary of Level 2 control agencies is presented in Table 4.2.

Table 4.2. Level 2 Spill Control Agencies

Spill Scenario	Control Agency
Condensate release from platform, wells or pipeline impacting Commonwealth waters (>3 nm)	Beach
Condensate release from platform, wells or pipeline impacting Victorian waters (<3 nm)	Vic DJPR (EMB)
Vessel spills impacting Commonwealth waters (> 3nm)	AMSA
Vessel spills impacting Victorian waters (<3 nm)	Vic DJPR (EMB)

In the event of a Level 2 spill, resources and personnel will be requested via the Australian Marine Oil Spill Centre (AMOSC) in Geelong, with whom Beach has an existing arrangement to provide spill response support. AMOSC will respond in accordance with AMOSPlan arrangements and will co-ordinate the deployment of the core group members and resources, while also providing technical support. Members of AMSA's National Response Team (NRT) can also be utilised.

Level 3 Spill

A Level 3 spill is defined as a spill where the response is beyond the resources and capabilities of Beach and its national support agencies. International assistance is likely to be required. Control Agency responsibilities are as for Level 2 spills.

Beach can access international resources such as Oil Spill Response Limited (OSRL), through engagement at time of need to provide equipment and specialist resources to a Level 3 hydrocarbon spill. This level of spill response is unlikely based on the OSTM results and the national response resources available.

4.1.2 Statutory and Control Agencies

This plan recognises that under existing Commonwealth and State Intergovernmental Agreements, authorities have been nominated with statutory and control responsibility for spills within harbours, State waters and Commonwealth waters around Australia.

While Beach remains accountable for spills relating to its petroleum operations, the nominated Control Agency will vary depending on source, size and location of the spill as defined in Table 4.1 and Table 4.2.

Note that state agencies such as the Victorian Department of Jobs, Precincts and Regions (DJPR) or the Tasmanian Department of Primary Industries, Parks, Water and Environment (DPIPWE), may assume Incident Control in state waters under the following circumstances:

- The incident is greater than a Level 1 spill in state waters and requires immediate escalation;
- The incident occurred in Commonwealth waters, but has impacted on State waters;
- The Control Agency has requested State assistance; and
- The State believes that Beach is not implementing an appropriate response to the incident.

Note that the OSTM indicates that there is no actionable oil on the sea surface or shoreline in the Tasmanian jurisdictions.

4.1.2.1 Victorian State Arrangements

In the event that an incident in Commonwealth waters has impacted into Victorian State waters, DJPR will only assume Incident Control over the impacted area in State waters while Beach (or other Control Agency) will remain responsible for managing the spill outside Victorian coastal waters. This will occur in consultation with the State.

While DJPR is the Control Agency for marine pollution in Victorian State waters, Beach shall conduct initial necessary response actions in State waters in accordance with this OPEP. Beach will continue to manage those operations until formal incident control can be established by DJPR.

Upon establishment of incident control by DJPR, Beach shall continue to provide planning and resources in accordance with this OPEP. This includes response assets and contracts specified in this OPEP, such as those pertaining to equipment, waste management, transport and personnel (operational and EMT staff) as well as arrangements with third-party response service providers. For response in State waters, DJPR will use the accepted OPEP as a starting point for a response. DJPR reserves the right to deviate from this OPEP in circumstances where there is a justifiable cause, in consultation with Beach. In this instance, Beach shall consult with NOPSEMA and DJPR Earth Resources Regulation (ERR) on any possible compliance ramifications.

If an incident affecting wildlife occurs in Commonwealth waters close to Victorian State waters, AMSA will request support from the Department of Environment, Land, Water and Planning (DELWP) to assess and lead a wildlife response if required. DELWP may also place a DELWP Liaison Officer in a state-based oil spill Incident Management Team (IMT) and/or the Beach ERT.

In the event DJPR is leading an oil spill response within Victorian State waters, a joint IMT will be established. The joint IMT is to ensure a coordinated response between lead agencies.

DELWP will lead the wildlife response within the IMT under guidance from its own response plans and arrangements.

Additional detail on the management of a cross-jurisdiction marine pollution incident that originates in Commonwealth waters and results in DJPR exercising its control agency obligations in State waters is provided in Section 5.6.

4.1.2.2 Tasmanian State Arrangements

While the OSTM indicates that there is no actional oil on the sea surface or shoreline in the Tasmanian jurisdictions, a description of Tasmanian oil spill response arrangements is provided here for completeness.

Under the *Pollution of Water by Oil and Other Noxious Substances Act 1987*, the Tasmanian Environmental Protection Authority (EPA) Division (DPIPWE) is responsible for preparedness for and responding to oil and chemical spills in Tasmania. Activities that the EPA Division undertakes to ensure Tasmania is prepared in the event of an oil spill include:

- Developing and managing oil spill response capabilities in Tasmania;
- Providing resources and support during marine oil spill response operations in Tasmania;
- Developing and delivering appropriate training programs for marine oil spill response around the State;
- Assisting ports and industry in developing marine oil spill contingency plans in line with Tasmanian Marine Oil Spill Contingency Plan (TasPlan);
- Providing 24 hour on call support for marine oil spills;

- Developing national networks to ensure Tasmania is up to date in oil spill response techniques;
- Maintaining the Oil Spill Response Atlas (OSRA); and
- Raising community awareness about the impact of marine oil spills.

In the event that an incident in Commonwealth waters has impacted on Tasmanian State waters, DPIPWE will only assume Incident Control over the impacted area in State waters while Beach (or other Control Agency) will remain responsible for managing the spill outside Tasmanian coastal waters in consultation with the State.

When under direction of DPIPWE, a Beach Emergency Management Liaison Officer (EMLO) trained in AIIMS and conversant with DPIPWE's processes and expectations shall be allocated to DPIPWE.

The Tasmanian Oiled Wildlife Response Plan (WildPlan) is administered by the Resource Management and Conservation Division of the DPIPWE and outlines priorities and procedures for the rescue and rehabilitation of oiled wildlife.

Table 4.3 summarises the statutory and control agencies for the various spill sources and levels.

Table 4.3. Statutory and Control Agencies

Spill Source	Spill level	Impact to State waters	Impact to Commonwealth waters	Statutory Agency	Control Agency
Condensate release from platform, wells or pipeline	1	✓		Vic DJPR	Beach
			✓	NOPSEMA	Beach
	2	✓		Vic DJPR	Vic DJPR
			✓	NOPSEMA	Beach
	3	✓		Vic DJPR	Vic DJPR
			✓	NOPSEMA	Beach
MDO release from vessel	1	✓		Vic DJPR	Vessel Owner
			✓	AMSA	Vessel Owner
			✓ (within PSZ)	NOPSEMA	Vessel Owner
	2 and 3	✓		Vic DJPR	Vic DJPR
			✓	AMSA	AMSA

4.2 Immediate Actions and Notification Requirements (contacts correct as of September 2019)

4.2.1 Vessel Spill (Level 1, 2 or 3)

Table 4.4 lists the actions and notifications required for a vessel spill.

Table 4.4. Immediate Actions – Vessel Spill

Item	Action	Responsibility	Timing
1.	**Initial Emergency Actions**		
1.1	Implement the relevant emergency response procedures to protect human life and the environment in accordance with the vessel SOPEP / SMPEP	Vessel Master	ASAP

Item	Action	Responsibility	Timing
1.2	Identify any potential fire risks and attempt to isolate the supply of oil to the spillage	Vessel Master	ASAP
1.3	Identify the extent of spillage and the weather/sea conditions in the area	Vessel Master	ASAP
1.4	Notify BassGas Production Manager	Vessel Master	ASAP
1.5	Notify vessel owner	Vessel Master	ASAP
2.	**Level 1 Notifications**		
2.1	Any vessel collision with a facility or other vessel within Commonwealth waters and/or any hydrocarbon spill >80 litres AMSA: Ph: 1800 641 792 Email: mdo@amsa.gov.au NOPSEMA: Ph: 08 6461 7090 Email: submissions@nopsema.gov.au	Vessel Master, BassGas Production Manager	ASAP but not later than 2 hours after collision / spill
2.2	Within or potential for moderate to significant environmental damage to Victorian State waters – refer to EP for clarification DJPR EMB: Ph: 0409 858 715 (24/7) and Email: semdincidentroom@ecodev.vic.gov.au	Vessel Master, BassGas Production Manager	ASAP
2.3	Within or potential for release to cause, or may cause, environmental harm or environmental nuisance in Tasmanian State waters (<3 nm) – refer to EP for clarification DPIPWE: Ph: +61 (0)3 6165 4599 or 1800 005 171 (within Tasmania only) Radio: TasPorts Vessel Traffic Services VHF radio channel 16/14/12 Call sign "relevant port name VTS" Email: incidentresponse@epa.tas.gov.au	Vessel Master, BassGas Production Manager	ASAP
2.4	Within port boundary or potential impact to Port boundary – notify relevant Port Authority	Vessel Master	ASAP
2.5	Notify and escalate to the EMT if available response resources are inadequate	BassGas Production Manager	ASAP
3.	**Level 2 or 3 Notifications**		
3.1	Notify and escalate to the EMT	BassGas Production Manager	ASAP
3.2	Any vessel collision with a facility or other vessel within Commonwealth waters and/or any Level 2 or 3 vessel spill AMSA: Ph: 1800 641 792 Email: mdo@amsa.gov.au NOPSEMA: Ph: 08 6461 7090 Email: submissions@nopsema.gov.au	EMLO	ASAP but not later than 2 hours after becoming aware of spill
3.3	Within Commonwealth waters – written report to NOPSEMA: Email: submissions@nopsema.gov.au and NOPTA: Email: info@nopta.gov.au	EMLO	Within 3 days of spill
3.4	Spill with potential to impact Australian Marine Park(s) Director of National Parks: Ph: 02 6274 2220	EMLO	ASAP
3.5	Within or potential for moderate to significant environmental damage to Victorian State waters – refer to EP for clarification or the impact of wildlife (including cetaceans) DJPR EMB: Ph: 0409 858 715 (24/7) and	EMLO	ASAP

Item	Action	Responsibility	Timing
	Email: semdincidentroom@ecodev.vic.gov.au and DELWP: Ph: 1300 134 444 Email: sscviv.scmdr.delwp@scc.vic.gov.au		
3.6	Within or potential for release to cause, or may cause, environmental harm or environmental nuisance in Tasmanian State waters – refer to EP for clarification DPIPWE: Ph: +61 (0)3 6165 4599 or 1800 005 171 (within Tasmania only) Radio: TasPorts Vessel Traffic Services VHF radio channel 16/14/12 Call sign "relevant port name VTS" Email: incidentresponse@epa.tas.gov.au	EMLO	ASAP (first instance of oil on/in water)
3.7	Anywhere along the raw gas pipeline, which may flow towards the Watersure desalination plant water intakes near Wonthaggi. Watersure: Ph: 03 5671 9041 (control room) Ph: 0447 750 066, email: Julien.tauvry@watersure.com.au (Operations Manager) Ph: 0434 311 649, email: greig.mercer@watersure.com.au (Plant Director)	EMLO	ASAP
3.8	Within port boundary or potential impact to Port boundary – notify relevant Port Authority	Vessel Master	ASAP
3.9	Complete Level 2/3 Incident Report (Appendix C. 4)	EMLO	ASAP
3.10	Confirm takeover of incident control by AMSA or State agency as the Control Agency	EMT Operations Lead	ASAP
4.	**Level 2 or 3 Monitoring, Evaluation & Surveillance**		
4.1	Request assistance from AMOSC via execution of Service Contract/Service Note as directed by Control Agency	EMT Lead	ASAP
4.2	Mobilise surveillance by aircraft via service provider as directed by Control Agency	EMT Logistics Lead	ASAP
4.3	Initiate OSTM via service provider as directed by Control Agency	Health, Safety & Environment	ASAP
5.	**Level 2 or 3 Oil Spill Response**		
5.1	Provide support and information to the Control Agency as directed	EMT Lead	As directed
5.2	Determine and implement offshore and onshore response options for oil spill tracking, dispersion, containment, collection, treatment, oiled wildlife response & shoreline clean-up in consultation with and as directed by Control Agency	EMT Operations Lead / Health, Safety & Environment (HSE)	As directed
5.3	Monitor shoreline and intertidal zones to identify areas affected by the oil spill and to determine the nature of the impact as directed by Control Agency	HSE	As directed
5.4	Complete role-specific ongoing actions as outlined in Appendix B of ERP	All EMT	ASAP
6.	**Ongoing Monitoring**		
6.1	Implement Beach Offshore Victoria OSMP	HSE	As required

4.2.2 Loss of Integrity – Platform or Pipeline (Level 2 or 3)

Table 4.5 lists the actions and notifications required for a LoC from the platform or raw gas pipeline.

Table 4.5. Immediate Actions – LoC from Platform or Pipeline

Item	Action	Responsibility	Timing
1.	**Initial Emergency Actions**		
1.1	Implement the relevant emergency response procedures to protect human life and the environment and in particular, those procedures focused at reducing the risk of fire or explosion	Yolla PIC	ASAP
1.2	Identify any potential fire risks and attempt to isolate the supply of oil to the spillage	Yolla PIC	ASAP
1.3	Identify the extent of spillage and the weather/sea conditions in the area	Yolla PIC	ASAP
1.4	Notify BassGas Production Manager	Yolla PIC	ASAP
1.5	Notify Operations Manager	BassGas Production Manager	ASAP
2.	**Level 1 Notifications**		
2.1	Within Commonwealth waters and/or any hydrocarbon spill >80 litres NOPSEMA: Ph: 08 6461 7090 Email: submissions@nopsema.gov.au	BassGas Production Manager	ASAP but not later than 2 hours after spill
2.2	Within or potential for moderate to significant environmental damage to Victorian State waters – refer to EP for clarification DJPR EMB: Ph: 0409 858 715 (24/7) and Email: semdincidentroom@ecodev.vic.gov.au	BassGas Production Manager	ASAP
2.3	A release or potential release from pipeline within 3 nm DJPR ERR: Ph: 0419 597 010 (ERR Duty Officer)	BassGas Production Manager	ASAP
2.4	Anywhere along the raw gas pipeline, which may flow towards the Watersure desalination plant water intakes near Wonthaggi. Watersure: Ph: 03 5671 9041 (control room) Ph: 0447 750 066, email: Julien.tauvry@watersure.com.au (Operations Manager) Ph: 0434 311 649, email: greig.mercer@watersure.com.au (Plant Director)	BassGas Production Manager	ASAP
2.5	Complete Level 1 Incident Report (Appendix C. 3)	BassGas Production Manager	ASAP
2.6	Notify and escalate to the EMT if available response resources are inadequate	BassGas Production Manager	ASAP
3.	**Level 2 or 3 Notifications**		
3.1	Notify and escalate to the EMT	BassGas Production Manager	ASAP
3.2	Within Commonwealth waters NOPSEMA: Ph: 08 6461 7090 Email: submissions@nopsema.gov.au	EMLO	ASAP but not later than 2 hours after becoming aware of spill

Item	Action	Responsibility	Timing
3.3	Within Commonwealth waters – written report to NOPSEMA: Email: submissions@nopsema.gov.au and NOPTA: Email: info@nopta.gov.au	EMLO	Within 3 days of spill
3.4	Spill with potential to impact Australian Marine Park(s) Director of National Parks: Ph: 02 6274 2220	EMLO	ASAP
3.5	Within or potential for moderate to significant environmental damage to Victorian State waters – refer to EP for clarification or the impact of wildlife (including cetaceans) DJPR EMB: Ph: 0409 858 715 (24/7) and Email: semdincidentroom@ecodev.vic.gov.au DELWP: Ph: 1300 134 444 Email: sscviv.scmdr.delwp@scc.vic.gov.au	EMLO	ASAP
3.6	Within or potential for release to cause, or may cause, environmental harm or environmental nuisance in Tasmanian State waters – refer to EP for clarification DPIPWE: Ph: +61 (0)3 6165 4599 or 1800 005 171 (within Tasmania only) Radio: TasPorts Vessel Traffic Services VHF radio channel 16/14/12 Call sign "relevant port name VTS" Email: incidentresponse@epa.tas.gov.au	EMLO	ASAP (first instance of oil on/in water)
3.7	Confirm takeover of incident by State agency (DJPR) as the Control Agency	EMT Operations	ASAP
3.8	Notify AMSA and request 500 m exclusion zone from location of the spill AMSA: Ph: 1800 641 792 Email: mdo@amsa.gov.au	EMT Operations	ASAP
3.9	Anywhere along the raw gas pipeline, which may flow towards the Watersure desalination plant water intakes near Wonthaggi. Watersure: Ph: 03 5671 9041 (control room) Ph: 0447 750 066, email: Julien.tauvry@watersure.com.au (Operations Manager) Ph: 0434 311 649, email: greig.mercer@watersure.com.au (Plant Director)	BassGas Production Manager	ASAP
3.10	Complete Level 2/3 Incident Report (Appendix C. 4)	EMLO	ASAP
3.11	Notify and escalate to CMT if Level 3 response required	EMT Leader	ASAP
4.	**Level 2 or 3 Monitoring, Evaluation & Surveillance**		
4.1	Request assistance from AMOSC via execution of Service Contract/Service Note or as requested by Control Agency	EMT Leader	ASAP
4.2	Mobilise surveillance by aircraft via service provider or as requested by Control Agency	EMT Logistics	ASAP
4.3	Initiate OSTM via service provider or as requested by Control Agency	EMT Planning	ASAP
5.	**Level 2 or 3 Oil Spill Response**		
5.1	Assess the feasibility and safety risks to implement source control. Develop source control strategy and implement when safe to do so.	EMT Leader	ASAP
5.2	For loss of integrity from wells, inform Beach EMT – see Table 4.6 below for immediate actions	EMT Leader	ASAP
5.3	Determine and implement offshore and onshore response options for oil spill tracking, collection, treatment and clean-up as directed by Control Agency	EMT Operations Lead / EMT HSE	As directed

Item	Action	Responsibility	Timing
5.4	Determine the likelihood for an oil slick to reach a shoreline and take necessary action as directed by Control Agency	EMT HSE	ASAP & As directed
5.5	Monitor shoreline and intertidal zones to identify areas affected by the oil spill and to determine the nature of the impact as directed by Control Agency	EMT HSE	ASAP & As directed
5.6	Complete role-specific ongoing actions as outlined in Appendix B of ERP	All EMT	ASAP
6.	**Ongoing Monitoring**		
6.1	Implement Beach Offshore Victoria OSMP	HSE	As required

4.2.3 Loss of Well Control (Level 2 or 3)

Table 4.6 lists the actions and notifications required for a LoWC.

Table 4.6. Immediate Actions – Loss of Well Control

Item	Action	Responsibility	Timing
1.	**Initial Emergency Actions**		
1.1	Notify and escalate to BassGas Production Manager	PIC	ASAP
1.2	Initiate the WET	BassGas Production Manager	ASAP
1.3	Initiate implementation of the RWP	BassGas Production Manager WET	ASAP
1.4	Notify EMT Leader	WET Leader	ASAP
1.5	Notify Beach MD	EMT Leader	ASAP
2.	**Level 2 / 3 Notifications**		
2.1	For all LoWC incidents NOPSEMA: Ph: 08 6461 7090 Email: submissions@nopsema.gov.au	EMLO	ASAP but not later than 2 hours after becoming aware of spill
2.2	Within Commonwealth waters – written report to NOPSEMA: Email: submissions@nopsema.gov.au and NOPTA: Email: info@nopta.gov.au	EMLO	Within 3 days of spill
2.3	For all LoWC incidents with potential to impact Australian Marine Park(s) Director of National Parks: Ph: 02 6274 2220	EMLO	ASAP
2.4	For all LoWC incidents with potential for moderate to significant environmental damage to Victorian State waters or the impact of wildlife (including cetaceans) DJPR EMB: Ph: 0409 858 715 (24/7) and Email: semdincidentroom@ecodev.vic.gov.au DELWP: Ph: 1300 134 444	EMLO	ASAP

Item	Action	Responsibility	Timing
	Email: sscviv.scmdr.delwp@scc.vic.gov.au		
2.5	For all LOWC incidents with potential to cause, or may cause, environmental harm or environmental nuisance in Tasmanian State waters (<3 nm) – refer to activity-specific EP for clarification DPIPWE: Ph: +61 (0)3 6165 4599 or 1800 005 171 (within Tasmania only) Radio: TasPorts Vessel Traffic Services VHF radio channel 16/14/12 Call sign "relevant port name VTS" Email: incidentresponse@epa.tas.gov.au	EMLO	ASAP (first instance of oil on/in water)
2.6	Confirm takeover of incident by State agency as the Control Agency	EMT Lead	ASAP
2.7	Notify AMSA and request 2 km exclusion zone around Yolla-A AMSA: Ph: 1800 641 792 Email: mdo@amsa.gov.au	EMLO	ASAP
2.8	Complete Level 2/3 Incident Report (Appendix C. 4)	EMLO	ASAP
2.9	Notify and escalate to CMT should well flow remain uncontrolled	EMT Lead	ASAP
3.	**Level 2 or 3 Monitoring, Evaluation & Surveillance**		
3.1	Request assistance from AMOSC via execution of Service Contract/Service Note	EMT Lead	ASAP
3.2	Mobilise surveillance by aircraft via service provider	EMT Logistics Lead	ASAP
3.3	Initiate OSTM via service provider	HSE	ASAP
4.	**Level 2 or 3 Oil Spill Response**		
4.1	Request assistance from well control service provider	WET Lead	ASAP
4.2	Engage vessel broker and commission response vessels	EMT Logistics Lead	Within 2 weeks
4.3	Request assistance from AMOSC via execution of Service Contract/Service Note	EMT Lead	If required
4.4	Request assistance from AMOSC and deploy subsea first response toolkit	WET Operations	Within 2 weeks
4.5	Deploy drill rig and commence drilling relief well	WET Operations	Within 8 weeks
4.6	Determine and implement offshore and onshore response options for oil spill tracking, dispersion, containment, collection, treatment and clean-up or as directed by Control Agency	HSE	ASAP & As directed
4.7	Determine the likelihood for an oil slick to reach a shoreline and take necessary action as directed by Control Agency	HSE	ASAP & As directed
4.8	Monitor shoreline and intertidal zones to identify areas affected by the oil spill and to determine the nature of the impact	HSE	ASAP & As directed
4.9	Complete ongoing actions as outlined in Appendix B of ERP	All EMT	ASAP
5.	**Ongoing Monitoring**		
5.1	Implement Beach Offshore Victoria OSMP	HSE	ASAP

5 Crisis and Emergency Management (CEM) Framework

The Beach emergency management structure consists of a three-tiered approach, with teams that have specific roles regarding response to and management of emergency and crisis events. Figure 5.1 illustrates this framework and associated protocols for the effective management and coordination of all levels of emergency and crisis events impacting on Beach.

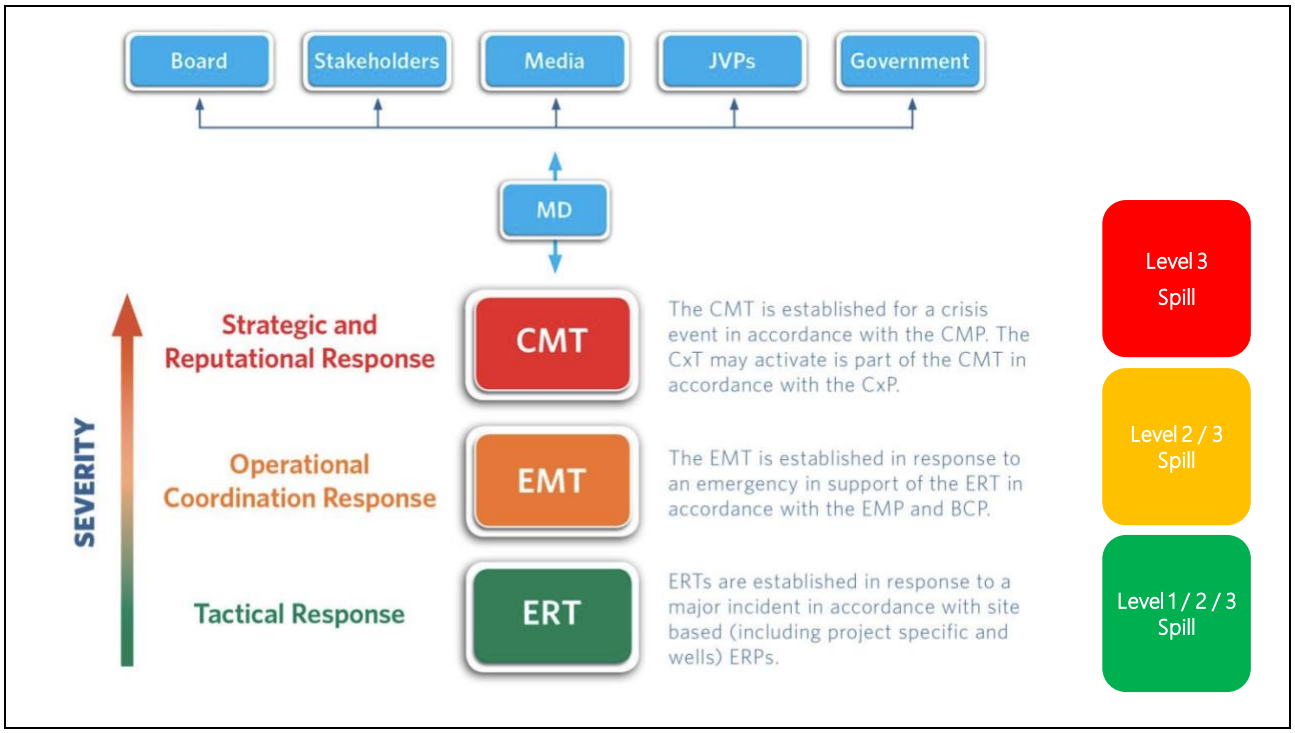


Figure 5.1. Beach Crisis and Emergency Management Framework

In summary:

- Site-based ERT carry out emergency response activities at the site of the emergency.
- Adelaide- and Melbourne-based EMTs provide operational management support to the site-based ERT, facilitate planning and liaise with external parties.
- The Adelaide-based WET interfaces with the drill rig and implements Beach source control procedures in the event of a LoWC.
- The Adelaide-based CMT undertakes crisis management operations and direct strategic actions at the corporate level, addresses implications of the crisis on the employees, manages the company's reputation and relationships with external parties and joint venture partners.
- The CMT is activated for a crisis event or as directed by the Managing Director or the CMT Leader.

The extent of the response structure will be dictated by the size of the incident and the required response.

5.1 Managing Director (MD)

The Beach Managing Director (MD) is the critical interface between the CMT and senior external stakeholders, including, but not limited to the Beach Board of Directors, the media and government.

The CMT Leader keeps the MD apprised of the incident and discusses decisions of the CMT with the MD and renders advice as required. The MD may assume the role of CMT Leader.

5.2 Crisis Management Team (CMT)

Leadership of the CMT (structure illustrated in Figure 5.2) is empowered by the Beach MD to assume responsibility for providing strategic support to emergency or crisis events impacting Beach operations or commercial viability.

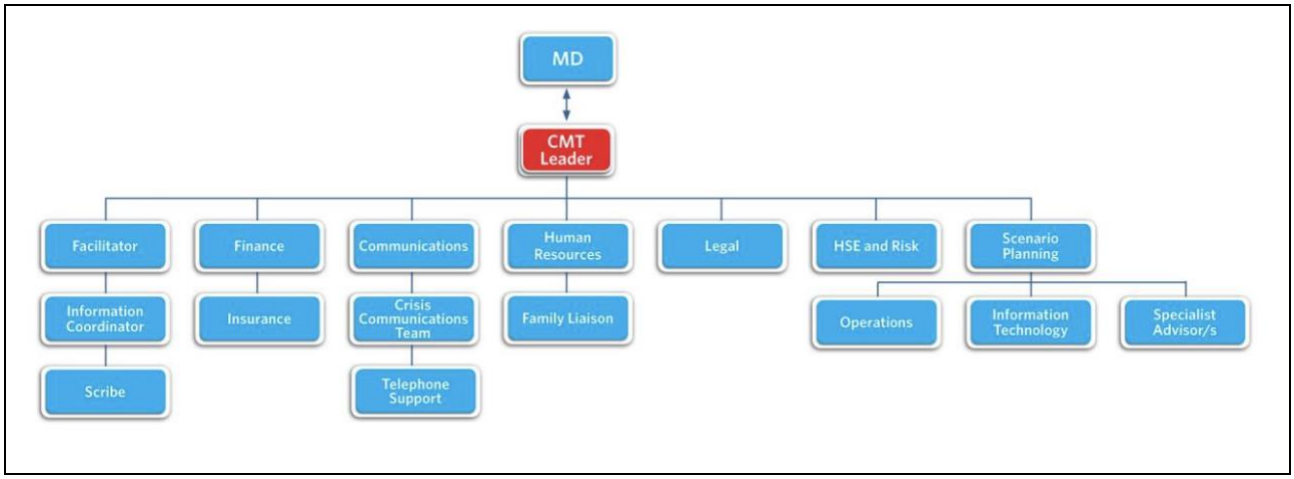


Figure 5.2. Composition of the CMT

5.3 Emergency Management Team (EMT)

The EMT (structure illustrated in Figure 5.3

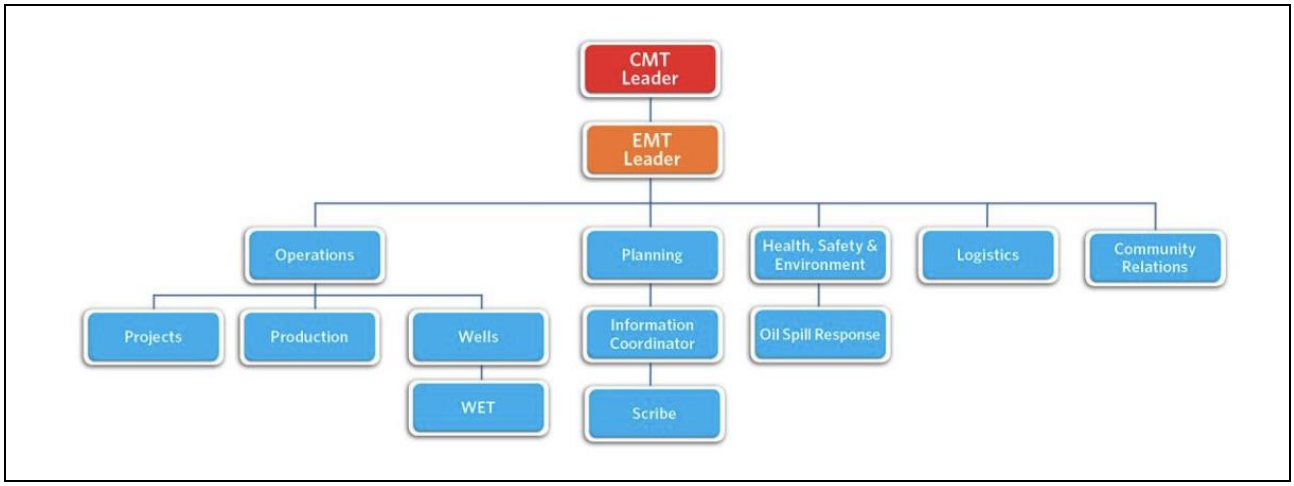


Figure 5.3.) is led by the EMT Leader and is responsible for providing and coordinating operational emergency management activities in support of site/facility response activities during any emergency or crisis event. An EMLO is embedded within the Oil Spill Response function of the EMT and acts as the key interface between the Beach EMT and State Control Agency IMTs.

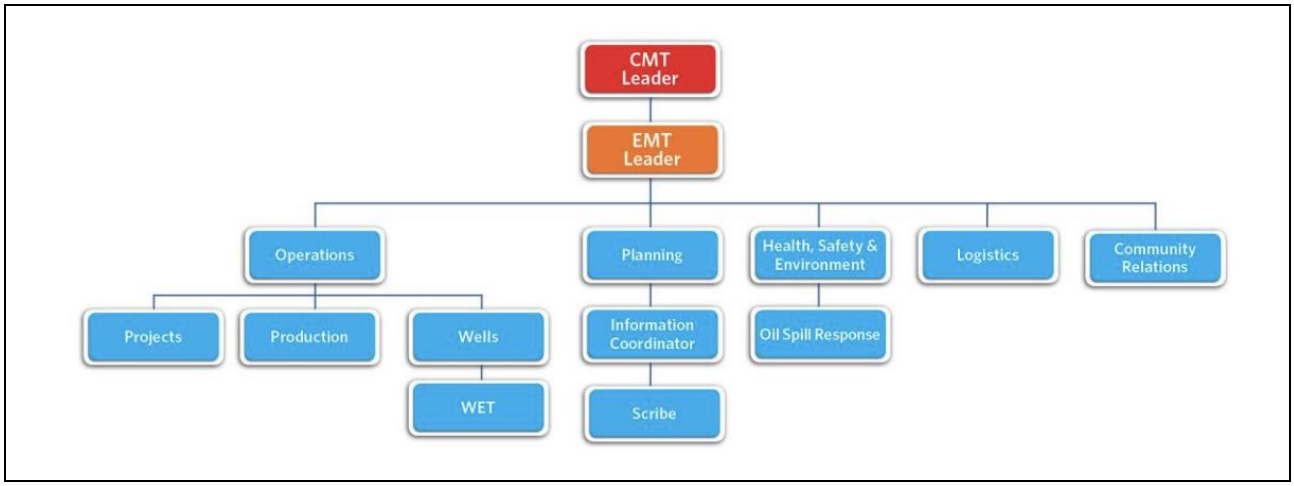


Figure 5.3. Composition of the EMT

5.4 Emergency Response Team (ERT)

Each asset has a site-, project- or area-specific ERP and an ERT that is typically a Beach team led by the ERT Leader. The asset may also have Incident Controller/s reporting to them.

This role assumes responsibility for coordinating a site's tactical response to an emergency at a Beach site and for communicating with the Beach EMT and Emergency Services as required.

The ERT has responsibility for controlling the immediate response to a site emergency and providing direction, advice and support to the Incident Controller/s as required.

5.5 Wells Emergency Team (WET)

In the event of a LoWC, the Beach Wells Emergency Team (WET) will form and will be the conduit of information to the EMT Leader. The WET's primary functions are to ensure the safety of the personnel on site and to bring the well under control.

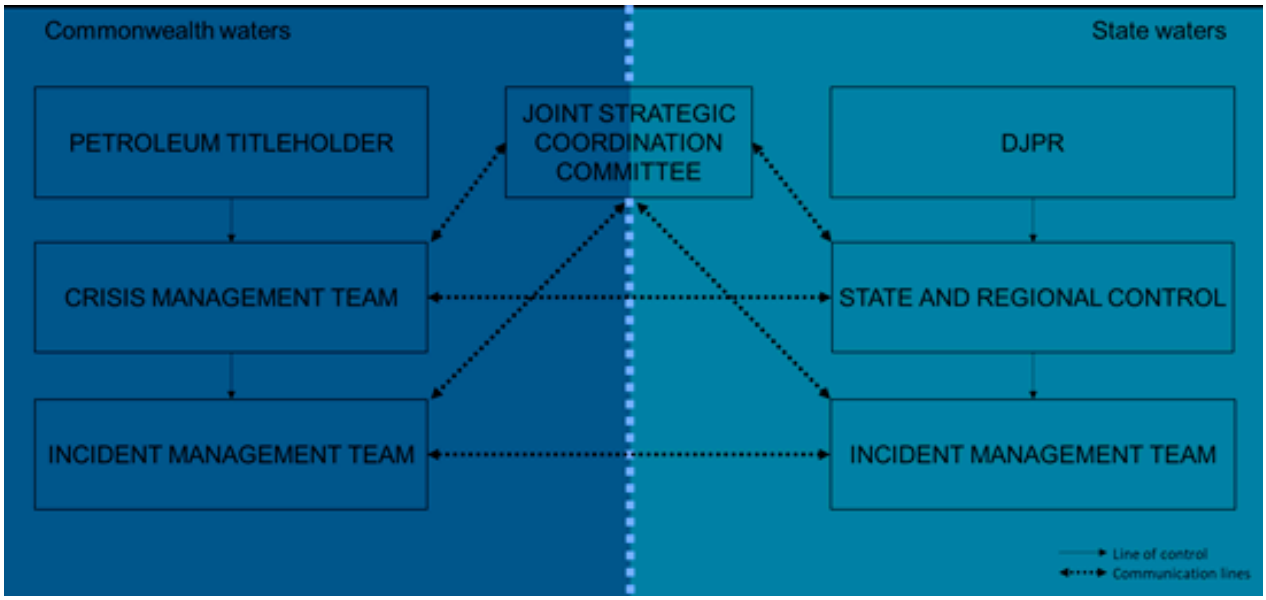
The WET team consists of the WET Leader, WET Operations, WET Planning, WET Information Coordinator, HSE Advisor, WET Logistics and a Scribe. This team is the first line of communication from the Beach senior site representative (on site) to escalate the major incident or emergency event. The WET Leader will commence providing the site with additional resources and technical expertise. Additional resources may be called in, such as additional technical/specialist engineers as required, and these personnel will constitute the WET. The WET Leader must inform the EMT Leader that the WET will be activating and will receive and assess the initial reports from the affected site. The WET will monitor rosters and resources of the site during a declared event and has oversight of company resources to the response and at the scene in coordination with the EMT and associated response strategy.

The WET will provide the EMT with updates about the emergency. The EMT will be able to support the response through the provision of additional resources (Human Resources, HSE, Communications, etc.) as well as being the conduit of information to the CMT. Together, the WET and the EMT work to resolve all issues including supply management and may involve system modelling, ongoing intelligence, risk exposures, engineering and technical issues, supply status and forecasting, alternate response strategies and overall assessment of the impacts that the event and any planned response may have on the system and supply situation.

5.6 Joint Strategic Coordination Committee (Victoria)

The following section has been adapted from DJPR guidance.

Transboundary arrangements from state to state is covered by the National Plan. Where Victorian State waters are impacted by cross-jurisdictional marine pollution incidents, DJPR 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) Plan. In this instance, Beach and DJPR shall work collaboratively, sharing response resources and providing qualified personnel to the DJPR IMT. To facilitate effective coordination between the two control agencies and their respective IMT, a Joint Strategic Coordination Committee (JSCC) shall be established. The control and coordination arrangements for cross-jurisdictional maritime emergencies is outlined in Figure 5.4.



Source: DJPR (2019)

Figure 5.1. Joint Strategic Coordination Committee (Victoria) structure.

The role of the JSCC is to ensure appropriate coordination between the respective IMTs established by multiple control agencies. The key functions of the JSCC 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; and

- 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 JSCC will be administered by DJPR and the inaugural JSCC meeting will be convened by the State Controller Maritime Emergencies (SCME) once both Beach and DJPR formally assume the role of Control Agency in respective jurisdictions.

The JSCC will be jointly chaired by the SCME and the Beach CMT/EMT Leader, who will determine whom will sit in the committee for a coordinated response. As the relevant jurisdictional authority in Commonwealth waters, NOPSEMA may opt to participate in the JSCC as they see fit.

In a cross-jurisdictional marine pollution incident, DJPR and Beach shall each deploy an EMLO to corresponding IMTs for effective communication between DJPR and Beach. The role of the DJPR EMLO includes, but is not limited to:

- Represent DJPR and provide the primary contact for Beach, inter-agency and/or inter-State coordination
- Facilitate effective communications between DJPR's SCME and Incident Controller and the Beach CMT / EMT Leader
- Provide enhanced situational awareness to DJPR of the incident and the potential impact on State waters
- Facilitate the delivery of technical advice from DJPR to the Beach EMT Leader as required.

5.7 Roster

A roster is maintained for CMT Leaders and for full EMTs (including the WET). The roster is promulgated each Friday morning for the next 12 weeks and is updated via a live SharePoint site. The National Response Centre (NRC) has access to this and use this roster to notify and activate teams.

All CMT, EMT and WET members (both primary and secondary) will make themselves available to the extent possible, acknowledging that alternates will be called if the primary is not contactable. Primary members will advise their alternate when they will not be available to respond.

CMT Leaders, in the absence of either the primary or the secondary being available, must contact suitable persons within the organisation with the required subject matter expertise.

6 Responsibilities/Accountabilities

For Level 1 spills, the site ERT has responsibility for oil spill response and implementation of this OPEP.

For Level 2 or 3 spills, the Beach EMT Leader has responsibility for oil spill response and implementation of this OPEP in parallel with the Beach EMP.

Individual role and responsibility checklists for the EMT can be found in Appendix B of the EMP.

In the event of a LoC, the EMT HSE Leader becomes the 2nd In Command (2IC) (see Appendix B. 2 of EMP).

Role-specific responsibilities for an offshore oil pollution emergency are detailed in the immediate actions and notifications (Section 3) of this OPEP.

For Level 3 spills, the CMT has responsibility for implementation of the Crisis Management Plan (CMP)

Level-based individual role and responsibility checklists for the CMT are available in Appendix B of the CMP.

7 Net Environmental Benefit Analysis

The Net Environmental Benefit Analysis (NEBA) process is used to compare the predicted positive and negative outcomes of various oil spill response options with respect to environmental sensitivities at risk from the spill and response activities.

The NEBA process recognises that certain clean-up options may cause a net negative environmental impact in comparison to the impact of leaving the spill to weather naturally. The key objective is to identify the response options that will result in minimal impacts and maximum recovery of the environment, considering the specific sensitivities of the resources that have been prioritised for protection. The NEBA will be undertaken by the Control Agency.

A NEBA may be either 'strategic' (pre-spill event) or 'operational' (post-spill event). A detailed strategic NEBA has been prepared for each of the OSTM spill scenarios undertaken for BassGas operations and is available from the Beach Victorian Operations Environmental Advisor.

The following steps allow for an effective NEBA to be conducted:

Step 1

a. Identify potential spill impact area based on incident specifics, trajectory modelling and observations. Within the predicted impact area, identify the key characteristics of the habitats. This can be based on field observation, aerial photos and local knowledge.

Step 2

a. Identify resources (human, ecological, economic etc) at risk at each of the different habitats within the impact area.

Step 3

a. Assess the potential impact from the spill on each of the resources at risk based on severity of impact and predicted recovery time. This is assuming no response to the spill.

b. A precautionary approach should be adopted, assuming that the entire site will be covered by oil and that this will persist at the site for at least 24 hours. However, in certain situations the behaviour of the spill may be more accurately predicted, and this information can be used when assessing potential impacts. The second assumption that must be agreed is whether the percentage of a species or resource impacted relates to the local (site), regional or even global (in the case of endangered species) population. This does not necessarily need to be consistently applied to all resources at the site. For example, it may be considered that if a resource is very abundant regionally then it is not significant enough at a particular site to warrant a high level of concern even though it may be seriously impacted at that site.

Step 4

a. Review the site-specific advantages and disadvantages of the different response options available, using natural recovery as a baseline. The predicted effect, likely impact and recovery time of the various response options on each of the resources must be assessed.

b. In the case of a hydrocarbon spill from BassGas operations impacting Victorian State waters and/or lands, it is expected that the Control Agency (DJPR) would undertake an operational NEBA, with support from Beach as requested, in determining the most appropriate response actions in accordance with the NatPlan or the VicPlan as

applicable. Under the NatPlan, Environmental Science Coordinators contribute advice on likely environmental outcomes of each response option to the spill planning team based on a NEBA approach.

c. As part of the response planning process, Beach has conducted strategic NEBA (**Error! Reference source not found.**). As part of the due diligence process, Beach may also conduct an operational NEBA and would engage with the Control Agency regarding the results of that assessment and recommendations for response activities. Additionally, information from the NEBA may be used to help inform requirements for environmental monitoring relating to anticipated impacts from the spill and any response activities. Beach's operational NEBA assessment would be conducted by an environmental professional with experience in oil spill planning and response.

8 Response Areas and Strategies

8.1 Response areas

To identify the response planning areas the following oil exposures were used adopted based on AMSA guidance:

- Offshore: A sea surface oil exposure of >10 g/m2 (0.01 mm thick) as this represents the practical limit for surface response options. Below this thickness, oil containment, recovery and chemical dispersant application are ineffective.
- Onshore: A shoreline contact exposure of >100 g/m2 (0.1 mm thick) as this represents the minimum thickness that does not inhibit the potential for recovery and is best remediated by natural coastal processes alone.

It is noted that NOPSEMA's Bulletin #1 'Oil spill modelling' (A652993) (NOPSEMA, 2019) refers to >50 g/m2 as a level to inform response planning, and therefore the use of >10-25 g/m2 (as the sea surface threshold used in the Beach OSTM) is considered conservative. These 'actionable areas' for hydrocarbon spill response have been defined based on the outcomes of the OSTM and are illustrated in Figure 3.1.

Note there is no offshore response areas associated with the LOWC scenarios for the producing Yolla wells (i.e. there was no surface exposure above the >25 g/m2 threshold predicted). Similarly, there is no onshore response area associated with the producing LOWC scenarios.

8.2 Onshore priority planning areas

The OSTM indicates that the priority planning area for spill scenarios resulting in onshore contact with 'actionable oil' is confined to the area of coastline between San Remo and Cape Paterson. A description of this coastline is provided in Section 5.3.7 of the BassGas Offshore Operations EP, but essentially comprises the following (based on OSRA mapping):

- Beaches – dominated by sand, interspersed with occasional rocky outcrops and rocky cliffs.
- Intertidal area – dominated by sand and interspersed with shore platform.
- Subtidal – dominated by sand and rocky reef.

Several state marine and coastal parks and hooded plover habitat is known to occur along this section of shoreline. There is only one river mouth along this coastline, this being the Powlett River (southeast of Kilcunda). These shoreline and habitat types are considered in the strategic NEBA.

8.3 Response strategies

The response strategies determined to be the most likely to be implemented in the event of a Level 2 or 3 condensate or MDO release are presented in Table 8.1.

Table 8.1. BassGas operations hydrocarbon spill response options

Response option	Feasibility and effectiveness analysis	Adopt?
Condensate		
Source control (see Section 7.19)	This is the preferred manner to control a hydrocarbon release. The following plans will be enacted: • Pipeline – shut down of production from Yolla-A, LLGP or valve at the shore crossing. • Production wells – implementation of the RWP. A surface or subsea well cap is not a feasible response option for BassGas (as described in Section 3.9.2).	Yes

Response option	Feasibility and effectiveness analysis	Adopt?
Monitor and Evaluate	Condensate evaporates and disperses rapidly. Monitoring is a fundamental part of any hydrocarbon spill response to gain situational awareness of the nature and scale of the spill and the direction of movement. This includes monitoring along the shoreline by foot.	Yes
Assisted Natural Dispersion	The use of motorised vessels to break up slicks using propeller wash creates an inherent safety risk because of the presence of an ignition source (condensate is highly volatile). Mechanical dispersion could be undertaken in slightly weathered condensate once the volatiles have flashed off to disperse the condensate into the water column to create smaller droplets and enhance biodegradation (only if monitoring indicates the slick is moving to sensitive shorelines).	Possible, but unlikely
Chemical Dispersants	Not recommended for Group I oils such as condensate due to its very low viscosity (i.e., easy spreading) and high volatility (i.e., it evaporates rapidly). Dispersant use will have a net negative effect on the environment. Dispersants push the hydrocarbons into the water column, creating longer lasting impacts in the water column than allowing the condensate to weather naturally from the sea surface.	No
Offshore Containment and Recovery	The high volatility of condensate creates inherent safety risks when attempting to contain and recover it mechanically. This response technique is dependent on adequate hydrocarbon thickness (generally >10 g/m_2), calm seas and significant areas of unbroken surface slicks. There is no recoverable condensate (>10 g/m_2) at the sea surface for a LoWC scenario, and a very limited area under the pipeline rupture scenario. The condensate would weather in less time than is required to deploy response equipment. Due to the low viscosity of gas condensate, the ability to contain and recover it is extremely limited. Condensate evaporates faster than the collection rate of a thin surface film present. It spreads in less time than is required to deploy this equipment.	No
Protection and Deflection	The high volatility of condensate creates inherent safety risks when attempting to use protection and deflection booms. Oceanic environments such as Bass Strait often do not present suitable conditions for the use of booming material (i.e., swell and waves deem this strategy ineffective). The OSTM for gas condensate spills close to shore indicate that only condensate at a low threshold (below which ecological impacts are likely) will reach shorelines.	Possible, but unlikely
Shoreline Clean-up	Condensate is highly volatile and will evaporate naturally even after making shoreline contact. Condensate also quickly infiltrates sand, where it is then remobilised by wave action (reworking) until it has naturally degraded. This quick infiltration through sediments makes it very difficult to recover without also recovering vast amounts of shoreline sediments. Environmental impacts are likely to be higher when implementing this response technique compared to the natural degradation.	Possible, but unlikely
Oiled Wildlife Response (OWR)	Because gas condensate evaporates and disperses rapidly, most fauna is unlikely to be exposed to sub-lethal or lethal hydrocarbon concentrations that warrant wildlife capture and treatment, especially at the sea surface. More wildlife harm would occur (during the handling and treatment process) using this response technique compared to allowing for natural cleaning. Hazing may be considered to disperse animals away from a slick (such as seabirds, shorebird, seals and dolphins) or any shoreline areas where condensate has not infiltrated beach sediments.	Possible, but unlikely
MDO		
Source control	The vessel-specific SMPEP will be implemented to minimise the volume of MDO released. This typically involves transferring MDO from the impacted tank to another tank.	Yes

Response option	Feasibility and effectiveness analysis	Adopt?
Monitor and Evaluate	As per condensate.	Yes
Assisted Natural Dispersion	As per condensate.	Possible, but unlikely
Chemical Dispersants	As per condensate. Although the use of dispersants is 'conditional' for Group II oil, the potential spill volume and the natural tendency of spreading into very thin films is evidence that dispersant application will be an ineffective response.	No
Offshore Containment and Recovery	As per condensate. The area of recoverable MDO is larger than that for condensate, but it is likely to weather quicker than the time required to deploy response equipment.	No
Protection and Deflection	The OSTM for gas condensate spills close to shore indicate that only condensate at a low threshold (below which ecological impacts are likely) will reach shorelines. Areas of high shoreline loading (>1,000 g/m2) may occur with MDO spills close to the shore. Oceanic environments such as Bass Strait often do not present suitable conditions (i.e., swell and waves deem this strategy ineffective) for the efficient use of booming material (such as absorbent, zoom boom and beach guardian).	Possible, but unlikely
Shoreline Clean-up	As per condensate.	Possible, but unlikely
OWR	As per condensate.	Possible, but unlikely

Table 8.1 indicates that only the following responses may be used to respond to a hydrocarbon spill:

- Source control;
- Monitor and evaluate;
- Assisted natural dispersion;
- Protection and deflection;
- Shoreline clean-up; and
- OWR.

The impact assessment for these options is provided in Sections 7.18 and 7.19 of the BassGas Offshore Operations EP. The strategies are discussed herein.

8.3.1 Source Control

Source control is the primary and most effective form of spill response. In the event of an offshore hydrocarbon spill, the feasibility of controlling the spill from the source should always be considered, giving due consideration to logistical constraints and safety implications.

Source control equipment and resources available to Beach in the event of a LoWC are detailed in Appendix B. 1.

Vessel

For a vessel spill at sea, the Vessel Master shall implement the Shipboard Marine Pollution Emergency Plan (SMPEP) or Shipboard Oil Pollution Emergency Plan (SOPEP) (equivalent to class).

Pipeline or Platform

System pressures are monitored via the distributed control system (DCS) onshore, and the platform and pipeline can be shut down via the DCS or emergency shut down (ESD) can be implemented from the platform.

Well Control

Restoring well control is the primary objective under a LoWC scenario. The primary method of well control is via a dynamic well kill by intersecting the well bore below the release location via a relief well and circulating kill weight drilling fluid into the well bore, thus controlling the flow of hydrocarbons from the reservoir. A RWP is in place to provide guidance for drilling a relief well at Yolla.

Capping stack systems have not proven to be effective in water depths less than 100 m due to the hazards relating to the deployment of a cap on a free flowing well.

8.3.2 Monitoring and Evaluation

Understanding the behaviour and trajectory of hydrocarbon slicks is required for Level 2 or 3 spill to predict the potential for environmental harm from the spill based on real-time weather and sea state conditions, spill volume and flow rate. There are a number of methods that can be used to monitor and evaluate hydrocarbon spills including direct observation (surveillance by air, vessel or tracking buoys), manual calculations, or computer modelling. Each of these methods, including the triggers for their use, is discussed in the following sections.

OSTM

Manual calculations for estimation of spill trajectory will be used for an initial calculation in parallel with OSTM to provide an accurate spill trajectory for the weather conditions and type/volume of hydrocarbon spill.

For a Level 2 or 3 spill, OSTM will be conducted based on real-time spill and metocean data and this information will be used to refine the spill response planning and execution. This will be requested through AMOSC, who in turn will commission RPS to conduct the OSTM.

Aerial / Vessel surveillance

Estimating hydrocarbon volumes can be done using the Bonn Agreement Oil Appearance Code (BAOAC), provided in **Appendix D**.

Aircraft provide a better platform than vessels for surveillance, and Beach will utilise this option in the event of a Level 2 or 3 spill to provide information on the location, extent, trajectory and spill volume estimate.

Fixed-wing aviation support available to Beach in the event of a Level 2 or 3 spill is detailed in **Appendix B. 3**. Trained oil spill observers will be engaged from AMOSC's Core Group to undertake the observations.

Aerial observations will be discontinued (with only shoreline surveillance remaining) once no areas of metallic sheen or true oil colour are observed, as this indicates that the slick thickness is <5 microns and therefore poses little risk of environmental harm and is not amenable to any on-water or shoreline clean-up techniques.

Satellite Tracking Buoys

These units can be used to track the movement and extent of a spill. Beach will obtain these units from AMOSC if necessary. They can be used in parallel with aerial surveillance to track the leading edge of a slick.

8.3.3 Protection and Deflection

Deflection equipment such as booms can be deployed to deflect slicks from encroaching on environmentally sensitive areas. Absorbent type booms are a suitable secondary protection measures at environmental sensitive sites. The feasibility and effectiveness of these measures is largely dependent on calm sea conditions allowing for the deployment of booms and this response option is only warranted where shoreline resources or offshore infrastructure are at risk.

The only likely priority area for deflection booming is the Powlett River (southeast of Kilcunda).

All protection and deflection operations within State waters shall be under the direction of the State Control Agency. Beach will support protection and deflection operations as direct by State Control Agency.

8.3.4 Shoreline Clean-Up

Shoreline clean-up strategies must be developed in consideration of the shoreline character, resources at risk, and nature and degree of oiling. In general, other strategies are considered prior to shoreline clean-up due to the immediate environmental impact, heavy resource requirement, health and safety concerns (i.e., manual handling, heat stress, fatigue, etc), logistical complexities and waste management requirements.

Shoreline clean-up of MDO or condensate is not generally feasible or beneficial in the high energy environments typical of the Victorian open coast. Condensate and MDO would be highly weathered before making landfall and is thus expected to have minimal environmental impacts.

The coastline of the Bass Basin is dominated by sandy beaches, intertidal rock platforms and sheer rocky cliffs that are generally subject to high energy swell and surf. This facilitates rapid natural weathering. Additionally, most of the beaches between San Remo and Cape Paterson are not accessible by vehicles, meaning that the creation of new access tracks or damage to dune systems from foot access is likely. This in itself is likely to create more environmental harm than the weathered hydrocarbons.

In the event shoreline impact, DJPR is be the State Control Agency for the response within State waters or lands. Beach would support the response option as directed.

8.3.5 Oiled Wildlife Response

Victorian State waters

DELWP is the agency responsible for responding to wildlife affected by a marine pollution emergency in Victorian State waters. If an incident which affects or could potentially affect wildlife occurs in Commonwealth waters close to Victorian State waters, AMSA will request support from DELWP to assess and lead a response if required. DELWP's response to oiled wildlife is undertaken in accordance with the Wildlife Response Plan for Marine Pollution Emergencies.

Beach will provide support for the response through provision of resources as requested by DELWP utilising existing contracts such as AMOSC.

Both DELWP and AMSA have local and regional oiled wildlife response capability that may be activated under the direction of DELWP.

Personnel may also be deployed under the direction of DELWP to undertake OWR activities in the Victorian jurisdiction.

DELWP responds to oiled wildlife notifications and has identified the following steps must be taken when reporting wildlife affected by an oil spill:

1. Notify the DJPR State Duty Officer on 0409 858 715 and the DELWP State Agency Commander on 1300 13 4444 immediately.
2. Notify AMSA (02 6230 6811) if the oil spill occurs in Commonwealth waters and wildlife is affected.
3. Determine the exact location of the animal/s and provide accurate directions. Maintain observation until DELWP can deploy staff to the site.
4. Take response actions only as advised by DELWP or AMSA:
    - Determine the exact location of the animal for accurate directions for appropriately trained wildlife response personnel. Maintain observation and keep people, dogs and wildlife scavengers away until trained rescuers have arrived.
    - Avoid handling or treating injured wildlife as this may cause further stress and poses a safety risk to untrained handlers.

Tasmanian State Waters

The OSTM indicates that actionable oil is not predicted to make contact with Tasmanian state waters or shorelines. Nonetheless, the Tasmanian Oiled Wildlife Response Plan (WildPlan) is administered by the Resource Management and Conservation Division of the DPIPWE and outlines priorities and procedures for the rescue and rehabilitation of oiled wildlife.

Wildlife rescue kits are held at the Hobart and Launceston DPIPWE offices.

To activate a Tasmanian OWR, contact the Natural and Cultural Heritage Division (OWR) on (03) 6165 4396.

8.4 Waste Management

Only a near-shore MDO spill from a vessel collision or pipeline rupture are predicted to result in 'actionable' thresholds of shoreline hydrocarbon exposure. Responses to these scenarios, along with OWR, will result in waste generation.

During clean-up operations, the type and amount of waste generated will depend on the location and recovery method (Table 8.2).

Table 8.2. Waste volume calculation

Location	Hydrocarbon : Waste ratio	Comments
Offshore recovery	1:3	Inefficiency of recovery systems causing higher levels of water to oil ratio intake
Shoreline clean-up	1:10-20	Significant increase in waste volume due to collection of surrounding environment

In the event of a clean-up operation, temporary waste handling bases will be set up at designated staging areas. Staging locations will be determined in consultation with DJPR (EMB), AMOSC, DELWP and the waste management contractor.

Table 8.3 summarises packing, storing and disposal of different types of waste that Beach's EPA licensed waste contractor can support.

The transport of waste material may be required at sea, from sea-to-land and from land-to-land. Liquid transport trucks, flatbed trucks, dump trucks and gully suckers can be utilised to transport waste material through Beach's licensed waste contractor.

Table 8.3. Waste category, storage, disposal and treatment options

Waste category	Packing & temporary onsite storage	Disposal & treatment[5]
Oiled Liquids	Oil field tanks (fast tanks) IBC Tank trucks Livestock tanks Sealed oil drums Lined skips/pits[1]	Recovery and recycling Bioremediation/land farming[3] Incineration/land filling[2]
Oiled man-made materials	Lined skips Lined earthen pits or berms[1] Industrial waste bags Plastic trash bags Sealed-top drums	Recovery and recycling Incineration/land filling[2]
Oiled naturally occurring organic materials	Lined skips Lined earthen pits or berms[1] Industrial waste bags Plastic trash bags Sealed-Top drums	Recovery and recycling Bioremediation/land farming[3] Incineration/land filling[2]
Oiled dead wildlife/birds[4]	Industrial waste bags Plastic trash bags	Incineration/land filling[2]

1. Lined pits for the storage of oiled wastes cannot be constructed within a National Park due to the sensitivity of the location. The potential impacts on subterranean fauna and aquifers must be considered at all other locations.
2. Incineration and land filling will only occur at appropriately licensed waste disposal facilities
3. Suitable areas to be identified in consultation with local and state authorities.
4. Wildlife and birds are collected by those trained in wildlife recovery. All dead wildlife and birds must be segregated. Some wildlife carcasses may need to be retained for scientific purposes. DELWP (and/or DPIPWE) will provide direction if this is required.
5. Sorted by most preferred to least preferred method.

8.5 Performance Standards

Environmental performance outcomes and environmental performance standards for hydrocarbon spill response strategies are defined in Sections 7.18 and 7.19 of the BassGas Offshore Operations EP.

9 Environmental Monitoring

Beach's Offshore Victoria OSMP provides a framework for Beach's environmental monitoring response to Level 2 and Level 3 offshore hydrocarbon spills from activities in Bass Strait.

Oil spill monitoring is divided into two types:

- Operational monitoring (also known as Type I or response phase monitoring) – collects information about the spill and associated response activities to aid planning and decision making during the response or clean-up operations. Operational monitoring typically finishes when the spill response is terminated.

- Scientific monitoring (also known as Type II or recovery phase monitoring) – focuses on non-response objectives and evaluating environmental impact and recovery from the spill and response activities. Scientific monitoring may continue for extended periods after a spill response is terminated.

Operational monitoring studies may be implemented in conjunction with relevant response strategies as described in this OPEP (e.g., monitoring and evaluation, shoreline clean-up and OWR).

10 On-Going Response Preparedness and Exercises

10.1 OPEP Review

This OPEP will be reviewed and updated as follows:

- Annually;
- When major changes that affect the oil spill response coordination or capabilities have occurred;
- If routine testing identifies gaps;
- After an actual emergency; and
- If Beach's spill risk profile changes significantly due to additional activities or operations.

The review of the plan will consider external influences including:

- Changes to relevant legislation;
- Advice from the government relating to the conservation of listed species;
- Updates to State or Australian Marine Park management plans;
- Changes in fisheries management or other socio-economic features of the environment;
- New knowledge about the receiving environment in bioregional profiles or published scientific literature that may contribute to environmental baselines or data collection methods; and
- Change in State or Commonwealth oil spill response arrangements and resources.

10.2 Testing Arrangements

In accordance with Regulation 14 (8A)(8C) of the OPGGS(E) (Cth) and Regulation 17(3) of the OPGGS Regulations (Vic) the response arrangements within this OPEP will be tested:

- When they are introduced;
- When they are significantly amended;
- Not later than 12 months after the most recent test;
- If a new location for the activity is added to the EP after the response arrangements have been tested, and before the next test is conducted – testing the response arrangement in relation to the new location as soon as practicable after it is added to the plan; and
- If a facility becomes operational after the response arrangements have been tested and before the next test is conducted – testing the response arrangements in relation to the facility when it becomes operational.

The effectiveness of response arrangements will be measured by the performance standards detailed in Sections 7.18 and 7.19 of the BassGas Offshore Operations EP for each exercise type. Exercises will be documented, and corrective actions/recommendations tracked to closure.

A log shall be maintained during all oil pollution response exercises including a record of the effectiveness and timeliness of the response against the objectives of the exercise.

Where objectives are not met, or potential improvements have been identified during an exercise, these learnings shall be recorded and retained for inclusion into the subsequent revision of this OPEP.

Where significant deficiencies are identified in the effectiveness or timeliness of response arrangements as identified within this OPEP, this OPEP shall be updated within one month of the exercise to address the identified issues.

11 Training and Competency

All personnel who have been assigned Beach EMT roles (including alternates) are required to be conversant with their roles and associated responsibilities as defined within the EMP.

All personnel with specific roles or responsibilities within the Beach CEM Framework shall receive appropriate levels of training and ongoing development commensurate with the responsibility and associated accountabilities required of each EMT position.

A Crisis and Emergency Management Team Capability Matrix is updated by the Crisis, Emergency and Security (CES) Advisor and managed by the Senior Capability Advisor. A summary of oil spill training and competency requirements for CMT & EMT personnel is provided in Table 11.1.

Table 11.1. Training Requirements

Course Name	CMT– Specific Training	Individual OPEP / OSMP Awareness	Fundamentals of Emergency Management (EM), EMT role/responsibility training	Management (IMO L2)	Command & Control (IMO L3)	AIIMS process
Internal / External	Internal / External	Internal	Internal	External	External	Internal
CMT Members	✓					
EMT Leader		✓	✓			✓
EMT Production		✓	✓			
EMT Wells		✓	✓			
WET		✓	✓			
EMT Planning		✓	✓			
EMT Information Coordinator		✓	✓			
EMT Scribe		✓	✓			
EMT HSE		✓	✓	✓		
Oil Spill Response		✓	✓	✓	✓	
EMLO		✓	✓	✓	✓	✓
EMT Logistics		✓	✓			
EMT Human Resources		✓	✓			
EMT Communications		✓	✓			
Operations Manager			✓			
Yolla Production Manager			✓			
Yolla PIC			✓			

12 Record Keeping

All consultation correspondence, written reports (including monitoring, audit and review reports) such as emergency exercise logs used to record the effectiveness and timeliness of the response against the objectives of the exercise, or any other record relating to the environmental performance of this OPEP will be retained for a minimum of 5 years following the cessation of activities within the scope of this OPEP.

All records must be stored in a way that makes retrieval of the document or record reasonably practicable.

Appendix A Emergency Contacts Directory (Current as of September 2019)

A. 1. External Contacts

A. 1. 1 Regulatory Contacts

Regulator	Contact	Phone	E-Mail
AMSA	Marine oil pollution	1800 641 792	mdo@amsa.gov.au https://www.amsa.gov.au/about/contact-us
DoEE	Director of National Parks	02 6274 2220	
	Switchboard	02 6274 1111	
NOPSEMA	Emergency	08 6461 7090	submissions@nopsema.gov.au
NOPTA	Titles		titles@nopta.gov.au & info@nopta.gov.au
Vic DJPR	General	13 61 86	customer.service@ecodev.vic.gov.au
	State Duty Officer	0409 858 715 (24/7)	sccvic.sdo.dedjtr@scc.vic.gov.au & semdincidentroom@ecodev.vic.gov.au
Vic DELWP	State Control Centre	1300 134 444	sscviv.scmdr.delwp@scc.vic.gov.au
	Customer Service Centre	136186	
Vic Port of Portland	Duty Officer	(03) 5525 0999	
Vic Gippsland Ports	Duty Officer	(03) 5150 0500	
Tas DPIPWE	Pollution Hotline	+61 (0)3 6165 4599 or 1800 005 171 (within Tasmania only) Radio: TasPorts Vessel Traffic Services VHF radio channel 16/14/12 Call sign "relevant port name VTS"	incidentresponse@epa.tas.gov.au
	Whale Hotline	0427942537	
	Natural and Cultural Heritage (OWR) Division	(03) 6165 4396	Kathryn.Lambert@dpipwe.tas.gov.au

A. 1. 2 Responder Contacts

Responder	Function	Contact	Phone	E-Mail
Adagold Aviation Pty Ltd	Fixed-wing aviation support		1800 767 747	
AMOSC	Spill Response - all		0438 379 328	
AMSA	Spill Response - vessel		1 800 641 792	
Boots and Coots (Halliburton) (Australia, New Zealand, Papua New Guinea, Timor Leste)	Well Control Specialist	Level 27, 140 St. Georges Terrace Perth WA 6000 Australia	Perth: +61 8 9455 8300 or 24/7: +1-281-931-8884 or 1-800-BLOWOUT	
Bristow	Helicopter support		(03) 5991 9591	
Cudd Well Control (Houston)	Well Control Specialist	Headquarters: Cudd Well Control 2828 Technology Forest Blvd. The Woodlands, TX 77381	T: 713.849.2769 F: 713.849.3861	cwcinfo@cudd.com

A. 1. 3 OSMP Consultant Contacts

Consultant	Service	Contact	Phone	E-Mail
BMT	OSMP implementation	Level 4 20 Parkland Rd Osborne Park Western Australia 6017	+61 8 6163 4900	environment.env@bmtglobal.com
Cardno	OSMP implementation	Level 11 515 St Paul's Terrace Fortitude Valley QLD 4006	+61 (7) 3369 9822	
GHD	OSMP implementation	Level 10 999 Hay Street Perth, Western Australia 6000	+61 8 6222 8222	
RPS	OSTM		0408 477 196	response@apasa.com.au
RPS Australia West	OSMP Implementation Plan	27 – 31 Troode Street, West Perth, WA, 6005	+61 8 9211 1111	

A. 2. Internal Beach Contacts

A. 2. 1 Internal Beach Contacts

Contact / Function	Phone
CMT Leader	(03) 9411 2147 (via the NRC)
EMT Leader	(03) 9411 2147 (via the NRC)
Well Emergency Team Leader	(03) 9411 2147 (via the NRC)

Appendix B Spill Equipment and Resources (Current as of September 2019)

B. 1. Source Control Equipment – Well Control

A detailed description of available source control equipment and resources including deployment timeframes is detailed within the Beach Offshore Source Control Contingency Plan (SCCP) and well-specific relief well plans. A summary of these resources is provided below.

B. 1. 1 Well Control Specialists

Access to a range of source control equipment including equipment and personnel is available through 3rd party contracts with:

- Boots and Coots (Halliburton): https://www.halliburton.com/en-US/ps/project-management/well-control-prevention/well-control-prevention-services.html
- Cudd Well Control: http://www.cuddwellcontrol.com/

Contact details for these well control specialists are provided in Appendix A.

B. 1. 2 Drill Rig

Rig broker reports are used to monitor the rig market on a monthly basis and if required, assist in sourcing and contracting a suitable MODU. The rig broker can be contracted to identify and contract a suitably specified rig (including Australian Safety Case status) within 14 days. Mobilisation times from international ports has been factored into the relief well schedule within the RWP. More detail is available in the RWP (T-5100-35-MP-005).

B. 2. Maintenance Vessels & Vessels of Opportunity

Beach has contracts in place to support its Victorian offshore vessel requirements.

Contracts for BassGas operations are in place with a number of service providers that have gone through the Beach contracts and procurement process.

Over time, vessels and operating companies change in the region. Beach has a procurement process, contractor management process and contracting management system that is implemented prior to engaging vessels.

Any vessels used by Beach must carry a vessel SOPEP and Level 1 spill equipment on-board appropriate to the nature and scale of the vessel. Vessel crew must be fully trained and exercised in the application of the SOPEP.

Beach receives a monthly update of available vessels under an existing arrangement with a Vessel Broker. The availability and location of vessels capable of deploying the capping stack equipment, if suitable for the specific site, will be confirmed prior to spud of a relief well.

B. 3. Fixed Wing Aviation Support

Beach may call upon fixed wing aircraft for aerial surveillance in the event of a Level 2 or Level 3 spill. The need for this service will be determined by the EMT Leader during the incident response and as per the OPEP Part 2 of this OPEP.

Beach will engage fixed wing aircraft through their preferred supplier Adagold Aviation Pty Ltd who will act as an aviation broker and engage the most appropriate aircraft available.

Beach will supply the aviation provider with the relevant flight pattern and log sheet for the surveillance and any additional trained oil spill observers via arrangements with AMOSC.

B. 4. Helicopter Support

During an incident response, Beach may call upon helicopter services to undertake aerial surveillance assistance or transport personnel in an event of a Level 2 or 3 spill, with the requirement determined by the EMT Leader at the time of the incident.

Bristow is the current contractor for the provision of helicopter services for Beach's offshore activities. At least one helicopter will be available for use by Beach during a spill response. A helicopter will be located at either Tooradin or Warrnambool.

When drilling projects are in progress there may also be other Bristow helicopters located at Essendon and Warrnambool (depending on the drilling location). Beach and Bristow have a working arrangement for this service and tests the call out process as part of its emergency response test plan and schedule.

Beach will supply the helicopter provider with the relevant flight pattern and log sheet for the surveillance and trained oil spill observers via arrangements with AMOSC.

B. 5. Oiled Wildlife Response

Under the National Plan, Maritime Emergencies NSR Plan and TasPlan, the response to oiled wildlife from a vessel spill where a government agency is the Control Agency is covered in terms of responsibilities and equipment.

In Victoria, DELWP is the lead agency for wildlife impacted by marine pollution. The response procedures are defined in the Wildlife Response Plan for Marine Pollution Emergencies. This plan is incorporated as part of State Maritime Emergencies (non-search and rescue) Plan where an oil spill has occurred.

The Tasmanian WildPlan is administered by the Resource Management and Conservation Division of DPIPWE and outlines priorities and procedures for the rescue and rehabilitation of oiled wildlife.

Oiled wildlife kits are available through AMOSC, the national plan and state agencies. DELWP has a number of first strike kits as well as arrangements in place for triage and rehabilitation of small oiled seabirds. Wildlife rescue kits are held at the Hobart and Launceston DPIPWE offices.

AMOSC also has wildlife equipment which can be mobilised directly by Beach in the event of a spill where there is a likelihood of oiled wildlife requiring treatment. However, it is noted that the remoteness and typically rough sea conditions of Bass Strait and the logistic constraints associated with finding and collecting oiled wildlife at sea, will limit the feasibility of an offshore OWR.

Advice will be sought from AMOSC and regulatory agencies to guide any decisions regarding mounting a wildlife response will be based on the risks posed by the spill and safety and feasibility of a response.

B. 6. Government Resources

B. 6. 1 Australian Maritime Safety Authority

AMSA administers the NatPlan, which requires each State and Territory to produce its own contingency plans to support the national plan. If a spill occurs in Victorian or Tasmanian state waters the Maritime Emergencies (NSR) Plan or TasPlan is activated. If the spill is beyond the resources of the state agencies, then the additional resources can be sourced through agreements in the National plan for a marine pollution response.

B. 6. 2 Victorian DJPR Emergency Management Branch (EMB)

In the event of an MDO spill from a supply vessel near shore, the equipment within the respective port region will be utilised as per the Maritime Emergencies (NSR) Plan through Vic DJPR Emergency Management Branch (EMB).

In an event of a Level 2 or 3 incident, Vic DJPR, as per the Maritime Emergencies (NSR) Plan, may provide the following assistance as required:

- Provision of vessels and support to CFA/MFB for chemical spills in State Waters.
- Coordinate the supply of State equipment and personnel resources in support of the IMT.
- Coordinate provision of Victorian equipment and personnel for any interstate or Commonwealth response.

VIC DJPR EMB is updated with Beach's program changes as part of its consultation program and shall be provided a copy of the accepted OPEP.

B. 6. 3 Tasmanian DPIPWE

In the event of a spill from a vessel near shore, the equipment within the respective port will be utilised as per the TasPlan through Tas DPIPWE. This equipment may also be available to support a Level 2 or 3 spill where Beach is the Control Agency. Stockpiles of Level 1 equipment are located at Burnie, Devonport, Bell Bay and Hobart Ports and a current list of equipment is available from Tas DPIPWE.

B. 7. AMOSC Resources

AMOSC is supported by a core group of key personnel from oil industry members companies who are trained and regularly exercised in spill response. When called upon under arrangements established in AMOSPlan, Core Group Members are able to respond to an incident at short notice and provide a high level of expertise in leading teams on the ground responding to an incident. Core Group availability is updated monthly and can be obtained through AMOSC as required. AMOSC also holds large stockpiles of oil spill response equipment designed for both coastal and offshore use and has established contractual arrangements and processes for the mobilisation of equipment and personnel to assist with a spill anywhere in Australian waters. A list of the AMSOC available equipment can be obtained through AMOSC or the members-login section of their website.

AMOSC assistance may be sought in the event of a Level 2 or 3 spill. Beach's EMT Leader shall determine when and whether AMOSC notification and assistance will be required.

Under AMOSPlan, should the spill response require equipment or personnel from another company, the request for assistance is made directly by Beach to that company. AMOSC can assist in this dialogue through the Mutual Aid Policy, and Beach will contact AMOSC to activate the relevant Principal & Agency Agreement (of the lending company) and Mutual Aid Policy if borrowing resources.

AMOSC headquarters and their major equipment base are located in Geelong, adjacent to the Port of Geelong Corio Quay Supply base.

Beach ensures that AMSOC has a copy of the accepted BassGas Operations OPEP on file.

B. 8. Environmental Monitoring Resources

Beach has a Master Service Agreement in place with several recognised specialist environmental consultants capable of undertaking scientific monitoring. Beach will undertake audits/desktop reviews of the capabilities of these consultants to ensure that they are capable of meeting the requirements of this OPEP.

Annual reviews of contracts and service providers are completed by Beach to confirm they still meet the required standards and are able to provide the contracted services. If any existing contractors are deemed unsuitable, an equivalent service provider will be appointed. Should it be required (as determined by EMT Leader and HSE), the environmental consultant will undertake scientific sampling and analysis to fulfil the requirements of this monitoring program as detailed in the OSMP and OSMP Implementation Plans.

Appendix C Templates and Forms

Refer to the AMSA website for the latest forms:

- https://www.amsa.gov.au/
- https://www.amsa.gov.au/forms-and-publications/environment/
- https://www.amsa.gov.au/forms-and-publications/environment/publications/NP-Reports/index.asp

Forms from AMSA include:

- Marine Pollution Report (POLREP) – Appendix C.1.
- Marine Pollution Situation Report (SITREP) – Appendix C.2.

C. 1. Marine Pollution Report (POLREP)

Online via https://amsa-forms.nogginoca.com/public/ or manual below:

Marine Pollution Report (POLREP)

NOTE: Incidents to be reported are outlined on page 3

Send completed form to: **AMSA Environment Protection**
Fax: **(02) 6230 6868** Email: **rccaus@amsa.gov.au**

C.C.

Date of incident

Time of incident

Location name / Description

Incident coordinates

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

Description of incident

POLLUTION SOURCE

☐ Vessel ☐ Land ☐ Other ☐ Unknown Details

Vessel Details: Type (if known): ☐ Tanker ☐ Container ☐ Bulk Cargo ☐ Fishing ☐ Defence ☐ Recreational

☐ Other vessel type (specify): _____

Vessel name | Flag state / callsign | Australian vessel? ☐ Yes ☐ No

POLLUTANT

☐ **Oil** → ☐ Bilge ☐ Diesel bunker ☐ HFO Bunker ☐ Crude ☐ Unknown
☐ Other — Specify

☐ **Chemical** → Name | MARPOL Cat. / UN Nos

☐ **Garbage** →
☐ **Packaged** →
☐ **Sewage** →
☐ **Other** → Details / description

EXTENT

Size of spill (length & width in metres)

Amount of pollutant, if known (litres)

ADDITIONAL INFORMATION

Has the discharged stopped? ☐ Yes ☐ No ☐ Unknown
Response action undertaken? ☐ Yes ☐ No If yes, provide details below, please include any environmental impact

Weather conditions at site

☐ Photos taken ▶	Details	Held by
☐ Video taken ▶	Details	Held by
☐ Samples taken ▶	Description	Held by
☐ Items retrieved ▶	Description	Held by

Original report source

Name	Position	Phone

Combat agency

Statutory agency

Equipment used
☐ AMSA ☐ State / NT

Possible further action
☐ Legal ☐ AMSA assistance ☐ Other

SENDER DETAILS

Name	Agency	Date
Phone	Fax	Email

PRIVACY STATEMENT

The Australian Maritime Safety Authority (AMSA) is collecting the information on this form to enable it to carry out its role as managing agency of the National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances.

AMSA may give some or all of this information to other government bodies, non-government organisations who have responsibilities under the National Plan, and law enforcement agencies.

SUMMARY OF INCIDENTS TO BE REPORTED

All slicks, including deck washings, that can be seen trailing a vessel should be reported. The type of substance contained in the slick may not be able to be determined until further investigation has been undertaken by enforcement agencies.

REPORTABLE	NON-REPORTABLE
Oil - All slicks trailing from a vessel. All spills in the marine environment (notwithstanding the size or amount of oil or sheen). All spills where National Plan equipment is used in a response. *Note: If oil or sheen is "visible" then it is an illegal discharge MARPOL permitted oily discharges are at 15 parts of oil to one million parts of water (15ppm). Oil discharges at sea cannot be visually observed until at least 50ppm and even that may not be readily discernable depending upon the observation platform, sea state, weather conditions etc.*	• Coral spawning. • Algal bloom. • Oil spills specifically known to be from land sources (eg drains, road tanker accidents) and where there is no response using National Plan equipment or resources used. • Exploration/production associated discharges where there is no response and National Plan equipment or resources used. (these are reportable to the relevant authority eg: Mines Department or Department of Science Industry and Resources).
Chemicals – All sightings of slicks/discolourations trailing vessels. All odorous discharges from a vessel.	
Harmful Packaged Substances - All packages associated with a vessel.	
Sewage – All slicks seen trailing from a vessel.	
Garbage – All sightings of garbage being disposed from a vessel. Any type of garbage found that can be specifically tied to a specific vessel such as garbage with printing showing a vessel name (eg Quarantine bonded plastic bags with identifier tag).	• Dumping at sea that requires a permit (EPA or EA) • Dumped dredge spoil. • Floating logs.

C. 2. Marine Pollution Situation Report (SITREP)

Marine Pollution Situation Report (SITREP)

Incident name / Description	
Date	Time / Sitrep No
Priority	☐ Urgent ☐ Immediate
Final Sitrep?	☐ Yes ☐ No Next Sitrep on: .....
Description of incident and impact	
Overall weather conditions	
Summary of response actions to date	
Current Strategies	
Summary of Resources available/ deployed	
Other information	

SITREP prepared by

Name	Agency	Role
Phone	Fax	Email

Attachments		No of pages attached	

C. 3. Oil Spill Incident Report – Level 1 Spill

Date:		
Spill observer:		
Report time:		
Reported to:		
Location of the spill:		
Material spilled:		
Estimate of spill quantity and description of appearance of the slick:		
Particulars of damage caused as a result:		
Apparent source/cause of the spill:		
Action taken to control spill:		
Has spill been contained? (Tick✓) ❑ **Yes**❑ **No**		
Comments:		
Location	**Reported by**	**Reported to**
Time	**Date**	**Phone No**
Are additional resources required to disperse/contain spill:❑**Yes**❑**No**		

C. 4. Oil Spill Incident Report – Level 2 or 3 Spill

Date:			Report time:		
Spill observer:			Reported to:		
Time spill occurred:			Date spill occurred:		
Material spilled:			API gravity:		
Apparent source/cause:					
Location of spill:	Latitude:		Longitude:		
Is spill continuing?	Yes		No		
If yes, estimated rate of release:	cubic metres/day:		bbl/day:		
Volume of discharge: a) estimated	cubic metres:		bbls:		
Volume of discharge: b) known	cubic metres:		bbls:		
Size of spill: (plot on chart)					
Rate and direction of slick movement:					
Oil slick type:	Continuous:		Windows:		
Estimated average thickness:					
Estimated time to nearest threatened resource:	(hrs)				
Meteorological and Ocean Data					
Temperature:	Air:o C		Water:o C		
Wind speed:	knots		Direction:		
Precipitation:					
Forecast:					
Oceanographic Data	Tide state:	Direction:			
	Currents:	Speed:			
Direction:Sea state:	1	2	3	4	5 6+
Average wave height:	metres				
Period:	seconds				
Comments:					

C. 5. OSTM Request Form (RPS APASA)

OIL SPILL TRAJECTORY MODELLING REQUEST	Email completed form to RPS APASA response staff response@apasa.com.au After sending this request, phone Duty Officer on telephone number provided.

Priority of Request: ☐ **Urgent** ☐ **Exercise** Date and Time of Request:

Incident Name	
Name of requesting person and position in response	Contact telephone number
Email address for model output (preferred method)	Fax number for receipt of model output

Surface or Subsurface spill?	If subsurface spill, describe the spill source.
Surface ☐ Subsurface ☐ Depth of spill (m)	☐ Low Turbulence (eg. Low Pressure Pipeline Leak) ☐ Medium Turbulence (eg. Intermediate Pressure Pipeline Leak) ☐ High Turbulence (eg. Well Blowout under pressure, or ruptured pipeline under pressure)

Spill Start Date			Spill start time (use 24 hour clock, state time zone – GMT or Local)	Requested Simulation Length (hrs)
Day	Month	Year		

Oil Name:	Oil Type: *Bunker C, Diesel Fuel, Crude, Condensate*

Spill location (select one format)	Latitude of spill (N)	Longitude of spill (E)
Degrees, minutes & seconds	° ' "	° ' "
Degrees, minutes & decimal minutes	° . '	° . '
Degrees, minutes & decimal minutes	. °	. °
Easting & Northing (Zone)	S/N	E/W

Instantaneous spill ☐	Amount	(select one)	☐ Tonnes	☐ Cubic Metres	☐ Litres	☐ Barrels		
Continuous spill ☐	Duration (hours)	Amount (per hour)	☐ Tonnes	☐ Cubic Metres	☐ Litres	☐ Barrels		

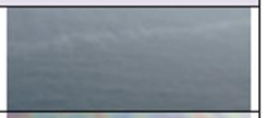
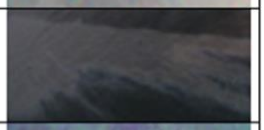
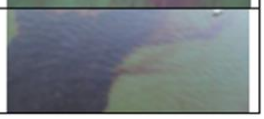
Present wind speed and directions, sea states and water temperatures (°C) at the site (if known):

NOTES (describe special details of the incident, special concerns, doubts about information etc.)

C. 6. Stand down of EMT Checklist

STAND DOWN CHECKLIST / ACTIONS	
KEY ACTIONS:	
The EMT Leader is responsible for assigning personnel to commence the collation of emergency data prior to the commencement of the investigation process. On-going resources for incident control and post incident recovery (if required) should also be considered by the EMT Leader, including current/potential business continuity aspects (per Beach Energy's Business Continuity Plan).	
Final information release and/or notification should occur to some, or all, of the following:	
• All Site ERT and support personnel	• All relevant EMT and support personnel
• Contractor Management	• Regulatory authorities
• Emergency Services	• Employees (off and on duty)
• Employees families/NOK	• Third Parties
• Suppliers and/or contractors	• Joint Venture Partners and customers
• Media	• Government support agencies
• Mutual aid	• Environmental agencies
• Trade unions	• Local community and pressure groups
Initial 'hot' debrief of all personnel to include:	
• A short report by all persons of the history of the incident and their responses; • Outstanding problems with health, safety and environment; • Recovery of production; • Technical information regarding Beach's ongoing operations; and • Emotional responses to what has happened.	
Then:	
• Close additional security arrangements • Finalise additional catering and other services • Continue counselling for those involved in the incident • Compile and file all documents relating to the response • Ensure that all log entries are signed and that all call records and Sit Rep's are signed off by the person who prepared the document • Arrange for full incident investigation and analysis • Approve/comment on incident debriefing reports and recommended actions	
Carry out an After-Action Review to ascertain effectiveness of:	
Incident callout	**Site ERT functions**
• Overall emergency response	• Interface with other EMT members
Recommend revision of Emergency Plans as required.	
Schedule time for After-Action Review and if required, full debrief on the incident.	

Appendix D Bonn Agreement Oil Appearance Code

Code	Description / Appearance	Layer Thickness Interval (Microns)	Litres per km^2	Typical Appearance
1	Sheen (silver / grey)	0.04-0.30	40-300	
2	Rainbow	0.30-5.0	300-5,000	
3	Metallic	5.0-50	5,000-50,000	
4	Discontinuous True Oil Colour	50-200	50,000-200,000	
5	Continuous True Oil Colour	>200	>200,000	

Appendix E Aerial Surveillance Observer Log – Oil Spill

Survey Details												
Date		Start time		End time		Observers						
Incident						Area of survey						
Aircraft Type		Call sign				Average altitude		Remote sensing used				
Weather Conditions												
Wind speed (knots)						Wind direction						
Cloud base (feet)						Visibility (Nm)						
Time high water						Current direction						
Time low water						Current speed (Nm)						
Slick Details												
Slick grid parameters by lat/long						Slick grid parameters by air speed				Slick grid dimensions		
Length Axis		Width Axis				Length Axis		Width Axis		Length	Nm	
Start Latitude		Start Latitude				Time (seconds)		Time (seconds)		Width	Nm	
Start Longitude		Start Longitude								Length	km	
End Latitude		End Latitude				Air Speed (Knots)		Air Speed (Knots)		Width	km	
End Longitude		End Longitude								Total Grid Area	km^2	

Code	Colour	%age cover observed		Total Grid Area		Area per oil code		Factor	Oil volume	
1	Silver		%		km^2		km^2	40 – 300L/km^2		L
2	Rainbow		%		km^2		km^2	300 – 5,000L/km^2		L
3	Metallic		%		km^2		km^2	5,000 – 50,000L/km^2		L
4	Discontinuous true oil colour		%		km^2		km^2	50,000 – 200,000L/km^2		L
5	Continuous true oil colour		%		km^2		km^2	>200,000L/km^2		L
Non shaded areas to be completed on flight. Shaded areas completed on return.								TOTAL		L

Appendix F Aerial Surveillance Observer Log – Marine Mammals

Date :	Survey #
Aircraft/Pilot:	Observers :
Blue Whale Study Contact:	Enquest Contact:
Survey Start Time:	Survey Finish Time:

Event#	Waypoint #	Event time [hh:mm]	Event Position [dd.mmm]	Description of sighting and marine mammal	No. of Marine Mammal(s)	Sterling Position [dd.mmm]
			. °S . °E			. °S . °E
			. °S . °E			. °S . °E
			. °S . °E			. °S . °E
			. °S . °E			. °S . °E
			. °S . °E			. °S . °E

Appendix G Shoreline Assessment

General Information			
Date	Dd/mm/yy:	Survey Time	From:To:
Weather	Sun / Cloud / Fog / Rain / Windy		
Location	Description:	LAT: LONG:	
Total Length	m		

Survey Team	
Name	Organisation

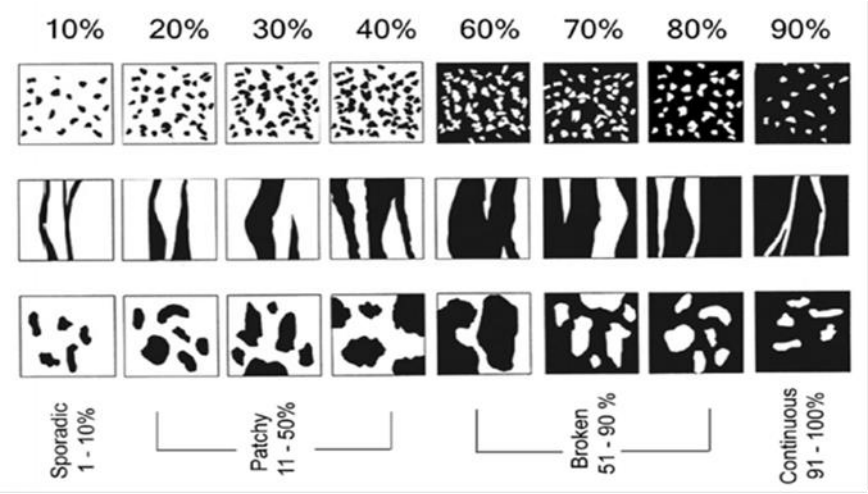
Shoreline Type			
Legend: P = Primary S = Secondary			
	Exposed Bedrock Cliff and Seawalls		Intertidal Mud/ Sand Flats
	Exposed Bedrock Platform or Reef		Mangroves
	Sheltered Bedrock Platform or Reef		Salt marshes
	Exposed Boulder/ Cobble and Rip rap		Seagrass (Shallow/Intertidal)
	Sheltered Boulder/ Cobble and Rip rap		Shallow/Intertidal Corals
	Pebble Beaches		Natural Inlets/ Channels
	Sand Beaches		Marinas/ Artificial Waterways

Operational Features	
Debris Present: Yes /No Amount: _____ m^3	
Direct Backshore Access: Yes / No	Access Restrictions:
Backshore cliff: Yes / No Height _____m	Suitable Lay down Area:Yes / No

Surface Oiling Conditions

Place an X in the appropriate box

Zone #	Tidal Zone				Oil Cover			Oil Thickness					Oil Character					
	L	M	U	S	Length	Width	Cover (%)	PO	CV	CT	ST	FL	FR	MS	TB	TP	SR	AP

Legend:	
Tidal Zone L = Lower Tidal M = Middle Tidal U = Upper Tidal S = Super Tidal	
Surface Oiling Thickness PO = Pooled Oil (fresh oil or mousse > 1 cm thick) CV = Cover (oil or mousse from >0.1 cm to <1 cm on any surface) CT = Coat (visible oil <0.1 cm, which can be scraped off with fingernail) ST = Stain (visible oil, which cannot be scraped off with fingernail) FL = Film (transparent or iridescent sheen or oily film)	**Surface Oiling Character** FR = Fresh Oil (unweathered, liquid oil) MS = Mousse (emulsified oil occurring over broad areas) TB = Tar balls (discrete accumulations of oil <10 cm in diameter) TP = Tar Patties (highly weathered oil, of tarry, nearly solid consistency) SR = Surface Oil Residue (non-cohesive, oiled surface sediments) AP = Asphalt Pavements (cohesive, heavily oiled surface sediments)
Distribution Guide (% Oil Cover)  	
Sketch	**Date:**

Checklist: (Place an X once completed)			
Oiled Area		Local Features	
Orientation (North)		Access	
Scale		Survey Area (Width/Length)	